Cooperative Learning

An Introduction to a
Secondary School

by

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Abstract

This dissertation is a record of a secondary school teacher's journey in professional study and practice. It explores the case for moving towards cooperative learning as the dominant pedagogy. While providing support for the change from the technical, competitive paradigm to this social model of classroom interaction, the study takes account of critical commentary.

The journey began as a quest for an inclusive model of classroom interaction, one which would facilitate the teaching and learning of students in heterogeneous class groups. As cooperative learning appeared to offer the most promise, it was investigated, using a list of questions among which were:

What is 'cooperative learning'?

What are its outcomes?

Why are they 'superior'?

What do its critics say?

Conducted in the light of practice, this study explains what is meant by the term 'cooperative learning'. As well as the presentation of the outcomes claimed for the model, there is detailed supporting evidence. This takes the form of explanations of the cognitive and social theories underpinning its principles. The views of critics of the approach, together with responses to the concerns they express, are included.

Study revealed that cooperative learning requires a different culture from that created by either the competitive or the individualistic patterns of interaction. Hence, an important part of the experience was the gathering of and the reflection on information for leading teachers and students in the construction of a collaborative environment supportive of the model. This comprises a vital and extensive section of the record. Following introduction to various schools of cooperative learning, specially designed delivery structures are presented. These are patterns of interaction, principally created for small groups, developed to use cognitive and social theories to advantage in student learning. A range of structures which may be used to facilitate learning across the disciplines is

described. Through their detailed examination, it becomes clear that cooperative learning is a highly sophisticated model of teaching and learning, one demanding much knowledge, skill, practice, reflection and collegial support. All of these, it is said, may take experienced teachers several years to develop. Cooperative learning is shown to be quite different from traditional 'group work'.

This record concludes with the story of the application of the learning on the cooperative approach in an actual classroom. This is expanded to tell of the beginning of its transfer to the whole school. The work in and through cooperative learning was such that colleagues, not initially interested in the philosophy, attended workshops where they were introduced to its ethos and experienced examples of its delivery structures. The final paragraph tells of strategies leading to the decision by all teachers at Reece High School to participate in a spaced, year-long professional development program designed to promote cooperative learning as the leading methodology.

Very much work in progress, the journey continues.

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Chapter 1

The Search for Teaching Strategies for the Heterogeneous Class

Introduction

The writer teaches at a secondary school with students from years seven to ten. In 1993, she expressed the belief that, particularly among the less academically successful, attempted homogeneous class grouping was a major factor effecting low self-esteem and disappointing motivation. This led to the conduct of a literature search for details of the outcomes of 'streaming', the organisation of teaching groups according to the perceived ability of students to succeed. As well as confirming the writer's view, the search brought to notice a critical elaboration: streaming is an unacceptable way of attempting to compensate for inadequate teaching methodologies.

Later in the year, when, as a whole, the staff of her school named low self-esteem and poor motivation of students as two of the group's most pressing concerns, the writer was encouraged in her quest for a pedagogy that would make streaming unnecessary. During this pursuit 'cooperative learning' was met. From introductions to the principles of and to the outcomes claimed for this pattern of classroom interaction came the decision to investigate it further. It was decided that if, in mixed ability classes, cooperative learning is a superior process for acquiring understandings, knowledge and skills, it warranted the investigation outlined in succeeding chapters.

Why was the search undertaken?

At the secondary school catering for students from year seven to year ten, where the writer teaches, 'streaming', attempted homogeneous organisation of class groups, is used widely. Convinced that this practice is undesirable, the writer undertook a literature search for information on the advantages and disadvantages of homogeneous ability grouping as compared with mixed ability grouping. She also recorded observations of the academic, social and personal effects of streaming on the students and on the teachers of the school (Yaxley, unpub.). The following is a summary of the conclusions reached as a result of the reading and observations.

Among other writers, critical theorists; such as Cornbleth (1990, p. 13), Vandenberg (1990, p. 135) and Apple (1979, p. 8); declared streaming socially unjust. They described the organisation as part of a technical paradigm which attempts to support the domination of the bulk of the population by those in power.

When the academic results of large cohorts of students were compared, there was no significant difference between those of young people who had been placed in streamed classes compared with those of youngsters who had been placed in mixed ability classes (Kelly 1975, p. 9; Elley 1984 p. 7; Oakes 1988, p. 42; Hamer & Watson 1990, pp. 4-8). The work of Hamer and Watson, in the writer's view, best represents the current state of the argument on the academic results of streamed classes compared with those of mixed ability classes:

> It can be said with some certainty that lower ability pupils do better academically if they are in mixed ability classes, and that the fears of the opponents of mixed ability, that the brightest pupils will be held back, have not been confirmed. Indeed, a couple of small studies... have concluded that non-streaming has a positive effect on performance at both ends of the ability range (Hamer & Watson 1990, pp. 5,6).

Of special significance was the noticeable improvement in the motivation and self-esteem of students enjoying the interaction of mixed ability classes. Here the writer's observations were supported by those of Oakes (1988, p. 43) and by those of Poppish (1990, pp. 25-27).

At the writer's school, it is the lack of enthusiasm, the resignation to their perceived lower status and the discipline problems of lower ability groups that drove her to search for alternative teaching strategies to try to address the problems. Among the staff many of the findings of the literature search (Yaxley, unpub.) on streaming were unpopular. As revealed by the search, a summary of the reasons for support of streaming follows. By teachers in many countries the strongest reason advanced for maintaining homogeneous classes is that *teachers* consider it the most efficient way of teaching students. With information and skill level aims pitched closely to their students' abilities, teachers believe there will be minimal discipline problems. This occurs because fewer students will be bored or become disruptive as an antidote to being made feel failures by their being unable to attain standards set. As well, they believe more learning will occur. Teachers at the writer's school fit the general model.

Lower-key, small group discussion with colleagues revealed that most did not wish to read papers which promoted mixed ability grouping. Many teachers whose views affect others expressed concern for the 'brighter' students who, according to them, would suffer academically in heterogeneous classes, and this point was all important.

After reading the writer's papers, the principal, who had also earlier expressed the view that, ideally, teaching groups should be heterogeneous, agreed that, on the evidence provided, the school should set the goal of presenting mixed ability classes as the norm. However, as the writer had already concluded, he warned that teachers would feel threatened by such a proposal. Their opposition would create friction. With stressful, government-initiated changes, including lower funding, making teachers' roles more difficult, the principal expressed the belief that the climate was not conducive to the expansion of potentially more successful but demanding class groupings. In view of these factors, she and the principal decided that the path to follow was attempting to find teaching strategies which would provide the staff with the tools to operate effectively in heterogeneous classes. These in hand, it was concluded that the staff would have the confidence to proceed. The principal and I were, in fact, agreeing with statements made by the Massachusetts Advocacy Center (1990) which produced an extensive paper, providing conclusions from research on the effects of streaming:

In this decade grouping is a teacher's way of compensating for inadequate teaching methodologies. If teachers were better practitioners of their profession, streaming would be unnecessary (Massachusetts Advocacy Center 1990, p. 112).

The writer was tempted to display the quote on the staffroom board. For a moment it was thought that the stance of the critical theorist, (Schubert 1989, pp. 28-30) drawing attention to weaknesses or wrongs in a thought-provoking manner, could effect change. But then she reminded herself that the already battered teaching psyche would be most antagonistic to what would be viewed as an attack from within.

Having decided that the critical approach was unacceptable, the writer reviewed the literature on the hermeneutic stance, believing this offered the best opportunity for progress. Schubert's description (1989, pp. 28-30) of the hermeneutic approach as being one that seeks understanding through 'sensitive' communication seemed to support the decision immediately. The hermeneutic theorists, he says, have a democratic view which leads them to seek excellence through interaction. They are active in seeking to provide alternatives, viewing their role as assisting to give change an acceptable face. Schubert stresses that they are not concerned with abstract ideas, but with those about the ways in which people interact. They are close to those who initiate change. Using the hermeneutic approach, the writer needed to try to introduce change through sensitive interaction. She had to discuss ideas, the subject matter of which answered teachers' questions, elaborating upon the responses in ways that introduced colleagues to improved teaching methodologies.

At her school the desire to be a better practitioner of the teaching profession is strong. Allowing the cry for more social justice, through making mixed ability classes the rule, to fade; that is, allowing the primary goal to be inconspicuous, the writer decided to focus on strategies which could be used in heterogeneous classes. They would be presented as superior teaching strategies, not as models for the successful teaching of mixed ability classes. These were strategies which had come to the fore during the search for information on comparisons between the outcomes of so-called homogeneous and heterogeneous classes.

The result of the writer's reading and reflection upon the critical and hermeneutic theories of learning supported the conclusions she and the principal had reached earlier: to achieve successful heterogeneous classes in the school, teachers would have to have improved teaching strategies. Not only would they require introductions to them, they would need to see the strategies modelled, have opportunities to practise them in concert with at least one peer, with whom there could be high quality reflection, and they would need to feel confident that their repertoire of teaching strategies was sufficiently wide to allow them to teach a mixed ability class effectively.

Why was cooperative learning selected?

The most detailed, thought-provoking document the writer studied during the literature search for information on the effects of attempted homogeneous grouping was entitled *Locked In/Locked Out, Tracking and Placement Practices in Boston Public Schools* (Massachusetts Advocacy Center 1990). This work cites and builds upon the extensive work of Jeanine Oakes in *Tracking: Can Schools Take a Different Route?* (1988). As well as declaring that 'tracking and ability grouping...do irreparable harm to children society has entrusted to public schools', the Center's document provides a synthesis of the 'best' research on the subject. This is introduced with: 'Mountains of research, unchallenged and uncontested, show that tracking and ability grouping practices are unsound educationally and clearly unnecessary to the proper administration of schools' (Massachusetts Advocacy Center 1990, p. 5). For the writer's purposes, though, the most important part of the work 'points the way to promising alternatives' to traditional teaching strategies. The chapter discussing these alternatives begins with the following passage in eye-catching print to draw attention to itself:

> De-tracking[1] cannot occur without changing the way schools organise what they teach, how they teach it and how they assess how well students have learned what we want them to know. Along with new models of instructional grouping, schools must introduce practices that provide a rich, high-content curriculum, instruction based on high expectations for all students, and a multi-faceted assessment of student progress that motivates students to make improvement over their 'last best effort' (Massachusetts Advocacy Center 1990, p. 120).

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[1] 'Detracking' is the elimination of a form of streaming, or of a process which places a group of students along a path where all study most or all of their subjects at a common level of difficulty.

There followed a list of 'alternative educational strategies' that had been 'developed, implemented and evaluated over the past decade to make rigid ability grouping unnecessary'. Among them was cooperative learning. After reading the detailed information on each of the 'new' strategies within the document, and following this with extended reading and reflection involving other sources, it was decided to focus on cooperative learning for a number of reasons:

1. Most of the other alternatives listed in *Locked In/Locked Out* - 'curriculum organised around themes and concepts and emphasising critical thinking behaviours over basic, low-level skills; accelerated learning; cross-age tutoring; peer tutoring; and multiage classrooms' (Massachusetts Advocacy Center 1990, p. 120) seemed to be parts of subsets of cooperative learning.

2. On cooperative learning there were recent publications from several parts of the world: Israel, Canada, USA and Australia. These covered the theory supporting the model, research, and details of a variety of individual strategies belonging to the model.

3. That students should learn to work cooperatively in small groups is a requirement of every official course at the writer's school. The present basis of the written curriculum is set out in a series each of which is entitled *Tasmanian Certificate of Education Subject Handbook* (The Schools Board of Tasmania 1994). This contains guidelines for the selection of subject matter, methodology and prescriptive criteria for the assessment of all Year 9 and 10 students. In every course, from Art and Mathematics to English, is the criterion: *Works cooperatively in a group.*

As well, under the heading, *Teaching Methodology*, it is suggested that small group learning be the preferred approach. The following is a quote from the *English* section which most affects the writer:

> The syllabus suggests the adoption of a workshop approach in which cooperative learning and negotiated activities are features of the classroom. A heterogeneous classroom, in which a wide variety of resources, activities and teaching methods is used, with emphasis on small group work and collaborative learning... (The Schools Board of Tasmania 1994, Tasmanian Certificate of Education Subject Handbook - English - pp. 4,5).

In practice, most teachers at the writer's school feel uncomfortable with group work. For them the term 'cooperative learning' has a wide meaning, not one which is specific to a highly structured set of teaching strategies. From discussions with teachers, the view that most consider that their class group work is inefficient was gained. With these facts in mind, it appeared that the staff would be ready to accept a model which promises order and progress.

4. Looking to 1996, when the National Profiles and Curriculum documents (Australian Curriculum Cooperation 1994) will begin to influence the curriculum of the first year students, it is to be noted that the focus is on individual student outcomes rather than on pedagogy. However, under the heading 'key assumptions' is:

> Teachers adopt sound pedagogical principles in their teaching (Australian Curriculum Corporation, English-A Curriculum Profile 1994, p. 3).

These documents have been developed from philosophy expressed by the *Common and Agreed National Goals for Schooling in Australia* (Australian Curriculum Corporation, English-A Curriculum Profile 1994, pp. 46-47) which includes:

> 2. To enable all students to achieve high standards of learning and to develop self-confidence, optimism, high self-esteem, respect for others, and achievement of personal excellence.
>
> 3. To promote equality of educational opportunities and to provide for groups with special learning requirements.

From the statement of the second goal it is clear that it is intended that teaching and learning models will encourage the motivation and 'personal excellence' of *all* students. This interpretation is supported by its being elaborated upon in the third statement which calls for 'equality of educational opportunities' and provision for 'groups with special learning requirements'. This is to be done while maintaining 'respect for others'. Streaming, with its inbuilt academic advantages for the already advantaged (Elley 1986, p. 7), and its automatic assigning of low academic status to those in small, special classes for those with learning difficulties, is not going to encourage either equality or 'respect for others' (Kelly 1975, p. 5).

5. In the district the enrolment of secondary students at the school for those with specific learning difficulties is being substantially reduced. This is in accordance with the state

policy of *Inclusion* (Department of Education and the Arts Planning Branch 1995). Thus, the number of especially slower learning students attending the writer's school is being increased. Part of *Inclusion* is the desire to have such students included in mixed ability classes. The current principal has declared that this policy will be implemented in full. Therefore, to enable them to teach effectively, there is an incentive for teachers to look at strategies which are said to facilitate the teaching and learning in heterogeneous classes.

6. Several of the individual cooperative learning strategies are such that they could readily capture the interest of experienced teachers who are open to more effective teaching models. The strategies, while requiring considerable planning by the teacher, emphasise student activity. They facilitate organised student interaction, the introduction and acceptance of challenge, and the use of assessment procedures which lead to improved teaching and learning. The writer considered that these features could lead to promising exploration, more professional development and to the acceptance of cooperative learning as one of the major, if not the most important, strategy.

7. Although *Locked In/Locked Out* (Massachusetts Advocacy Center 1990, p. 126) described each of its alternative strategies in detail, cooperative learning was written in the most glowing terms. It was said to be 'particularly promising' and to 'build upon the social instincts of children and adolescents'. The document suggested that students would find the use of cooperative learning more of a pleasure than traditional 'seat work'. It was concluded that if youngsters enjoyed their classroom activities, they would achieve more.

8. As well, *Locked In/Locked Out* gave an impressive list of what it claimed were 'documented cognitive and affective benefits' of cooperative learning:

   - Higher achievement for all students, but especially for the most vulnerable;
   - Greater use of higher-level reasoning;
   - More on-task behaviour and increased motivation and persistence in completing a task;
   - Greater peer interaction, teamwork, and development of collaborative skills;
   - Better attitudes toward school, peers, and teachers;

- Higher personal and academic self-esteem;

- More positive relationships among students of various races or ethnicities and between handicapped students and their nonhandicapped peers;

- Reduction of the importance of intergroup distinctions, less stereotyping, and more complex perceptions of members of other groups.

The list of claimed benefits of cooperative learning appears too promising, and it is to be noted that its authors quickly add that the strategies do not provide a 'panacea' for all the ills of education. As well, they stress that the gaining of the rewards of this set of models relies heavily on the knowledge, skill and sensitivity of the teacher. Special comment is made about the teacher's need to prepare students:

> Successful implementation of cooperative learning strategies requires significant teacher preparation in orienting students to the new types of classroom procedures and in the teaching of cooperative skills to the students.

9. Finally, cooperative learning was selected because it was considered that it offered the best possibility of addressing two of the three most pressing problems of the writer's school. At a whole staff meeting in September 1993, given the task of identifying the features of the school which most concerned teachers, these were listed:

a) Large class sizes,

b) Low self-esteem and poor motivation of average and slow-learning students,

c) Lack of social skills among students.

None of the points has been addressed. In fact, all have been exacerbated. The number of students receiving Loan Issue, that is, the number having their books and fees paid for by government funds, increased to an all-time-high of 47% in 1995. Although low socio-economic status is not necessarily correlated with the second and third points, the students with these problems come, in the main, from the families receiving welfare payments. Critical theorists, such as Apple, (1979, p. 8) tell us that this, especially in the secondary school, is not surprising. As it operates, our system of education is dominated by the capitalist technical paradigm, which Apple claims leads to schools stratifying students to 'fill the ongoing division of labour in societies'. He adds that students in less demanding courses are being prepared for positions with lower status and lower monetary reward. It is not surprising then that, having been labelled as less deserving, they have lower self-esteem and they are poorly motivated.

To address the problems in the writer's school a democratic view is needed and the two paradigms which are allied with this view are the critical and the hermeneutic. Cooperative learning is hermeneutic and democratic. In focusing on the interaction of students, who are encouraged to view one another as fulfilling roles of equal importance, this set of teaching strategies should enhance students' self-esteem and their motivation to learn as *Locked In/Locked Out* claims (See p. 8.).

The writer recognises that, if she is to have any significant effect on the students of her school, she must act in collaboration with her peers. She sees that society has and will continue to advance if people work together, respecting the status of each person because each has a role to play. Hence, in coming to know that she will try to introduce cooperative learning to the staff in her school, she has placed stress on points which she believes will encourage her colleagues to be ready to embrace the set of strategies.

However, apart from being able to convince her colleagues that cooperative learning is worthy of adoption because the implementation of the model will address their immediate problems, the writer has to be as certain as possible that the project is a worthy one. In other words, relative to other intentions, is it of significant educational value? The introduction of cooperative learning would involve the school in the expenditure of a significant fraction of scarce professional development resources. As well, many hours of precious teacher study and preparation time, plus exploration with students, to tailor individual strategies to class and teacher, and teacher collaboration in assessment and improvement of strategies would be required.

Interest in cooperative learning grew from the issue of whether students should be grouped heterogeneously instead of homogeneously. The writer defends her position in favour of mixed ability classes, elaborating upon the view that to group students according to their perceived ability is socially unjust. She supports the claim that streaming is morally and educationally undesirable.

If, as *Locked In/Locked Out* (Massachusetts Advocacy Center 1990) claims, cooperative learning strategies facilitate the effective teaching of mixed ability classes, to use them would appear to be a morally and educationally defensible position. Looking at

cooperative learning alone, where does the model stand? Apart from the claim that it makes ability grouping unnecessary (Massachusetts Advocacy Center 1990, p. 120), it is said to enhance the academic learning of all students, increase motivation together with self-esteem, academic and personal, and develop more positive relationships among students (Massachusetts Advocacy Center 1990, p. 126).

Vandenberg's *Education as a Human Right* (1990, p. 65) may assist with an evaluation of the writer's decision to research and explore the most promising inclusive model of education she has encountered: '...we know that it is always good to promote the greatest happiness of the greatest number when it does not occur at the expense of the minority (i.e., when it excludes no-one) and when it is compatible with human dignity.'

Vandenberg, (1990, p. 92) then, argues that no-one should be excluded. Could it be said that he argues against ability grouping, which is essentially an exclusion process? More interestingly, he brings to the fore the importance of human dignity: 'The right thing is to maintain and enhance the human dignity in oneself and others, guided by the fundamental human rights to...equal consideration, and brotherly/sisterly love.' Could it also be said that he encourages the conclusion that it is an affront to a student's dignity to relegate him/her to a low status group?

Elaborating, Vandenberg (1990, p. 85) says that if students are to value one another equally, teachers must do so, too: 'Students are unlikely to value each other, however, unless the teacher values all individuals for their own value and dignity.' The cooperative learning practice of placing students, initially, into classes and, secondly, into small groups where all are of equal status is to help students value all members of their community.

Returning to the issue of human dignity, Vandenberg (1990, p. 85) strengthens the case for its maintenance and support within the classroom by saying: 'We can know right from wrong, and morality itself by its compatibility with human dignity.' Further, he ties morality itself to self-esteem and to human dignity: 'It is self-esteem and self-respect that oblige one to choose qualitatively superior pleasures, not because they are superior but because they are more in accord with human dignity' (Vandenberg 1990, p. 67).

Conclusion

If inclusion, self-esteem and respect for others are elements which support the maintenance of human dignity, and if it is right to 'maintain and enhance' human dignity; to explore a teaching and learning model with the three elements would appear to be supported by Vandenberg. Should cooperative learning, then, contain these elements and therefore support human dignity, to investigate this concept further would appear to be a morally and educationally valuable intention.

Chapter 2

What is Cooperative Learning?

Cooperative learning is one of the three patterns of classroom interaction: competitive, individualistic and cooperative. It differs from the one that has been used most widely in Tasmanian secondary schools, the competitive, in that within this model it is student action rather than teacher action upon which focus is put. Student activity, including students tutoring one another, is at the forefront. Young people work collaboratively in small, heterogeneous groups where they strive to ensure that all members gain mastery. To achieve this demands much knowledge, understanding and experience of teachers.

As well as elaborating upon this explanation of cooperative learning, this chapter begins to account for the success of the model. To assist with these tasks, comparisons among this and the other two patterns of classroom interaction are made. Finally, the history of cooperative learning is traced. It is noted that recent renewed interest in its philosophy has led to considerable development of this pedagogy in many centres around the world, including those in Israel, Canada, the United States and Australia.

What is meant by 'cooperative learning'?

> There was once a time when it was taken for granted that a quiet class was a learning class, when principals walked down the hall expecting to hear a pin drop. Today, however, many schools are using programs that foster the hum of voices in classrooms. The programs, called *cooperative learning*, encourage students to discuss, debate, disagree and ultimately teach one another (Slavin 1991, p. 71).

Contrast! With the above paragraph, Robert Slavin used this powerful tool most effectively to introduce cooperative learning. His paragraph brings to the fore the two inter-related, outstanding elements which distinguish this set of teaching models or instructional strategies;

- Student activity,

- Student tutoring.

Slavin of The Johns Hopkins University not only published a synthesis of research on cooperative learning, he also conducted his own. The work of another researcher and practitioner of cooperative learning, Kohn (1991, pp. 83-87, 93, 94), who engages in what he terms constructive controversies (or, less charitably, factional disputes) with Slavin, on this occasion may be used to stress the importance of the latter's 'students...teach one another': 'Everyone in the field agrees that students benefit when they can help each other learn instead of having to work against each other or apart from each other;...' (Kohn 1991, p. 83).

Kohn not only draws attention to the peer tutoring element of cooperative learning, he brings together the three patterns of student interaction which may exist in classrooms: cooperative, competitive, and individualistic. Johnson and Johnson (1991, p. 2) elaborate on these patterns in turn:

> In every classroom, no matter what the subject area or age of students, teachers may structure lessons so that students -.
>
> 1. Work collaboratively in small groups ensuring that all members master the assigned material OR
>
> 2. Engage in a win-lose struggle to see who is best OR
>
> 3. Work independently on their own learning goals at their own pace and in their own space to achieve a preset criterion of excellence.

Apart from being one of the three forms of classroom interaction, the one which involves a great deal of communication among students as they tutor one another; what are the other salient features of cooperative learning? Many are included in the following quote from Johnson and Johnson who have been strong advocates and practitioners of the strategies as well as noted writers of texts on them. The authors begin by defining 'cooperation' and then place it in the classroom context:

> *Cooperation* is working together to accomplish shared goals. It is the use of small groups so that individuals work together to maximize their own and each other's productivity and achievement. Thus an individual seeks an outcome that is beneficial to him or herself *and* beneficial to all other group members. In cooperative situations, individuals perceive that they can reach their goals only if the other group members also do…individuals discuss their work, help and assist each other, and encourage each other to work hard.
>
> Teachers can structure lessons cooperatively so that students work together to accomplish shared goals. Students are assigned to small groups and instructed to learn the assigned material and to make sure that other members of the group also master the assignment. Individual performance is checked regularly to ensure all students are learning. A criteria-referenced evaluation system is used. Students discuss material with each other, help one another understand it, and encourage each other to work hard. In a cooperatively structured class heterogeneous small groups made up of one high-,one medium-, and one low-ability student would be formed. The students are given three tasks; to learn the assigned material, to make sure the other members of their group have learned the assigned material, and to make sure that everyone in the class has learned the assigned material. While students work on assignments, they discuss the material with the other members of their group, explaining how to complete the work, listening to each other's explanations, encouraging each other to understand the solutions and providing academic help and assistance (Johnson & Johnson 1991, p. 6).

As the Johnson text, *Learning Together and Alone,* from where the quote is taken, is about the three different patterns of classroom interaction, the description of cooperative learning written is to distinguish it from other forms of interaction. The aim of the text is to show how important cooperative learning is, placing it at the centre of teaching, but giving competitive and individualistic interaction their roles.

> Knowing how and when to structure students' learning goals cooperatively, competitively, or individualistically is an essential instructional skill all teachers need….An effective teacher will use all three appropriately. It may not be easy to do so because teacher training has by and large neglected appropriate utilization of student-student interaction (Johnson & Johnson 1991, p. 2).

In carefully describing the student action of cooperative learning, the authors use the context of one particular group of strategies, the simplest one. While the elements are related in a manner which enables the novice to understand readily, the overall impression is misleading. The model, contrary to the impression given here, is varied,

with experienced teachers being most excited by the open-ended strategy subsets of cooperative learning.

Nevertheless, it was a strategy, which precisely fitted the Johnson description, that the writer used first and which she introduced to a group of her colleagues. Both events were successful, leading to experience with other subsets of strategies that encouraged the development of students' critical-thinking skills.

Just as the Johnson and Johnson (1991) description of cooperative learning is not adequate as a definition, because it fails to include some aspects and suggests that features of one set are true of the whole; so are others inadequate. Slavin (1991) begins in a promising manner, alerting the reader to the fact that there is a variety of ways of achieving the model. He then restricts the description by suggesting that through these strategies students 'learn academic material'. Later, he rescues his description to some degree with: ...'sometimes cooperative methods require students to find out or discover information on their own'. Many advocates of the model would declare this element critical to their success. Complete, the Slavin description says:

> There are many different forms of cooperative learning but all of them involve having students work in small groups or teams to help one another learn academic material. Cooperative learning usually supplements the teacher's instruction by giving students the opportunity to discuss information or practise skills originally presented by the teacher; sometimes cooperative methods require students to find or discover information on their own. Cooperative learning has been used - and investigated - in every imaginable subject in grades 2-12, and is increasingly used in college (Slavin 1991, pp. 71, 72).

In the Johnson description of cooperative learning, the word, teacher, is mentioned at the beginning and not again, perhaps giving the impression that, when these strategies are used, the teacher's role is not great, or that his/her work is largely just in planning before the students begin. Nothing could be farther from the reality. With 'Cooperative learning usually supplements the teacher's instruction', Slavin places the teacher firmly back in the picture, but his sentence does not devalue the importance of student tutoring, of student talk or of student introduction of topics to be investigated.

Later in their writing the Johnsons, too, make it clear that cooperative learning demands much of the teacher, more than the other modes of interaction:

> Cooperation is the most powerful of the three ways to structure learning situations....It is also the most complex to implement. Besides knowing what cooperative learning is, teachers have to understand the various types of cooperative learning...and the essential elements...that make cooperation work (Johnson & Johnson 1991, p. 27).

The importance of the role of the teacher, and the need for the teacher to be knowledgeable and skilful about cooperative learning in order to implement and develop the interaction, is emphasised when the Johnsons declare:

> One of the things we have been told many times by teachers who have mastered these integrated cooperative learning groups into their teaching is, 'Don't say it is easy!' We know it is not. It can take years to become an expert (Johnson & Johnson 1991, p. 77).

Following their description of cooperative learning two Australian educators, Wilson and Egeberg, (1990) also stress that the teacher's role is important. Their long list comprising the teacher's role indicates why it takes considerable time for the teacher to become proficient.

> Cooperative learning is when small groups of students work together in a supportive environment where they can learn from each other. Group members have joint responsibility for the product or outcome, they have common goals/tasks, they share resources and practise and monitor their own social skills.
>
> However, this does not mean that the teacher's role is less important. It is vital that the teacher is able to:
>
> - introduce and allow time for the development of cooperative skills;
> - create a working environment that allows for risk-taking and trust;
> - provide clear goals, resources, timelines, and expectations;
> - demonstrate the importance and advantages of cooperative learning;
> - slowly introduce social and problem-solving skills and strategies;
> - give positive and specific feedback to students;
> - constantly revise and reinforce skills;
> - choose activities that are challenging, open-ended, that develop specific skills and allow for an appreciation of viewpoints.

The Australian introduction notes that, when cooperative learning strategies are being used, students are expected to learn 'from' as well as 'with' one another. It also says that students are to have shared goals/tasks for which 'group members have joint responsibility' when outcomes are considered. Collaboration among students and between students and teacher is foremost. This introduction also tells the reader that the

great facilitators of collaboration, social skills, are to be taught, practised, reviewed and improved upon.

Cooperative learning has five basic elements. In naming the elements, Wilson and Egberg accompany their list with brief elaborations of each. Their work is based on that of Johnson and Johnson who introduced the elements and later provided a detailed chapter on them in *Learning Together and Alone* (1975, 1st ed.).

1. Face-to-face interaction

Group members are in close proximity and they are encouraged to engage in constructive dialogue.

2. Individual accountability

Every member of the group is responsible for demonstrating personal accomplishment.

3. Positive interdependence

Teachers foster students' commitment to work together in the accomplishment of a common goal. All individuals must succeed.

4. Social skills

Human interaction skills enhance communication, trust, leadership, decision-making and conflict management. Facilitators of effective group functioning, social skills, are identified and practised.

5. Processing

Students are led to evaluate their social and academic learning as well as their general group functioning together with assessment methods and outcomes. To achieve increased satisfaction and better performance, reflection to bring into view weaknesses and possible alternatives, that include inviting risk-taking, is encouraged (Wilson & Egeberg 1990).

As indicated by the contributors to the descriptions of cooperative learning, at the heart of these teaching and learning strategies is the student who learns with and from his/her peers. However, the introduction of cooperative learning asks much of teachers for the skills required of them are complex and demanding, as are those which they wish to assist students gain. According to Johnson and Johnson (1994, p. 250), the successful implementation of cooperative learning requires considerable professional development; careful planning; experimentation and practice in short bursts, which are lengthened over a three-year period; and constant reflection with collaboration and revision to refine the processes.

Why is cooperative learning considered powerful?

The Johnsons (1991, p. 27) describe cooperative learning as 'the most powerful of the three ways to structure learning situations'. In which ways is this set of strategies said to be 'powerful'? First, the academic achievements of students in classrooms where cooperative learning dominates are high:

> More than 375 studies during the past 90 years have attempted to find the answer. [Question: How successful are competitive, individualistic, and cooperative efforts in promoting achievement?] When all of the studies were included in the analysis, the average cooperator performed at about two-thirds of a standard deviation above average student learning within a competitive situation (effect size = 0.66) or an individualistic situation (effect size = 0.63). When only the high-quality studies were included in the analysis, the effect sizes were 0.86 and 0.59 respectively. Cooperative learning, furthermore, resulted in more higher-level reasoning, more frequent generation of new ideas and solutions (i.e., process gain), and greater transfer of what is learned within one situation to another (i.e., group-to-individual transfer) than did competitive or individualistic learning (Johnson & Johnson 1991, p. 39).

There are other, some would consider, more valuable rewards than higher academic achievement which result from cooperative learning. For example, student self-esteem is enhanced by the use of these strategies (Sharan 1990, p. 126), and this, like other gains, has a positive effect on student achievement.

So, there is clear evidence of a number of important, positive outcomes of cooperative learning. Many, practitioners, among them Spencer Kagan, (1994, pp. 32-36) have provided outlines of 'possible causes for observed gains in cooperative learning'. These, such as the cognitive theory for the gains of peer tutoring, are associated with the structures of the interaction within the strategies. The Johnsons say that the underlying power of this goal structure lies within mankind's bond with cooperation. They believe that the 'human species seems to have a cooperation imperative'.

> We desire and seek out opportunities to operate jointly with others to achieve mutual goals. We are attached to others through a variety of 'lifelines', and we alternate supporting and leading others to ensure a better life for ourselves, our colleagues and neighbors, our children, and all generations to follow...Each day...we cooperate within family, work, leisure, and community by working jointly to achieve mutual goals.

> Throughout history, people have come together to (1) accomplish feats that any one of them could not achieve alone and (2) share their joys and sorrows. From conceiving a child to sending a rocket to the moon, our successes require cooperation among individuals (Johnson & Johnson 1991, pp. 1-9).

Continuing with their argument, the Johnsons point out that 'biologically, we are cooperative beings', and that 'cooperation is the heart of family life' as well as at the centre of all economic and legal systems. They also declare that 'cooperation is the key to our evolution as a species....humans survive by their ability to "work together to get the job done". Cooperation,' they state, 'is the heart of the world wide community...as, for example, major problems faced by individuals (e.g., contamination of the environment...) are increasingly ones that cannot be solved by actions taken only at the national level' (Johnson & Johnson 1991, pp. 7-8).

The Johnsons say that we are biologically programmed to cooperate. They add that we 'desire and seek out opportunities to cooperate'. Do they, then, conclude that part of the biological pattern is the programming of the human psyche to cooperate? The writer suggests that the human urge to cooperate is the product of a combination of factors: as we are innately gregarious and wishing to be in control (Donaldson 1978, p. 52), the intellect drives us to cooperation as it is the best facilitator of our pleasure and control.

The conclusions of the four academics; Slavin, the Johnsons and Kagan; may, as they are keen promoters of cooperative learning, be questioned. To turn to a source which could be considered more objective, the writer consulted Joyce and Weil's *Models of Teaching* (1986), an analysis of pedagogy which hopes to draw teachers towards serious reflection on their craft. It addresses the question of the power of cooperative learning:

> When we work together we generate a collective energy that we call "synergy". The social models of teaching are constructed to take advantage of this phenomenon. A number of recent studies have put the thesis of the family to the test....The general message is affirmative: Cooperative study helps many kinds of learning...But synergy pays off, and the social models are an important part of our learning repertoires (Joyce & Weil 1986, p. 9).

Adams and Hamm in their much later *New Designs for Teaching and Learning* (1994, p. 43) perhaps account for the special quality of cooperative learning very simply: 'Collaboration produces these results because effective learning is largely a social and often informal activity.' In continuing to comment on the model's influence on learning, they state: 'Cooperative learning works because it promotes interaction through face-to-face communication, and interaction is vital not only in acquiring knowledge but also in developing critical thinking skills' (Adams & Hamm 1994, p. 46).

Why have more traditional teaching and learning structures dominated?

When to cooperate is the most successful mode of classroom interaction (See p. 17.), and when the power behind cooperation's superiority is well explained (See pp. 17, 18.), why is cooperative learning not more widespread? Johnson and Johnson (1991, p. 14) say that competitive and, to a lesser extent, individualistic structures have dominated education in the United States for the past half-century. The writer's experience and observation tell her that this has been the case in Tasmania for at least this period, with anecdotal evidence placing the situation back to early in the century. To begin to account for the situation, a look at the competitive and individualistic patterns of interaction would seem to be of value. The dominance of competition, in which 'students often experience classroom life as a "rat-race", with the psychology of the 100-yard dash' (Johnson & Johnson, 1991, p. 14), is shown by the use of the adjective 'traditional' to describe the classroom where the principal teaching and learning method is competitive.

The Competitive Model

In the writer's traditional school, whole class instruction by the teacher, followed by student practice and correction, is the major teaching model. Behaviourist theory, which was most highly developed by B. F. Skinner (1953), is the strongest influence. In behaviourism the key ideas relate to the stimulus-response-reinforcement paradigm in which human action is thought to be under the control of the external environment (Joyce & Weil, 1986, p. 313). After noting that a large number of teaching models has been developed or borrowed from behaviour theory, Joyce and Weil (1986, pp. 397-407), in their quest to provide teachers with a wider repertoire of ways of approaching their craft, describe four. Among these is *direct instruction,* and it is in this strategy which dominates in the writer's school.

Direct instruction refers to a pattern of teaching which consists of the teacher's exploring a new concept or skill with a large group of students, having them test their understanding by practising under teacher direction, and encouraging them to continue to

practise at their seats under teacher guidance. Teacher explanation, teacher guided student recitation, and student seat work, together with teacher feedback to facilitate student modification of learning, are considered desirable elements of direct instruction. In the average classroom students spend between 50 percent and 75 percent of their time working alone on seat work (Joyce & Weil 1986, pp. 327-330).

Although for the writer and her colleagues the results of direct instruction, student curriculum learning, are supposedly assessed using criterion-referenced systems, (See p. 36.) competition, not personal progress, rules. Joyce and Weil (1986, p. 18) warn that working in a competitive atmosphere may alienate people from one another, and this is the case. Johnson and Johnson (1994, pp. 159-160) tell of this alienation in the following manner.

> In the traditional competitive classroom the purpose of classroom evaluation is to rank students from the 'best' to the 'worst' in order to separate wheat from the chaff. In most classrooms, fairly stable patterns of achievement exist, so that the majority of students always lose and a few students always win. Thus a student may spend twelve years in public schools being confronted daily with the fact that he is a 'loser'. If a student desires to 'win', the daily frustration of failing may be a concomitant of schooling. A sense of helplessness, worthlessness, and incompetence may result from such a situation. 'Losers' in a competitive learning situation tend to perceive their learning experiences as boring, unfair, and not fun, and perceive themselves negatively (Crockenberg, Bryant & Wilce, 1976). Atkinson (1965) predicted from his theory of achievement motivation that students who chronically experience failure will become primarily oriented towards avoiding failure (thus becoming non-achievement-orientated). Failure, furthermore, reduces the attraction students feel towards classmates (Ashmore, 1970; Balnchard, Adelman, & Cook, 1975).

Glasser's (1986, pp. 76-78) description of the traditional classroom, which he says is supported by belief in the 'stimulus-response theory of human behaviour', notes 'who wins and who loses', too:

1. .... Students compete only as individuals, and who wins and who loses is apparent in most classes, except some honors classes, after only a few weeks at school.

2. .... Students work as individuals.

3. .... Unless they succeed as individuals, there is no motivation to work and no ability to gain the sense that knowledge is power.

4. .... Stronger students hardly even know the weaker ones.

5. .... Weaker students contribute little to the class initially and less as they go along.

6. .... Almost all students, except for a few capable ones, depend completely on the teacher. They almost never depend on each other and there is little incentive to help each other. Helping each other is now called cheating.

7. .... The students' complaints that they are bored are valid. Bored students will not work.

8. .... The teacher (or the school system) decides how the students are to be evaluated and they are rarely encouraged to do any more than study for teacher designed tests.

As well as bringing to the fore the negative effects on 'losers' in traditional, competitive classrooms, Johnson and Johnson also note that in these environments cheating is widespread (1994, pp. 160, 161). In Florida, they say, a survey of students in sixty-one primary schools, secondary schools and colleges found that nine out of ten have cheated on tests or have copied assignments. Competition, they say, is the reason for cheating because 'if you are not counted as winners, you are not counted'. Through activities such as allowing students extra time to complete standardised tests, teachers were involved in cheating, too.

As well as the prevalence of cheating among those in the competitive classroom, Johnson and Johnson (1994, p. 161), citing the work of Crockenberg, Bryant & Wilce (1976), note that students tend to see winners as better students overall and more deserving people. In addition, they say, referring to the work of Nelson and Kagan (1972, p. 53), that competitive attitudes and behavioural patterns often interfere with individuals' capacity for problem-solving and with their willingness to take risks. They continue by drawing attention to the work of Tseng (1969) who says that competition leads to an increase in anxiety which makes people feel less able to perform.

Johnson and Johnson (1994, p. 162) conclude by declaring that competition gives rise to a disease which is a 'self-centered egocentric focus on gratifying one's own needs, even at the expense of others. The disease is a product of individualistic and competitive goal structures'. To support their views they draw upon the work of Alfie Kohn (1986), which presents 'the most comprehensive critique of competition'. Kohn's book, *No Contest*, summarises data which shows that 'competition poisons relationships; causes anxiety, selfishness, self-doubt, poor communication, and aggression among individuals, and generally makes life unpleasant'. The Johnsons point out that these 'unfortunate consequences of competition are not restricted to "bad" or "excessive" competition; rather, they stem from the basic win-lose structure of competition'.

The picture of the traditional, competitive classroom, where models of teaching such as direct instruction operate so that the major form of interaction is whole class instruction, is contributed to by Sharan (1990, p. 297). He left no doubt regarding the extent of the pattern about six years ago: 'The whole class recitation and presentation method predominates in the majority of classrooms in the Western world and certainly comes close to being almost the exclusive form of instruction in most academic subjects in high schools (except for laboratory and workshops sessions, music and gym)'. As well, Sharan (1990, p. 298) supports the view that whole class competitive methods often generate undesirable outcomes which are similar to those identified by Johnson and Johnson. 'Among these', he says, 'are: social distance between peers in the classroom and between those from different ethnic groups in particular, insidious social comparison processes, more tightly knit cliques in classrooms, and many more students at lower levels of achievement'. In stating: 'Schools socialise students primarily through their instructional activities, which occupy the bulk of the time they spend at school,' Sharan (1990, p. 295) provides support for his conclusions on the undesirable social effects of the competitive whole class model.

Hertz-Lazarowitz and Shachar (1990, pp. 77-94) provide information which adds to that of those who are concerned about the unwanted social behaviours that come with 'whole-class instruction'. In their survey of teachers' verbal action in traditional competitive classrooms, they find that teachers spent as much as 20% of their talk time on discipline, 13% on encouraging and relating to individuals, and 23% on questioning about known information. In an environment where the pattern of interaction was cooperative, they noted that discipline accounted for 7% of the teachers' talk, while encouraging and relating to individuals took 43% of the time. Hertz-Lazarowitz and Shachar indicate that students develop more positive social attitudes and behaviours, as well as higher academic outcomes, when teacher talk is less formal, when the teachers' communication patterns may be more intimate and pro-social as they are focused on small groups and individual students, as well as on the encouragement and facilitation of the students' academic performance, rather than on teacher recitation. Hertz-Lazarowitz and Shachar (1990, p. 89) see facilitating communication between students and encouraging student initiative as empowering students. In placing stress on the importance of such matters they agree with Glasser.

Glasser (1986, pp. 28,29) declares that if students are to learn, they must feel that to do so is satisfying their needs for power, freedom and fun. When, to students, positive relationships with one's peers are of prime importance (Gibbs 1994, p. 182) and the desire for freedom and power are so powerful, how can a competitive, teacher-dominated teaching and learning model be the most effective? This question is even more puzzling when knowledge of how students learn is considered. In Tasmanian primary schools the accepted view is that knowledge is constructed collaboratively; but in secondary schools too often the words of Wells, Lang and Maher apply:

> Unfortunately, though, as illustrated by one authoritative pronouncement after another, the methodologies of teaching at all levels of education are still to a large extent, based on implicit beliefs in the absolute nature of knowledge and in the feasibility of the transmission of this knowledge from expert to novice. Such methodologies, furthermore, accord little significance to the active constructive nature of learning or to the role of social interaction in the processes whereby each individual comes to know (Wells, Chang & Maher 1990, p. 98).

The undesirable results of the whole class, competitive model, such as lack of motivation among perhaps 50% of students, and our understanding of how students learn best have led educators, including the writer, to conclude that to find a replacement is imperative:

> ...traditional instruction is less than satisfactory for most pupils of any age, and often produces many negative consequences for teachers and pupils alike, not all of which are immediately apparent to the players themselves. Some of these negative consequences, in both academic and social domains, are serious enough to lead to the conclusion that whole-class instruction should be retired as the primary model of teaching, and, at best, should occupy a fraction of the time it presently occupies in the instructional repertoire of teachers (Sharan 1990, p. 298).

The Individualistic Model

While the dominant mode of interaction within a classroom may be competitive, there is much that is individualistic: the students compete as individuals and they work as individuals. There is a second relationship too: like the competitive models, the individualistic models are behaviourist in principle, being based on the stimulus-response-feedback cycle. Joyce and Weil (1986, pp. 317-356) describe two models of individualistic classroom interaction which, to a limited extent, are applied in the writer's school. When they are used, it is for isolated units of work related to specific skills; for example, spelling improvement or mapping, where knowledge of location is the aim. Here computer programs are employed. Individualistic models are also used among groups of students who are withdrawn from classes as they lack certain skills required

for development in a particular curriculum area; for example, reading skills.   In this situation teacher or parent aides usually assist.

The two models of individualistic learning which have some application at the writer's school are mastery learning and programmed instruction.   The core theoretical idea of mastery learning is based on John Carroll's perspective of aptitude (Joyce & Weil, 1986, p. 317).   In this context aptitude is the amount of time it takes someone to learn any given materials, rather than his or her capability to master it.   Carroll's view is that students with very low aptitude in a particular learning area simply take much longer to achieve mastery.   This unusual interpretation of 'aptitude' has been modified by later developers of mastery learning such as Bloom (1971), who transformed the system, giving it the following characteristics:

1. Mastery of any subject is defined in terms of sets of major objectives which represent the purposes of the course or unit.

2. The substance is then divided into a larger set of relatively small learning units, each one accompanied by its own objectives, which are parts of the larger ones or thought essential to their mastery.

3. Learning materials are then identified and the instructional strategy selected.

4. Each unit is accompanied by brief diagnostic tests to measure the student's developing progress (the formative evaluation) and identify the particular problems each student is having.

5. The data obtained from administering the tests is used to provide supplementary instruction to the student to help him overcome his problems (Bloom 1971, pp. 47-63).

Not surprisingly, teachers at the writer's school consider that for them as individuals or as groups to prepare complete units of study, including answers, feedback and further developmental work to cater for the varying entry points of their students would be an impossible task.   However, as Joyce and Weil (1986, p. 319) acknowledge, modern instructional technology has facilitated special use of mastery instruction.   Following careful teacher preparation, students have responded well to the novelty, to the careful planning, and to the high standard of visual presentation that have been characteristic of pockets of mastery instruction delivered by the school's computer system.   There has also been some use of commercial packages of curriculum materials for the teaching and learning of spelling in three out of seven Year Seven classes, and for reading with small groups of students who have been withdrawn from their normal groups.

In the case of the withdrawn students, questions regarding the value of the practice have been raised. Less able students, already partially isolated by aspects of competition, find themselves distanced even farther from their classmates. They are labelled as being different and less capable by their part-time class groups and by themselves. For the withdrawn, self-esteem plummets, as does positive acceptance of difference by all students.

While there may be more stress on allowing students time to learn information and skills in the mastery instruction model, particularly when commercially produced printed or computer programs are used by students, this pattern of learning almost matches programmed instruction. This is the second individualistic teaching model which influences the pattern of interaction within the writer's school, again to a limited extent only. Joyce and Weil (1986, p. 382) note that it is regarded as the most direct application of B.F. Skinner's behaviourist theory, providing for highly systematic stimulus control and immediate reinforcement. A burst of enthusiasm for such programs beginning about thirty years ago led to many transformations and adaptations. However, Joyce and Weil consider that most adaptations retain three essential features:

1. An ordered sequence of items, either questions or statements to which the student is asked to respond;

2. The student's response, which may be in the form of filling in a blank, recalling the answer to a question, selecting from among a series of answers, or solving a problem;

3. Provision for immediate response confirmation sometimes within the program frame itself but usually in a different location, such as on the next page in a programmed textbook or in a separate window (Joyce & Weil 1986, p. 352).

In looking closely at individualistic models of teaching and learning such as mastery learning and programmed instruction, Johnson and Johnson (1994, p. 144) stress that it is the absence of interdependence in the models, in fact, the demand that this feature, which is central to cooperative learning, be consciously removed that distinguishes the individualistic approach.

> Individualistic learning exists when the achievement of the student is unrelated to and independent from the achievement of other students; whether or not a student achieves his or her goal has no bearing on whether other students achieve their goals.... In other words, no interdependence results in a situation in which individuals work alone to reach a preset criterion of excellence (Johnson & Johnson 1994, p. 144).

In elaborating upon their definition of individualistic learning, the Johnsons (1994, pp. 144, 145) see that to function appropriately in this model each student needs to:

1. Recognise that each has an individual fate unrelated to that of peers.

2. Strive for self-benefit irrespective of how his or her peers perform.

3. Have a short-term perspective focused on maximising his or her performance.

4. Recognise that identity depends on how he or she performs compared with the preset criterion of excellence.

5. Recognise that his or her performance is the result of his or her own ability and effort: it is self-caused.

Before looking at the steps teachers need to take in establishing an individualistic structure, Johnson and Johnson (1994, p. 145) note that the model is most appropriate when unitary, non divisible, simple tasks, such as the learning of specific facts or the acquisition or performance of simple skills, need to be completed. It is important that confusion is avoided and that the learning goal must be perceived as being of value. Self-motivation, the two declare, is a key aspect of individualistic efforts. They also see the teacher, rather than classmates, being the major source of feedback, reinforcement and support. Students expect periodic visits from the teacher and a great deal of teacher time is needed to monitor and assist the students. Although students are largely on their own, especially as physically close, fellow students are probably not striving for the same narrow goals, the teacher, almost paradoxically, becomes extremely important, especially with regard to organisation.

So, Johnson and Johnson draw attention to the fact that counter to any implication of autonomy in the individualistic pattern of learning, as in the competitive structure, the teacher is dominant. They then provide an elaborated list of teacher steps upon which student success depends (Johnson & Johnson 1994, pp. 148-152). Before any learning begins the teacher is responsible for specifying the learning objectives. These need to be specified at the correct level for each student and matched to the right level of instruction according to a conceptual or task analysis. The arrangement of the classroom has to be attended to by the teacher. Adequate space must be provided for each student so that he or she can work without being interrupted by others. As the materials with which students work are the primary resource for learning, the structuring of the materials to be

used in lessons is especially important, and this selection is again in the teacher's hands. There may be opportunities in programmed instruction formats for students to do some selecting, but only after initial decisions have been made by the teacher and instructions given on interpretation of data. In individualistic learning situations the teacher needs to ensure that there is a set of self-contained materials for each student, and these should contain a procedure for young people to evaluate their own work.

Although students may spend the larger part of the day working alone, Johnson and Johnson (1994, p. 150) make it clear that their dependence on the teacher is not reduced. With preparation completed, once with his or her group, the teacher needs to ensure that the academic task is explained clearly and specifically to ward off student frustration. As well, there is the requirement to provide details of intended outcomes so that students will focus on relevant concepts and information. The concentration and vigour with which such learning is approached is influenced by the teacher's being able to present curriculum outlines, including ways of knowing, that students will view as being of value to them.

While the term 'individualistic' may convey the idea that within this pattern of interaction there is tailoring to each student's past experience, rate of learning, interests and preferred mode of learning, there is, typically, little 'fitting' to individual requirements at other than starting points, and certainly almost no choice. There is none with regard to the pattern of interaction: students learn alone. They have separate programs with which to work and the teacher may assist for perhaps short sessions during lesson times. Each student's entry point is usually decided by tests at the beginning of a program, that is most often commercial. There is little choice in the matter of academic goals as these are set within the group or class package. With each student working on a scripted program at a single desk set apart from others, and not being permitted to 'interfere' with the learning of others, it is not usually possible for the student to be able to use his or her preferred learning style, capitalising upon a best developed intelligence. Success for most students is heavily dependent upon well developed linguistic intelligence, especially upon reading and writing skills. Those with different strengths are disadvantaged.

Within individualistic learning there may be little or no matching of ways of learning to each student but, to operate successfully using this pattern of interaction students need to understand how their activity is structured to achieve goal independence. They are required to know that each has a goal that is different from and not associated with the work of any other student. Goal independence which is at the heart of individualistic learning has the following elements: students must work by themselves, at their own pace, to master the material specifically assigned to them, and students are to ask for assistance from the teacher, not from other students whose activities they are not to interrupt.

Having communicated the principle of goal independence, the teacher may then turn to explaining criteria for success. The students need to know what signifies that they have completed a task successfully, that everyone who achieves this is awarded an A and, therefore, that classmates are not in competition with one another. As well as outlining criteria for success, teachers should also specify desired student behaviours:

    a) Work alone without interacting with other students.
    b) Focus on the task and tune out everything else.
    c) Monitor your time and pace yourself accordingly.
    d) Check with the teacher for help (Johnson & Johnson 1994, p. 150).

Once students are at their desks operating individualistically, the teacher spends a considerable amount of time monitoring their behaviour. There are many questions to be addressed. Is the written material being communicated appropriately? Does each student understand what is required academically? Is each student skilful at learning using this pattern? Johnson and Johnson (1994, p. 151) make two recommendations: the teacher should move around, attending to each student, not waiting for requests for assistance; and the teacher should observe several students intensely, checklist in hand, to obtain data for constructive feedback. This monitoring is interspersed with and followed by individual task assistance. Here, teacher understanding and sensitivity are important so that elaborated questions and answers are used when they are appropriate, and so that praise is given. Johnson and Johnson advocate that teachers intervene, as quickly as possible, to teach any basic skills of the individualistic learning model they see lacking.

This is so that the amount of time in which students are struggling to work more effectively is minimised. They say that the following should be present:

a) Clarifying the need to learn the material and making a personal commitment to learning it.

b) Tuning out extraneous noise and visual distractions and focusing on the academic task;

c) Monitoring own progress and pacing self through the material. Charts and records are often helpful in evaluating one's progress.

d) Evaluating one's readiness to apply the material or skills being learned (Johnson & Johnson 1994, pp. 151,152).

Often, when the individualistic model of learning is used, commercially produced programs are purchased. These allow students to self-administer tests, mark them, record their progress and be directed to supplementary worksheets to provide practice in areas of weakness. Even with this assistance, with students at so many levels of development and achievement, the teacher's workload in evaluating and reinforcing the quality and quantity of each student's learning is formidable. As the teacher is the only person within the classroom who is able to encourage and praise all the students, it is to be realised that the pressure on him or her to be observant, receptive and able to respond positively to many different situations is great. There is another matter where the skill of the teacher is important and where difficulties may arise: providing closure to periods. Unless there is reflection, not only upon academic matter, but also upon ways of knowing, retention and development are seriously hampered (Yager et al. 1986, pp. 389-397). This reflection is best done at the end of a session. While the designers of most commercially produced programs recognise this need, as students are working at their own pace, inbuilt reflection may not occur at the ends of blocks of school time. It is the teacher's role to try to encourage students to compose and respond to their own reflections. As well, he or she may be able to ask general questions which help each student to summarise and to link experiences so that they have greater meaning.

When the individualistic learning model is being used successfully the teacher is using considerable knowledge, skill, sensitivity and powers of organisation. He or she is the dominant force who sets student goals and controls motivation through the selection and setting of programs, and through praise. While much is demanded of the teacher, for the student learning under such a structure requires a very restricted number of skills as there

is very little interaction with people (Johnson & Johnson 1994, p. 155). At first glance, this may suggest that such a simple model has the strongest potential for success; however, if the model fails to meet student needs, even though it may meet its own, questions arise.

First, the individualistic learning model requires a very restricted number of skills of students because they have little interaction with their peers during lesson time. This has a limiting effect on student learning. As well as the obvious surface loss, in denying students the experience of learning how to work together, there are deep, all-pervading negative influences. Effective learning is a social activity (Adams & Hamm 1994, p. 46; Joyce & Weil 1986, p. 9; Slavin 1990, p. 32; Vygotsky 1978, p. 86); at school, taking place among peers and teachers, but principally among peers. Not only is interacting with one's peers a superior way to way to learn, the social learning that occurs provides necessary transference. At home and at work the most successful groups are those where interaction, rather than working on one's own, is the norm (Kagan 1994, p. 2:1). Adding to the importance of peer interaction is the work of Glasser (1986, p. 23). He says that in order for students to be engaged in learning, they must perceive it as meeting their needs. Adolescents require love or a sense of belonging; control expressed through being viewed as capable learners who manage choice; and fun, which is largely achieved through working with peers. Gibbs (1994, p. 182) places the importance of peers in the sense of belonging: 'A sense of acceptance and power among peers is central to young adolescents' sense of self-worth, thus central to their motivation and learning.'

> In the individualistic model of learning, lack of peer interaction severely reduces opportunities for students to develop self-discipline. This approach does not empower students. ....Self-regulation is a central and significant hallmark of cognitive and social development. To regulate their behaviour, students must monitor their own behaviour, assess situations and take other people's perspectives to make judgements as to which behaviours are appropriate, and master the procedures and skills required to engage in the designed behaviour. In interaction with other people, students have to monitor, modify, refine, and change how they behave in order to act appropriately and competently (Johnson & Johnson, 1994, p. 236).

The view that conflict among peers helps students to reach a more advanced stage of cognitive development is also put by Cohen (1986, p. 11). She says that disagreement and intellectual conflict are desirable parts of problem-solving. The conceptual conflict resulting from controversy among students forces individuals to consider new

information and to gain cognitive understanding in a way that will transfer to new settings. Exposure to different points of view in an interaction helps students to examine their environment more objectively and to use perspectives other than their own. In declaring that controversy assists with advancing students' cognitive development, Cohen cites a number of references: (Piaget, 1951, 1970; Inhilder, Sinclair, & Bover, 1974; and Sharan & Sharan, 1976).

Accounting for the appeal of individualistic and competitive structures

As well as failing to provide for the development of self-discipline, working alone rather than with class members almost eliminates conflict among students. This denies students the learning of how to manage conflicts constructively: they do not acquire the knowledge and the skill they need to develop control of conflict. Students who know how to manage their conflicts constructively have a developmental advantage over those who do not (Johnson & Johnson, 1994, p. 236).

As there is almost no student interaction in individualistic learning, this pattern of learning severely restricts opportunities for social and cognitive development (Johnson & Johnson, 1994, p. 236; Cohen, 1986, p. 11). Although it may have its own limitations, individualistic learning does have a strength. It is appropriate when unitary, nondivisible, simple tasks, such as the learning of uncomplicated facts or the acquisition or performance of simple skills, need to be completed (Johnson & Johnson, 1991, p. 94). When such occasions do not occupy a large proportion of the school day, why is individualistic learning valued so highly? Learning on one's own is respected and encouraged because it is seen to be synonymous with personal autonomy (Johnson & Johnson, 1991, p. 93). The admiration given to individuals who have a strong sense of personal autonomy, which enables them to resist social pressure and act independently, is often directed to those who are able to function without a guiding or assisting person. Autonomy has three elements: effective personal goal setting, strategies which facilitate the attainment of goals, and the self-discipline to ensure that wavering from the other elements does not occur. Self discipline, then, is part of autonomy and this is learned through interaction with other students. In the non-interactive classroom, students who work alone are following the teacher's instructions. They are meeting the requirements

of the individualistic model: attend to the instructions on your sheet of paper or screen and do not interfere with the learning of other students by communicating with them.

Students who learn their academic subject matter and skills alone do not have opportunities to find out how to work with others. Placed in an interactive classroom, it is probable that they, lacking practice in such an environment, would find it difficult to concentrate on their academic goals. Secondly, having adapted to a model where the teacher plans or uses commercially planned materials, the student would not have the expectation or the ability to set desirable goals or to effect wise choice. In contrast autonomous students are motivated to and have the skills to select inappropriate study topics. They have the skills to study without being distracted by class mates. Students studying individualistically may be able to work on their own but the model does little to prepare them to be autonomous or cooperative. In fact, the structure may place them in a position of learned helplessness. The student working alone, with occasional feedback from the controlling teacher, is far from the often idealised self-sufficient pioneer, one major image of a person who is autonomous.

As well as individualistic learning being valued because it is confused with autonomy, it is considered desirable because it facilitates the presentation of a variety of subject material to suit the standard and pace of each student's learning. Ideally, no student capable of forging ahead is impeded, and no student is rushed ahead before he or she is ready (Adams & Hamm, 1994, p. 44). The disadvantages associated with this recommendation are that the pattern of learning takes from students the motivation and cognitive development that accompany a 'students learning together' model. Further, a large proportion of teacher time is spent on correcting, testing and record-keeping of many different assignments, possibly a different one for every student. This process greatly reduces teacher teaching time. This teacher time includes valuable periods used for praise and encouragement of students, together with that associated with assisting students with personal development. Citing Howard Gardner[2] (*Frames of Mind: the*

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[2] Gardner, concerned that earlier views of intelligence were too narrow, put forward the idea that people have 'seven relatively automonous intelligences: liguistic, logical-mathematical, spatial, musical, body-kinesthetic, interpersonal and intrapersonal' (cited in Kirshenbaum 1990, p. 6).

Theory of Multiple Intelligences, 1985), Kirshenbaum (1990, p. 26) says that interpersonal relationships are essential to education, that when the human relationship is absent, education does not work. Bennett and Smilanich (1994, p. 145) add that when students work together in groups they develop the ability to establish relationships, a skill that is critical to creating and maintaining relationships at school, work, and home. They note that their beliefs connect with those of Gardner whom, they say, argues that personal intelligence is one of the best predictors of success in most cultures. As well, they note, that Gardner also argues that personal intelligence has a synergistic effect on other intelligences. So, it would appear that to adopt an individualistic pattern of interaction, for other than short, specific learning tasks, would be inadvisable.

In looking closely at the competitive teaching and learning pattern of classroom interaction, Apple (1979, p. 8) and Vandenberg (1990, p. 181) note that it belongs to the technical paradigm which was developed to serve the interests of the world of work. That world was one which belonged to the era prior to 1980. It was a world of hierarchies which required that education classify workers, granting power and wealth to the top stratum. This was selected through competition where achievements were norm-referenced. Johnson & Johnson (1991, p. 98) note that in the United States in the 1930s, organised advocacy of interpersonal competition in the schools was launched by a combination of powerful business interests. The efforts of bodies such as the National Association of Manufacturers were so successful that, by the 1960s, interpersonal competition was considered to be the 'traditional' way of structuring student-student interaction. Emphasis was placed on norm-referenced evaluation under the rationale that 'all nature could be fitted on a bell-shaped curve. Social Darwinism, expressed in the myth that it was a "dog-eat-dog" world in which only the fittest survive, became widespread' (Johnson & Johnson 1991, p. 98).

By the mid-1960s a large number of educators and psychologists challenged the notion that competition should dominate the structure of education. One of the most widely read of these was John Holt who produced *How Children Fail* (1964):

Only a few children in school ever become good at learning in the way we try to make them learn. Most of them get humiliated, frightened, and discouraged. They use their minds, not to learn, but to get out of doing the things we tell them to do - to make them learn. In the short run, these strategies seem to work. They make it possible for many children to get through their schooling, even though they learn very little. But in the long run these strategies are self-limiting and self-defeating, and destroy both character and intelligence. The children who use such strategies are prevented by them from growing into more than limited versions of the human beings they might have become. This is the real failure that takes place in school; hardly any children escape (Holt 1964, cited in Johnson & Johnson 1994, p. 98).

In elaborating upon Holt's view of competition Johnson and Johnson note that critics such as Holt and Glasser (1969) deplore competition's subversion of intrinsic motivation for learning. In competition, they say, one learns to win, and knowledge that does not help one win is a waste of time. Among the other outcomes of which they are critical are the valuing of the 'bettering' of others; the joy taken in others' mistakes and failures, because they increase one's own chances of success; the viewing of life as a 'rat-race' where one aims to outshine one's neighbours; the development of a contingent self-acceptance where one is of value only if one wins; feelings of guilt over winning and apprehension about being rejected by individuals one has defeated; feelings of anger and hostility toward those who defeat one and toward the teacher, the school, and themselves; and in general feelings of anxiety and doubt.

Assessment in the writer's school, is criterion rather than norm-referenced, and students are asked to strive to attain certain goals. As student academic status is based on the level of the course being studied, high to low, and upon whether students gain A, B, C or D awards, with A being excellent and D being unsatisfactory, students' perceptions of their academic self-worth and, often, their total self-esteem is based upon the levels of their courses and upon their awards. As Vandenberg (1990, p. 127) states, such a system operates to 'separate the wheat from the chaff' for highly competitive university entrance requirements. Regardless of how educators attempt to present it, it is competitive, carrying with it the unwelcome outcomes of this pattern of interaction.

Johnson and Johnson (1991, p. 99) tell us that in competitive systems 'most of the students lose most of the time'. In the writer's view, at least half of the students in the school where she teaches see themselves as losers: they are studying middle and lower level courses. Having lost their intrinsic motivation, they are reluctant to complete

homework and seek satisfaction in other areas, such as sport and peer friendships, and in anti-social or disruptive behaviour. It is not only the less able students who fail to achieve personal excellence. Adams and Hamm raise the issue of the more able who, suffering anxiety and fear of failure, withdraw.

When critics have been identifying and describing the weaknesses of the individualistic, and particularly of the competitive goal structures, since at least the early 1960s, why do the structures still hold such control? First, there is the sorting procedure required by the tertiary institutions. (Vandenberg 1990, p. 127) Then there is the power of some industry moguls who have maintained that competition is their system's driving force, and that students must learn to compete successfully if they are to take their places in our developed society where competition rules (Johnson and Johnson 1991, p. 98).

There may be those in industry who claim that competition is at its heart; but in the 1990s there are those who see such a view as being outmoded. Kagan (1994, p. 2:5) tells us that increasingly industry is adopting a cooperative model. He provides examples. Recent versions of hand-held calculators most often consisted of electronic chips from the United States. They were assembled in Singapore, Indonesia or Nigeria, placed in a steel housing from India and stamped with a label, 'Made in Japan', upon arrival in Yokohama. Modern hotels in Saudi Arabia are built with room modules made in Brazil, and the construction labour comes from South Korea, while the management is from the United States. That we are seeing the dawn of a global economy, where there is to be much interdependence, is pointed out by Kagan.

Kagan, (1994, p. 2:1) also notes that the fastest growing part of industry is the information segment where information is generated, analysed and communicated. As research and development tend to be very expensive and involved, the norm in the workplace is interaction. Increasingly, the workplace consists of interdependent teams working on complex problems that no individual can solve. Within Tasmanian industry this change is evident: Positions vacant advertisements often contain the criterion 'able to work as a member of a team' or 'able to lead a team'. Companies recognise that cooperation among groups of employees achieves more for the enterprise as a whole than do individuals competing against one another for self recognition or promotion.

The changing management practices of industry support the view that while individualistic and competitive models of teaching and learning may legitimately hold minor roles, it is cooperative learning that best drives learning forward.

History of cooperative learning

Before the 1960s rush of criticism of the teaching and learning structures that prevailed in Western countries, there had been many advocates of cooperative learning. A summary of research into the history of cooperative learning places its beginnings as far back as the writing of the *Talmud* (c. 375) which states that in order to learn the *Talmud* one must have three things: a copy of the *Talmud*, a teacher and a *learning partner* (because the *Talmud* is far too complex to understand by oneself). As early as the first century AD, Quintilian argued that students could benefit from teaching one another. Johann Amos Comenius (1592-1670) believed that students could benefit from both teaching and from being taught by other students. In the 1700s, Joseph Lancaster and Andrew Bell made extensive use of cooperative learning groups in England, and the idea was taken to the United States, where a Lancastrian school was opened in New York City in 1806. The country 'one-teacher school' in Australia or the 'one-room schoolhouse' in the United States, where one teacher taught students from many different grade levels, required cooperative learning in order to function (Johnson & Johnson 1991, p. 18).

One of the most successful advocates of cooperative learning was Colonel Francis Parker. In the last three decades of the nineteenth century, he applied an intense belief in democracy, and in the importance of modelling democratic behaviour which includes mutual responsibility, to the classroom. Parker emphasised that children are natural collaborators. He believed that the highest joy, after discovering the 'truth', was sharing the truth with classmates, and that the proper motive for learning and work is helping others (Johnson & Johnson 1991, p. 18).

Like Holt (1964) and Glasser (1969), but almost a century earlier, Parker viewed competition, with its selective and restrictive rewards for effort and accomplishment, as killing intrinsic motivation to learn. He believed that if students were motivated by hope

of reward and by fear of punishment, they would only develop into selfish people. As well, he considered that disadvantaged students, who failed under competition to equal their more gifted rivals, would feel inferior and despair. With competition as the chief incentive for work, Parker said that, instead of motivating, it would bring frustration and unhappiness, and schoolwork would become a drudgery. He believed that students would fully develop their capacities only if shared learning were encouraged, and if competition were eliminated as the main motive in school tasks (Johnson & Johnson 1991, p. 19).

Parker became a superintendent of public schools and his instructional methods, which aimed to make classrooms truly cooperative and democratic, dominated education in the United States through to the turn of the century. Perhaps the most famous of those who followed Parker's lead was John Dewey who promoted the use of cooperative learning groups as part of his project method in instruction. He emphasised the social aspects of learning and the role of the school in educating students in democratic living. Dewey argued that, if humans are to learn to live cooperatively, they must experience the living process in microcosm, and in the heart of democratic living is cooperation in groups. He said that classroom life should embody democracy, not only in how students learn to make choices and carry out academic projects together, but also in how they learn to relate to one another. He saw students learning from and through relating to one another. Dewey believed that they should be taught, therefore, to empathise with others, to respect the rights of others, and to work together on rational problem-solving. Dewey's wife who was a practising teacher, enabled him to see, share in, and reflect upon the product of his theories (Johnson & Johnson 1991, p. 19).

Although from about 1930, industry and tertiary education institutions pushed competitive structures into the dominant position in schools, there continued to be a steady stream of research and theorising on competition and on cooperation. Johnson and Johnson produced their first edition of Learning Together and Alone in 1975. Robert Slavin, who completed his doctoral studies in the area, became prominent from 1980. The writer has quoted from one of his more recent publications, Cooperative Learning, 1990. Shlomo Sharan and Rachael Hertz-Lazarowitz in Israel have extended Dewey's project method and they have been followed by a similar development by

Spencer Kagan. Sharan's *Cooperative Learning*, 1992 , and Kagan's *Cooperative Learning* 1994 are cited in this work. These and many other committed social scientists and educators in the United States, Canada, Israel and several other countries have made cooperative learning 'the most extensively researched educational innovation of all time' (Kagan 1994, p. 3:1).

In Australia, in this decade, particularly among educators of infant and primary school students, there has been strong interest in cooperative learning. With overseas theory, research and practice to guide them, Australians, principally for primary schools, are producing texts which usually contain a brief summary of the theory and research followed by details of strategies for implementing cooperative learning. *Cooperative Learning*, 1990, by Jeni Wilson and Peter Egeberg of Victoria, is an example. An introduction to cooperative learning through this type of text provides 'hands-on' activities that teachers may implement almost immediately without an adequate philosophical background. There is a number of possible results of this. If the strategies fail, the teachers may abandon cooperative learning; it may be developed at a tangent from its original theory, perhaps producing something better, but possibly on an activity line rather than one which is academic/social; or the initial experience may lead to intensive study, careful experimentation and the development of cooperative learning based on sound appreciation of its theory.

In July, 1995 the International Association for the Study of Cooperation in Education held its annual conference near Brisbane. For most Australian teachers this provided an excellent opportunity to share the work of some prominent advocates of cooperative learning. Slavin (*Cooperative learning* 1994), Davidson (*Enhancing Thinking Through Cooperative Learning* 1992), Fogarty and Dalton (*Blueprints for Thinking in the Co-operative Classroom* 1991) and Cooper and Boyd, educational consultants and frequent contributors to the internationally distributed periodical *Cooperative Learning, the Magazine for Cooperation in Education*, were among those present. Unfortunately, only two Tasmanian classroom teachers were at the five-day conference. The attendance was no doubt affected by its timing, in the Tasmanian school term, and by the considerable expense involved.

Conclusion

Cooperative learning is a highly structured, sophisticated set of teaching strategies characterised by student activity and student tutoring. Within its structures are five basic principles: face-to-face interaction, individual accountability, positive interdependence, social skills and the processing of activities. Although centred on student activity, this approach makes great demands of the teacher. (These principles are developed fully on pp. 118-121.) Even of the experienced practitioner it requires much intensive study, practice, reflection and further practice over a period of about two to three years before he/she is a competent facilitator of this 'powerful' mode of interaction.

Cooperative learning is said to be the most effective set of teaching strategies because it is a social model capitalising on the knowledge that in life worthwhile learning is largely a social and often informal activity. Through paying special attention to the personal development of students, it enables them to collaborate effectively by generating a collective energy called 'synergy'. Therefore, the most successful cooperative learning lessons have two objectives, an academic goal and a social goal. At first, and on occasions through the year, as social skills facilitate learning, the social goal may be the only one.

Not a new phenomenon, cooperative learning has been advocated at many times in history, especially at the end of the last century and more recently by Dewey (Johnson & Johnson 1991, p. 19). Individualistic and competitive models of teaching, controlled by perceived industry and tertiary requirements, have dominated. However, with appreciation of the need for cooperation and of the benefits of collaboration being more widespread in the community, together with increased recognition that students achieve most when personal and academic development are attended to, cooperative learning is gaining favour.

Chapter 3

Why Should Cooperative Learning Be Used?

Formally questioning why cooperative learning should be used provides the opportunity to support the view that this pedagogy has broad, far-reaching, practical effects. This chapter shows that it develops skills which are needed and valued by the community at large and by the students within it. It notes that, as cooperative learning is a model of the present preparing for the future, within it priority is given to the development of thinking, communication and social skills.

The chapter provides an elaborated list of the positive effects of cooperative learning. Among them personal and social skills are stressed and accompanied by reasons for their being emphasised. Explanations for the model's outcomes are given. It is noted that this set of strategies is built upon the belief that the most effective learning takes place in a social context where the decisive element is the mediating influence of another human being. Therefore, within cooperative learning cognition and motivation are embedded in peer tutoring. The chapter declares that this pedagogy enables students to learn through facilitating their working together and the process is enhanced because they enjoy doing so.

How does cooperative learning meet the needs of today's students?

What is the theory of cooperative learning? Why should cooperative learning be used and developed? Turning attention to the second question first; so far, among other facts the following have been noted: cooperative learning produces higher academic achievement; (See p. 19.) and the learning structures which presently dominate, individualistic and competitive, although useful in particular situations, are inadequate and possibly destructive.(See pp. 21-37).

At the writer's school, outcomes of competitive structures have the greatest effect. She believes that at least half of the students, mostly those studying courses which are less demanding, are not well motivated, and have low self-esteem. As a result, their academic achievements are disappointing. A different goal structure is needed. Literature, for example, the work of Adams and Hamm (1994, pp. 43-47) has suggested that cooperative learning may improve the situation by building learning situations which capitalise upon students' natural working mode inclinations, by encouraging better social relations and higher self-esteem, and producing academic and skill levels that are of more value to the community and the student.

Detailing the theory and research, cooperative learning texts; such as those of Slavin (1990), Shlomo Sharan (1990), Kagan (1994), and Adams and Hamm (1990); show that the concerns of Tasmanian teachers, concerns which point to the need for more cooperative teaching and learning structures, are similar to those held by their colleagues in the United States, Israel and Australia.

In supporting the need for the introduction of cooperative learning, Kagan (1994, p. 2:1) says that the educator's primary function is to provide students with the skills they require for a productive and happy life. Thus, we must look carefully at the forces that are shaping our economic and social worlds, to discern the kinds of skills our students will need and those which they are lacking.

Kagan notes ours is a rapidly changing, information-based, high technology, and interdependent economy. He concludes that this economy, where the norm in the workplace is interaction, increasingly will rely on interdependent teams working on complex problems which no individual alone can solve. Kagan believes many of today's kindergarten students will have positions in job categories which do not yet exist. As technology produces ever higher-level technological advances, which in turn will transform even more radically the jobs and the lives of the students, the schools need to provide for their students a broader base of experiences, skills and information. Schools must set as highest priority the teaching of thinking skills, communication skills and social skills necessary for participation in an increasingly complex, interdependent society. Cooperative teamwork, interaction and communication will characterise the workplace of the future. Therefore, Kagan says, it is imperative that classrooms include not only individualistic and competitive, but also cooperative interaction. Cooperative learning, he concludes, is an important response to transformations in our society. It broadens students' range of experiences, including interactive learning opportunities representative of the workplace of the future. It provides a variety of ways to foster communication skills, higher-level thinking skills and social skills. The heterogeneous team in the classroom can be a positive model for students to take with them into the workforce (Kagan 1994, p. 2:1).

More than other advocates of cooperative learning, Canadians, Bennett, Rolheiser-Bennett and Stevahn (1991, p. 33) stress the teaching and learning of social skills. In every lesson, they say, there must be planned attention to human interaction skills which enhance communication, trust, leadership, decision-making and conflict management. To students the necessity of such experience is made all too clear by Kagan's detailing of the loss of prosocial values and behaviours among students. He reminds us that families today are more mobile so that students are often separated from the stabilising influences of neighbourhood and community support systems. The two-income family is increasingly an economic necessity. Mothers have left home to enter the job world and children spend less time in the company of the person most concerned about their positive development. The two-parent family can no longer be assumed and the number of 'latch-key kids' is on the rise. As families are small and not extended, students grow

up having less contact with older siblings and grandparents who once had a positive impact on social development (Kagan 1994, p. 2:2).

What has filled the socialisation void? Television, and there are three major problems with this. The content of television often provides a very poor model for social development. The advertising which accompanies programmes is designed to communicate a fundamental message: if you are unhappy, if you want to feel more powerful, or successful, an easy solution awaits you - buy something! When the television is on, the probability that family members will interact in ways likely to increase positive social development is decreased. Television viewing is very individualistic. As family members attend to television, rather than to each other, opportunities are lost for young people to learn valuable social interaction and communication skills (Kagan 1994, p. 2:2).

Changing family structures and socialisation practices have resulted in students who lack social skills and attachments. Many students today do not know how to get along well with each other and how to care for one another. Studies, Kagan says, have demonstrated that students do not recognise the cooperative solution to problems. When placed in situations where they can maximise their own gains only by working together, he says, they tend to adopt a competitive strategy which produces fewer positive outcomes. Four to five-year-old children, who have not yet been subject to years of competitive classroom structures, adopt cooperative strategies easily, but older ones do not.

Kagan notes that suicide rates among the youth of Western countries and others with competitive education structures have climbed drastically over the last twenty years. The number of crimes against persons and property in schools is rising. Many students leave today's schools without the social skills necessary to hold a job. Numerous studies examining reasons for job loss among first-time employees reveal that the most common cause of losing a job - far more common than lack of job-related skills - is lack of social skills. All of these unfortunate situations, Kagan concludes, have combined to thrust on schools the job of socialising youth. Schools, he states, must take on the task of socialising students in the values of caring, sharing and helping. Where schools have

already accepted the challenge, Kagan says, students have become more able to solve problems which demand cooperation for solution, better able to take the role of another and generally more cooperative on a variety of measures, such as willingness to help and to reward others (Kagan 1994, p. 2:3).

Urbanisation, Kagan believes, also has a significant effect upon the social character of students. In 1800 only 2.4% of the world lived in urban centres. By 1950, the figure was 25% and it is continuing on a massive scale. He notes that since before the turn of the century sociologists began warning about the consequences of living and working in close proximity with many others with whom there is no perceived sentimental, emotional or economic interdependence. They spoke of urban life as fostering a spirit of competition, self-aggrandisement and mutual exploitation. A large number of urban-rural comparisons of cooperativeness among children all over the world, Kagan says, revealed that, almost without exception, children developing in an urban environment grow up valuing less the prosocial behaviours of caring, sharing, helping, and cooperating (Kagan 1994, p. 2:6).

Kagan's factors accounting for the deterioration of social skills among students in the United States may be readily transposed to Tasmania. It is to be noted that on page 9 the writer listed 'lack of social skills' as one of the three major concerns of the staff of her school. This was at the end of 1993. When two important points are considered, a teaching and learning model which addresses social skills would appear highly desirable. Firstly, effective learning is largely a social activity (See p. 20.). Secondly, to succeed in the information-oriented economy of the future, students must learn to work well with others within the full range of social situations (Kagan 1994, p 2:6).

Although she noted that the percentage of labelled economically disadvantaged students in her school had recently risen to 47%, and she cited this as a factor contributing to students' low self-esteem, low motivation and disappointing academic achievements; the writer was not prepared for this assessment of the situation in the United States by Adams and Hamm (1990, pp. 4-6):

One out of three children live in poverty according to a 1988 study by The Carnegie Foundation for the advancement of Teaching. Alienation, poor health care programs, drug abuse, nutrition-related deficiencies and low self-esteem are common problems. Many of these students miss out on advantages from early childhood education to job training...

Schools frequently relegate disadvantaged students to lower tracks where they have *least* access to the best teachers and to an enriched curriculum...Grouping decisions often become self-fulfilling prophecies...For the advantaged student, in top ability groups, the emphasis is on critical thinking creativity and problem-solving; for those at the bottom it's more often basic skills, conformity, and discipline...Many pupils today are bored in school. Many drop out...Cooperative learning with mixed-ability teams offers one alternative to changing the tracking equation...

By 1992 the United States is expected to experience the greatest shortage of skilled labor in its history. At the very time we are facing a labor shortage, we have a poverty surplus...The point here is that...the bulk of the labor pool in the nineties will be both disadvantaged and poorly educated.

As Adams and Hamm indicate, cooperative learning with its philosophy of using the heterogeneous nature of groupings within classes as an advantage, offers a better outcome for the disadvantaged than a competitive 'tracking' structure.

What are the positive effects of cooperative learning?

As noted on page 2, for students taken as a cohort, cooperative learning results in higher academic achievement. Of most interest to those concerned for disadvantaged students is that low-achieving students generally benefit most (Kagan 1994, p. 3:1). Adams and Hamm (1990, p. 4) say that low achievers lack the ability to manipulate words and numbers, but they have tough-mindedness that could assist them in becoming successful leaders and workers. They have learned how to beat the odds in fighting the daily battles of personal survival. Many of these students, value team sports and cooperation so that cooperative learning strategies are more likely to interest them.

So, in terms of the writer's school, two broad issues have been revisited. This has been done not just in their narrow context, but in comparison with the United States and, in one case, with the Western world. Students' social skills are not at desirable levels and, in the writer's view, a large fraction of the students, the disadvantaged group, is not achieving standards of personal excellence. Cooperative learning appears to offer viable opportunities of addressing both.

Looking more closely, what elements, according to, acknowledged 'expert' sources, comprise the list of positive effects of cooperative learning? In compiling their list of positive effects of cooperative learning Adams and Hamm (1994, p. 45) consulted nine sources, with the works of five having already been drawn from in this writing: Slavin, (1983, 89); Sharan, (1980); Abraham & Campbell, (1994); Levine & Trachtman, (1988); Johnson, (1990); Johnson et al., (1981); Carnegie Foundation for the Advancement of Teaching, (1988); and Kagan, (1986).

Adams and Hamm begin by noting that cooperative learning 'motivates students'. While talking and working together on a project or problem, students experience the fun of sharing ideas and information. This pleasure is motivating. The second point put forward by the pair is that cooperative learning 'increases academic performance'. Students collaborating to discover new concepts, to solve problems or to question factual information develop their academic skills. Classroom interaction, it is said, causes students to make 'significant academic gains compared to student gains in traditional settings (Adams & Hamm 1994, p. 45).

The third positive effect of cooperative learning that Hamm and Adams (1994, pp. 45,46) put forward, like the first, facilitates the second: 'encourages active learning'. They state that years of extensive research and practice have shown that students learn more when they are actively engaged in discovery and problem-solving. As students talk and reason together to complete a task or solve a problem, they become more involved in thinking and communicating. Cooperative learning produces the kind of problem-solving with others that has been shown 'to spark on alertness of mind not achieved in passive listening'. The fourth effect, listed by Adams and Hamm, (1994, p. 46) is it 'promotes literacy, and language skills'. As James Britton (1974, p. 222) reminds us, literacy promotes academic achievement. Group study offers students many opportunities to use language. By listening to models and by practising, they improve their speaking and thinking skills.

Adams and Hamm put their argument supporting cooperation's claim to achieving higher academic results than the more traditional models hermeneutically. For a technical presentation, Johnson and Johnson's work on page 19 may be revisited. While Adams

and Hamm explain that increased talk, which is part of more student activity, leads to higher academic achievement, Kagan (1994, p. 3:2) presents more information on student socialising. He says that 'cooperative learning results in more positive social development and social relations among students at all grade levels'. Being instructed in social skills by the teacher and then having an abundance of opportunities to practise the strategies within their groups, students learn to adjust their behaviour so that they are able to work effectively with others. Kagan notes that 'dozens of studies have demonstrated that when students are allowed to work together, they experience an increase in a variety of social skills'.

Experienced teachers would appreciate the comments which Sharan (1990, p. 32) has in his collection of papers on the theory and research of cooperative learning. From Johnson and Johnson he chose a paper which included: 'Placing socially unskilled students in a learning group and telling them to cooperate will obviously not be successful'. As indicated by Wilson & Egeberg (1990), (See page 18.), if cooperative learning as a parcel of strategies were said to have five basic elements, one would be the teaching and learning of social skills.

Another of the five elements of cooperative learning is termed 'group processing'. Johnson and Johnson stress that effective group work is influenced by whether or not groups reflect on how well they are functioning. This is done during group processing sessions:

> Group processing may be defined as reflecting on a group session to (a) describe what member actions were helpful and unhelpful and (b) make decisions about what actions to continue or change. The purpose of group processing is to clarify and improve the effectiveness of the members in contributing to the collaborative efforts to achieve the group's goals (Sharan 1990, p. 32).

Within the set of cooperative learning strategies there are three major subsets of strategies and within these are basic ways of organising lessons. They are often open-ended. Experienced teachers who have cooperative goals have shared many of their cooperative learning lesson plans, which appear in texts such as *Cooperative Challenges* (Wilson & Egeberg 1990). The assistance with organisation that such lesson outlines provide is insufficient: as indicated, social skills need to be taught and practised.

> There is only so much that structure can do. Students need to master and use interpersonal and small-group skills to capitalize on the opportunities presented by a cooperative learning situation. Especially when learning groups function on a long-term basis and engage in complex, free exploratory activities over a prolonged basis, the interpersonal and small group skills of the members may determine the level of student achievement (Sharan 1990, p. 145).

One of the major reasons for the writer's interest in cooperative learning is its reported positive effects on student self-esteem.

> Almost all studies which compare the self-esteem of students following cooperative and traditional interaction, show significant gains favoring students in cooperative classrooms; the remaining studies show no significant differences; none of the studies had results which favored traditional structures. This outcome is probably related to improved peer relations and to improved academic achievement (Kagan 1994, p. 3:3).

Kagan's conclusions regarding the factors effecting the improvement in self-esteem are supported by Lazarowitz and Karsenty in their study of the development of the self-esteem of tenth-grade biology students, included in Sharan's text. In the research of the pair the self-esteem of students in cooperative learning classes, termed the experimental groups, was compared with that of those in traditional classes.

> Students' self-esteem was higher in the experimental group. These gains in self-esteem can be explained by two factors: (1) students felt that they achieved more learning through this method; (2) there was an improvement in social relations among students. Students felt responsible for their learning, and therefore they were more active and involved (Sharan 1990, p. 145).

Lazarowitz and Karsenty, two Israeli researchers, note that their study supported Bloom's (1975) assumption that success and achievement are strongly linked to self-esteem. They concluded that small-group interaction, a major element of cooperative learning, encouraged cooperation and mutual help, which in turn had an impact on students' relations. Since every student in their experimental classes was responsible for a small part of the learning material, and had to teach it to other members of his/her group, this feeling of having a specific responsible role enhanced students' self-esteem. They cited Allen, (1976), when drawing attention to the fact that, when students assume the role of teachers, they go through cognitive and behaviour changes which are 'very positive' in the high school student population (Sharan 1990, p. 145).

Another positive outcome of cooperative learning, which Kagan (1994, p. 3:2) notes, is that students become more self-directed. They become more internal in their sense of

control in contrast to students in traditional classrooms where they felt more externally controlled. They have a greater sense of intrinsic rather than extrinsic motivation. These outcomes are not surprising when Margaret Donaldson's (1978) claim, that it is innate for students to wish to be in control, is taken into account.

According to Kagan, (1994, p. 3:2) not only are students better self-directed in cooperative learning classes, they are also more inclined to like classwork. He reports that in about half of the studies comparing cooperative and traditional classrooms there was a liking for class and improved classroom climate in the former. Only one study favoured the traditional structures; while in the remaining studies there was no difference.

As well as supporting Kagan's claims regarding self-esteem, the work of Lazarowitz and Karsenty supports the proposition that students using cooperative learning as their form of interaction study in an environment where the classroom climate is superior. Their detailed research, entitled *Cooperative Learning and Students' Academic Achievement , Process Skills, Learning Environment, and Self-Esteem in Tenth-Grade Biology Classrooms,* draws its conclusions from considerable technical data which is included. The tables comprise information gathered not only on biology students, but also on those studying mathematics and English (Sharan 1990, pp. 123-149).

Kagan (1994, p. 3:2) also declares that cooperative learning results in increased cognitive and affective role-taking and that cooperative interaction opportunities have been related to the development of a higher level of morality. He adds that experience, in situations in which bilateral and multilateral communication are necessary, probably increases the general sense of interdependence among students which, in turn, increases their understanding of the experience of others.

Kagan, together with all the other practitioners whose work has been used to assist with a compilation of the positive features of cooperative learning, places great emphasis on the model's being able to facilitate the development of students' personal skills. Members of the group note that young people who work cooperatively have higher self-esteem and superior social skills as well as increased motivation to learn. As these

three areas account for all but one of the major concerns at the writer's school, it is not surprising that the claims of cooperative learning should have stimulated her interest.

That the writer's colleagues should recognise that the most pressing school problems lie within the personal domains of students is significant. That teachers and researchers in many parts of the globe are reflecting on and advancing a teaching model which is a partnership, where personal and academic development must proceed in concert, is worthy of note, too. In their *Friendly Kids Friendly Classrooms*, currently, among Tasmanian primary schools, a popular reference on the teaching of social skills, Helen McGrath and Shona Francey (1995, p. 1) say: 'Success in all areas of life is linked to confidence and social competence. Social learning should be given the same priority as academic learning.' In the wider field, too, the importance of personal development in relation to academic learning is receiving attention. Hunter Boylan (1986, p. 9), editor of *Research In Developmental Education*, writes:' ...personal development will, in the long run, contribute as much to academic success and the building of basic skills in the content areas.'

It would appear that the search for a teaching model that would be more successful with heterogeneous classes has led to one which could provide the vehicle for assisting students attain more sophisticated levels of personal development. Primary schools, in general, in Tasmania have been more active in accepting the need to attend to personal development alongside the academic. Now, secondary schools, such as the writer's, are becoming more prepared to act in this area rather than merely note.

To return to the list of positive elements of cooperative learning compiled by Adams and Hamm (1994, p. 46); they conclude that this approach increases students' 'respect for diversity'. When students cooperate to reach a common goal, they say, such students learn to appreciate and respect one another. This ability, like Kagan's affective and cognitive role-taking, belongs to the realm of personal development.

The final element on the Adams and Hamm (1994, p. 46) list is that cooperative learning 'improves teacher effectiveness'. Through actively engaging students in the learning process, they elaborate, teachers also make important discoveries about the way each

student learns and what he or she learns. As well, as students take responsibility for some of the teaching, the teacher's educational power is multiplied.

Later in their discussion of gains to be made from cooperative learning Adams and Hamm (1994, p. 46) say: 'Cooperative learning works because it promotes interaction through face-to-face communication, and interaction is vital not only in acquiring knowledge.'

The theory that cooperative strategies provide an excellent vehicle for developing thinking skills has long been advocated by Joan Dalton, now officially resident in Victoria. Her *Adventures in Thinking, Creative Thinking & Co-operative Talk in Small Groups (1978)*, as the subtitle suggests, aims to assist teachers with facilitating the development of the creative thinking skills of their students through cooperative learning.

Why does cooperative learning work?

Cognition

Cooperative learning and higher order thinking skills have been linked, not only by Joan Dalton, but also by Robert Fisher(1993). Fisher of the Centre for Thinking Skills, West London, as the title of his institution suggests, is particularly interested in developing students' thinking and learning skills. He says: 'Learning can be an unassisted activity...But most learning takes place in a social context.' In elaborating on this point, Fisher notes that interest in individualised learning has waned because it was often 'superficial' and 'repetitive' with 'little learning' taking place and 'no development in thinking'. Although the machines and materials used could have been excellent, the decisive missing element was the mediating influence of another human being (Fisher 1993, p. 14). He adds: 'The foundation of learning and development is co-operatively achieved success. With others we can do more and achieve more than we can do on our own' (Fisher 1993, p. 23).

There seem to be two closely connected explanations for students' learning and thinking best being done socially. The first arises from Vygotsky's 'zone of proximal

development' (Vygotsky 1978, p. 86) and the other from the theories that humans are 'boundedly rational' and 'collectively rational' (Van Sickle & Hedge 1991, p. 159).

Psychologist and researcher Rubstov (1994) summarises Vygotsky's theory and places it within reach of application in the classroom:

> According to Vygotsky (1978), "every function in the child's cultural development appears twice, on two levels. First on the social, and later on the psychological level; first between people as an interpsychological category, and then inside the child as an intrapsychological category" (p. 570). Social interaction stimulates undeveloped cognitive processes and enables students to act on a higher cognitive level. The difference between what a student can do independently (the actual level of development) and what a student can do under appropriate guidance is called, "the zone of proximal development" (Vygotsky 1978 pp. 84-90). Therefore, according to Vygotsky, learning is successful only if it stimulates those processes that are still maturing and are situated in the zone of proximal development (Rubstov 1994, p. 5545).

Slavin (1990) elaborates upon Rubstov's explanation:

> Vygotsky...defines the zone of proximal development as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance *or in collaboration with more capable peers*" [emphasis added]. In his view collaborative activity among children promotes growth because children of similar ages are likely to be operating within one another's proximal zone of development, modeling in collaborating group behaviors more advanced than those they could perform as individuals (Slavin 1990, p. 14).

The second part of the explanation for cooperative learning's influence on thinking and learning is put forward by Van Sickle and Hodge (1991) of the University of Georgia. It has as its centre the theories that humans are 'boundedly rational' and 'collectively rational'. They begin by saying that knowledge is organised as schemata (i.e., networks of ideas), and that components of the schemata serve as an index which organises long-term memory. They continue by referring to the work of Simon (1957).

> According to Simon, humans possess only modest potential for rational thinking because they have insufficient information processing and short-term memory capacities to formulate and solve most real-world problems.
>
> Consequently, an individual constructs greatly simplified models of the world that necessarily omit much of the valuable data. Although a person attempts to think and act rationally with these models, the effectiveness of the actions is only moderate at best because of the reduced complexity of the models compared to the actual situations (Van Sickle & Hodge 1991, pp. 158, 159).

Next Van Sickle and Hodge introduce the work of Shulman and Carey (*Review Educational Research* 54) which they say 'incorporated Simon's boundedly rational perspective and developed the concept of the social context of rational thinking'.

> People are boundedly rational; however, their individually insufficient information-processing and short-term memory capacities can be coordinated. Coordination enables individuals to construct shared models of the world which are then more valid than models the same people would construct individually. Rational human thought and action based on cooperatively produced models tend to be more effective because the complexity of real-world situations is represented more adequately (Van Sickle & Hodge 1991, p. 159).

Perhaps, by looking at the work of Vygotsky together with that of Simon, Shulman and Carey; an explanation for Weil and Joyce's somewhat magical 'synergy' (See p. 20.) is to be found!

In the cooperative classroom higher levels of achievement are effected because, more often than not, the social context is not only used but, more importantly, especially structured. It is organised to facilitate cognitive growth through having students operate within classmates' 'zone[s] of proximal development', and employ 'collective rationality'. Peer tutoring groups comprise the special structure of the cooperative classroom. They provide the particular organisation through which students' thinking and learning skills are developed. As discussed in the next section (p. 56), students' knowledge and understanding are enhanced through discussion. This dialogue also increases retention which, when testing was done after three weeks, was shown to have improved to 73%, compared with 58% in a traditional classroom (Gibbs 1994, p. 405).

Peer tutoring

In introducing his summary of research on peer tutoring, Kagan (1994, p. 3:3) says:

> The desire to express oneself to a peer, a constant problem in the traditional classroom, is channelled in the cooperative classroom toward academic achievement.

He continues by declaring that peer tutoring results in positive outcomes for both tutees and tutors, providing technical data to support his statement. He says a meta-analysis of 65 objective studies of peer tutoring concluded that peer tutoring was effective in producing positive academic and social outcomes for both tutees and tutors. In 87 percent of the studies, students from classes that included tutoring programmes

outperformed students from control classes. 'The average effect size across studies was equivalent to raising the performance of students from the 50th to the 66th percentile.' Importantly, Kagan adds, in all of the eight studies that included tutee attitudes toward subject matters, student attitudes were more positive in peer tutoring classes. The effects on the tutors were equally impressive. 'Tutors moved in achievement an equivalent of from the 50th to the 63rd percentiles and their increases in positive attitudes toward the subject matter exceeded that of the tutees.' As Fisher (1993, p. 25) reminds us, the benefits of peer tutoring were known to the Greeks and Romans: '"Qui docet, discit" (Who teaches, learns).' Kagan's final set of results on peer tutoring is of particular interest to teachers who find their belief in the moral/educational right of introducing cooperative learning, where heterogeneous groups are the norm, questioned. In the writer's school there comes the cry: 'The bright students will suffer and I can't allow that!' Such a response is not isolated so the question of cooperative learning and gifted students warrants further investigation. A report on this matter comprises much of Chapter Four.

Slavin (1990, p. 15) provides support for peer tutoring and its role in enhanced learning and thinking. He says the importance of peers operating in one another's proximal zones of development was demonstrated by Kuhn (1972, pp. 833-844) who found that a small difference in cognitive level between a child and a social model was more conducive to cognitive growth than a larger difference.

Continuing to account for the gains of peer tutoring, Slavin calls upon cognitive elaboration theory, noting that the research of Wittrock (1978, pp. 15-29) found that, if information is to be retained in memory and related to information already in memory, the learner must engage in some sort of cognitive restructuring, or elaboration, of the material. This he links to peer tutoring: 'One of the most effective means of elaboration is explaining the material to someone else.' Slavin (1990, p. 16) concludes by drawing attention to the work of four researchers who, among them, stressed two important gains for peer tutoring. Firstly, there are achievement benefits for both tutee and tutor. Secondly, the students who gained the most from cooperative activities were those who provided elaborated explanations to others, with those who received the elaborated

explanations learning more than those who worked alone, but not as much as the explainers.

In accounting for the success of cooperative learning, as well as stressing peer tutoring, Kagan (1994, pp. 3:2 - 3:4) makes a number of further claims. Many of its special structures, such as Jigsaw, (See Chapter Six.) encourage practice, with students practising more often as well as for longer than do students in traditional classrooms. He notes that not only do students spend more time on practice, they generally are on task for longer. Kagan says that of ten research studies examining time on task in cooperative and in control classrooms, seven showed time on task is greater in cooperative classrooms. He concludes that the increased time on task results from the game-like structure of many learning tasks, the clarity of the task structures and the subdivision of the tasks into easily mastered parts. Most importantly, says Kagan, the enjoyment of the social interaction and the group rewards make cooperative learning work. He elaborates on the matter of rewards and motivation in cooperative learning. As this is an issue, it is deserving of presentation from many points of view. This follows in the next chapter.

Motivation

In compiling their list of positive elements of cooperate learning, Adams & Hamm (1994, p. 45) place '[i]t motivates students' first, giving as the reason that students enjoy talking and working together. Of the five forces by which William Glasser (cited in Gough 1987, p. 656) shows everyone is internally motivated, they saw the last, fun, as *the* force. What of the others? The issue of motivation requires careful analysis.

Firstly, what is motivation?

> Motivation is most commonly viewed as a combination of the perceived likelihood of success and the perceived incentive for success. The greater the likelihood of success and the more important it is to succeed, the higher the motivation. Success that is intrinsically rewarding is usually seen as being more desirable for learning than is having students believe that only extrinsic rewards are worthwhile (Johnson & Johnson 1991, p. 38).

The Johnsons, who are strong advocates of cooperative learning, declare that as more students working within cooperative structures perceive that they are likely to succeed, they view success as being more important than do those in competitive or individualistic

situations. Therefore, students within cooperative learning classes are better motivated.
They add: 'In addition, cooperative learning tends to generate intrinsic motivation to
learn, while competitive and individualistic learning tend to be fueled by extrinsic
motivation' (Johnson & Johnson 1991, p. 39).

Johnson and Johnson are supported by Sharan and Shaulov (Sharan 1990, p. 173):

> Most authors of professional works and research studies on cooperative learning have
> asserted that this approach to classroom instruction enhances pupils' motivation to learn
> more than the traditional whole-class approach to instruction.

They consider two sets of variables to be central to explaining the 'superior motivation
effects of cooperative learning': 'positive social facilitation' together with 'peer
acceptance in small cooperative groups, and enhanced pupil involvement in decision
making regarding one's work'.

Sharan and Shaulov (1990, p. 174) say that cooperative learning fosters positive social
relations among students through peer collaboration and mutual assistance as, in small
groups, they work towards a common goal, largely free of competition. They contrast
this position with whole-class instruction which, they say, generates 'invidious social
comparisons, and competition for the teacher's praise and attention'. When so few can
'win' in the whole class, competitive situation, Sharan and Shaulov say that fear of
failure, combined with negative consequences of social comparison, serve to reduce
motivation to learn. Moreover, the competition and the reward system prevailing in
whole-class instruction make students dependent upon extrinsic motivation to achieve.

Before providing details of their research on motivation, Sharan and Shaulov (1990,
p. 175) cite eight sources as contributing to the following information. Self-regulation,
the power to make decisions affecting one's own work, and involvement with others in
making decisions regarding both the process and product of one's work are considered
to be critical components of high-level motivation in respect to carrying out tasks. The
two Israelis carried out their experiment in 17 sixth-grade classrooms. There were 28
teachers involved and three subjects; Hebrew language, Bible and literature; with ten
being taught using the cooperative learning structure called Group Investigation,
(See Chapter Six.) and seven being conducted with the traditional whole class method.

They concluded that their study showed that the Group Investigation approach affects students' motivation to learn, achievement and social relations more positively than does whole-class instruction.

The increased motivation, Sharan and Shaulov (1990, p. 196) decided, resulted from learners receiving 'support from peers' as all worked towards a 'common goal', and a 'far greater degree of decision-making power over their own work than most other approaches to classroom instruction'. For a while, they elaborate, students share in initiating events in their lives in school, and they are therefore willing to invest greater effort in learning than when they are constantly told what and how to learn. Sharan and Shaulov show that when the Group Investigation structure is used two more of Glasser's motivating forces, power and freedom, are acting to raise student motivation levels. Love, in the form of peer loyalty and of wanting to maintain the esteem of one's group, also mediates.

'Support from peers' and all working towards a 'common goal' as elements contributing to motivation are expressions of two of the basic principles of cooperative learning: positive interdependence and individual accountability. They provide the overarching motivation without which the cognitive gains of peer tutoring could not be utilised.

Johnson & Johnson (1991, p. 127) say 'positive interdependence and individual accountability provide the 'incentive for success' and are major contributors to the 'likelihood of success' which is heightened by the cognitive gains of peer tutoring. According to Johnson & Johnson, then, within the set of principles of cooperative learning is the subset of motivation. What is positive interdependence? Johnson & Johnson say it is the perception that each student is linked with others in a way so that he/she cannot succeed unless the others do (and vice versa): each student's work benefits the group and the group's work benefits him/her. In small, cooperative learning groups it promotes a situation where individuals work together to maximise the learning of all members. Bennett et al. (1991, p. 33) say that individual accountability is 'holding every member of the group responsible to demonstrate accomplishment of the learning'. Johnson & Johnson (1991, p. 141) explain that with positive interdependence and individual accountability working together, each group member takes personal

responsibility for, first, contributing his/her efforts to accomplish the group's goals and, secondly, helping other group members to do likewise. 'The shared responsibility adds the concept of *ought* to members' motivation - one ought to do one's share, contribute, and pull one's weight.' The shared responsibility also makes each group member personally accountable to the other group members. Students, Johnson & Johnson assert, 'realise that if they fail to do their fair share of the work, other members will be disappointed, hurt and upset'.

Kagan (1994, p. 3:4) adds to the concepts of positive interdependence and individual accountability by drawing attention to features of the reward system which are parts of them. First, he notes that in contrast to the usually written teacher rewards of the traditional classroom, those given in the cooperative room are more often from peers; so are frequent, immediate and powerful. Most awards are group based so that there are systems such as the following listed by Johnson and Johnson (1991, pp. 142, 143):

1. Individual score plus bonus points based on the members attaining specified criteria;
2. Individual score plus bonus based on improvement scores of all members;
3. Group score on a single sheet produced;
4. Random selection of one member's paper to score;
5. Average of each student's score.

Kagan (1994, p. 3:4) draws attention to what he considers are the benefits of cooperative award systems where performances are compared with previous scores and where all have the opportunity to score well. He describes an interesting set of experiments which demonstrates that group awards have a desired effect upon peer tutoring and upon student achievement. The experimenters manipulated which students' scores would be used to determine the group assessment, and also how many students in a group would receive the group rating. When the group rating was contingent on the scores of the highest achievers, it was the highest achievers who appeared to learn the most; and, when the group grade was contingent on the scores of the lowest achievers, it was the lowest achievers who learned most. Kagan concludes by noting that group rewards which create interdependence among students promote prosocial behaviour.

Of particular interest are the results of eleven studies which investigated what Kagan (1994, p. 3:4) calls 'pro-academic peer norms', or students being encouraging of one

another to achieve higher awards.   He reports that over half showed students in cooperative learning develop significantly more positive pro-academic norms for achievement.   This, he thought, worthy of comment because of the relatively higher positive shift compared with those of parental and teacher norms.

Conclusion

Theorists claim that cooperative learning is successful because it occurs in a social context where there is planned maximum positive interaction.   Within it, a key element is peer tutoring that capitalises on superior cognitive processes, while two of its principles, positive interdependence and individual accountability, cause students to be highly motivated to learn.

Chapter 4

What Do the Critics Say?

It was decided that an investigation of cooperative learning needed to bring to notice its weaknesses. What are the views of its critics? Are they valid? These questions were framed with the aim of achieving a complete picture of the pedagogy. With this, it was more likely that the decision to introduce or to avoid the model could be soundly based. This chapter presents the criticisms found. There are three:

1. The prevalence of extrinsic reward systems, usually associated with the competitive pattern of classroom interaction, at the expense of the intrinsic which are seen to be of greater value;

2. The unsuitability of the model for senior secondary classes where students compete for places at institutions of higher learning;

3. The stress on heterogeneous rather than on homogeneous teams so that it is seen that the so-called 'gifted' are disadvantaged. It is perceived that such students need to work with those who are labelled similarly.

The arguments of the critics of cooperative learning are presented together with replies of its defenders. The chapter concludes with outlines of the current situations of the areas attracting criticism as they appear in the writer's state, Tasmania.

Reward system

Theorists and researchers such as Johnson and Johnson (1991, p. 177) may account for the high levels of motivation in cooperative learning classes. Others, for example, Sharan and Shaulov (1990, pp. 177-196), may confirm its existence. However, Sapon-Shevin, Schniedewind (1989/1990, pp. 63-65) and Kohn (1991, pp. 83-87), question the reward system used by some cooperative learning practitioners. Noting the use of what they would term extrinsic rewards, the critics wish to see intrinsic rewards only. Keen to set about trying to maximise the benefits of cooperative learning, they are concerned that conclusions of research on 'the perils of using rewards to bribe students' have not been heeded. Kohn declares:

> What should be one of the central areas of discussion, however, has not yet received the attention it deserves. I refer to the prominent role assigned to grades, awards, certificates, and other rewards in many CL models now being offered to teachers... (1991, p. 83).

> ... it is time to abandon the project of trying to fine-tune a system of grades and other extrinsic motivators and instead to set about trying to maximise the benefits of CL in the absence of rewards (Kohn 1991, p. 86).

Kohn agrees that effective cooperative learning depends upon 'promotive interdependence', but he declares that the 'assumption that interdependence is best achieved - or even, as some would have it, that it can only be achieved - by the use of rewards is a claim that demands critical examination'. Rewards, Kohn says, are not only surprisingly limited in their effectiveness, they also tend to undermine interest in the task. Over the long run, he claims, they may actually reduce the quality of many kinds of performance. Kohn (1991, p. 83) declares that no artificial inducement can match the strength of intrinsic interest in a task.

In referring to a number of sources Kohn (1991, p. 86) lists the following negative points on extrinsic rewards:

1. They undermine creativity.
2. The expectation of being evaluated distracts one from the task at hand and interferes with involvement and interest in it.
3. Not only grades but even some kinds of praise (as opposed to purely informational feedback) can undermine interest in an activity.

4. Rewards encourage 'ego involvement' to the exclusion of 'task involvement' and the latter is more productive of achievement.

5. The reduction in motivation has undesirable effects on self-esteem, perceived cognitive competence and sense of control.

6. The promise of a reward is tantamount to declaring that it [the activity] is not worth doing for its own sake.

Kohn says that he was drawn to cooperative learning 'because of the manifest failure of competition'. One of the reasons for competition's failure, he adds, is its status as an extrinsic motivator. He concludes by asking whether the use of grades and other rewards to ensure cooperation is not taking away with one hand what has been given with the other (Kohn 1991, p. 85).

Sapon-Shevin and Schniedewind (1989/1990, p. 63), too, are concerned that extrinsic rewards link cooperative learning closely to competitive models, causing mixed messages to be sent to students:

> If we use cooperation only to foster a higher level of competition, then we are sending mixed messages.
>
> Do we want to teach students that there are intrinsic values to cooperation or is it simply another, better way to get ahead of other people?

Attracted to cooperative learning because they saw its potential to transform schools, and, ultimately, society by creating communities of caring and support, which, in turn, engender high levels of achievement in many domains, Sapon-Shevin and Schniedewind express concern that conflicting values are being taught.

A response for critics such as Kohn has been prepared by Slavin (1991, pp. 89-91). He introduces his paper in the following manner:

> One of the poignant ironies of the cooperative learning movement is that the educators and researchers most often drawn to such a humanistic, prosocial form of instruction are the very people most likely to be ideologically opposed to the use of rewards for learning. Yet classroom research over two decades has consistently found that in elementary and secondary schools, the positive effects of cooperative learning on student achievement depend on the use of group rewards based on individual learning of group members.

Continuing, Slavin says that in almost every study of cooperative learning, in which cooperative classes achieved more than traditional control groups, some sort of group reward was used. He adds that in research, conducted by his own university, The Johns

Hopkins, this reward is usually certificates for teams whose average performance on individual assessments exceeds a pre-established standard of excellence. He notes that Kagan and Johnson and Johnson often recommend giving 'grades' on the basis of group performance, while Sharan and Shachar evaluate group projects to determine which group members contributed unique elements.

In arguing against Kohn's stance that extrinsic awards are ineffective, and that they actually undermine intrinsic interest, Slavin (1991, p. 89) states that Kohn's reading of the research is 'extremely narrow and therefore misleading'. Many of the experiments involved short time periods in artificial settings and a task unlike most school tasks. Slavin notes that there are just as many studies that show that rewards enhance continuing motivation or that they have no effect on continuing motivation. He asks whether undermining effects apply in situations like typical primary and secondary classrooms. Slavin continues by noting that scores of studies do not support the 'simplistic view that rewards are bad'. In building his argument for rewards, Slavin says that the most important counter evidence is the consistent finding that rewards enhance motivation when the task involved is one that students would not do on their own without rewards.

In elaborating upon this conclusion, Slavin (1991, p. 89) says there is a need for teachers to try to make everything they teach as intrinsically interesting as possible; but he believes students are unlikely to exert the 'sustained, systematic' effort to master a subject truly without some kind of reward such as praise, grades or recognition.

It is on this point that Sapon-Shevin and Schniedewind (1989/1990, p. 64) would again take issue with advocates such as Slavin, arguing that cooperative learning is about 'sharing more responsibility for learning *with* students, involving them in decisions that affect their lives, including what they want to learn'. Sharan and Shaulov's Group Investigation structure (1990, pp. 173-202) (See Chapter Six.) follows the model that the former consider more open to intrinsic motivation; but it should be noted that the material with which the students work is more knowledge rather than skills based. Not all subject areas appear to be suited to its use.

Slavin (1991, p. 89) believes that it is unlikely that cooperative learning could be successful without group rewards.   In *Cooperative Learning-Theory and Research* Sharan (1990, pp. 231-260) includes a chapter, written by Solomon et al., on the Child Development Project of San Ramon, California.   A subset of the cooperative learning model, this general structure, which does not permit the use of group rewards, is used by Kohn to show that group rewards are unnecessary.   The writer notes that while the research of Solomon et al. shows that the major aims of this model, the social ones, were fulfilled within the classroom and, to a lesser extent, outside, on academic achievement the result was: 'We conclude that pursuit of the CDP program did not impede academic progress, as indexed by standard achievement tests' (Sharan 1990, p. 225).

As Slavin (1991, p. 90) says of CDP: 'After 5 years of cooperative learning...students performed academically no better than did students in traditionally organised schools.'

Solomon's summary of the academic results of the Child Development Project may be contrasted with Slavin's. In 35 studies of cooperative learning methods, the latter found those using group rewards and individual accountability achieved a median of 32 percent of a standard deviation more than traditional classroom achievement measures. Overall, the median difference in achievement between forms of cooperative learning that used neither group rewards nor individual accountability and traditional methods was only 5 percent of a standard deviation (Slavin 1991, p. 90).

In defending the importance of group rewards, Slavin points out that a key explanation for the positive effects of cooperative learning on achievement is that it creates peer norms favouring high attainment: students say that their groupmates' achievements are important to them. Slavin (1991, p. 90) asks, 'Without group rewards, why should a groupmate's achievement be important?'

After noting that in traditional classes many students are reluctant to ask for help, particularly where explanations are required of one another, Slavin (1991, p. 90) says that the fact that in cooperative learning all students are striving towards a common goal helps students overcome this reluctance. The student asking for help knows that it is in the interests of both for the assistance to be given.

In concluding his defence of group rewards Slavin (1991, p. 91) states, '...just about every school in the world uses grades, praise, recognition and other rewards to maintain student motivation.' The rewards he uses are paper certificates which for him 'make tangible the teacher's pride and satisfaction with students' cooperative efforts'.

Although Slavin shows that students gain in knowledge in the short term from extrinsic rewards, what of the long term? He does not provide any comparisons over the longer term and nor does Solomon. The argument may be that extrinsic rewards are given in traditional classrooms; so, if there are any detrimental effects, those from cooperative learning will be no more damaging than those from the competitive classroom. However, in the short term the increased academic success in the cooperative classroom may encourage more learning. And, to return to Solomon's Child Development Project, the long term effects of the increase in social skills of these students has not been assessed either. Meanwhile, it is clear that those who oppose the giving of extrinsic rewards on ideological grounds have not been answered by Slavin. For the writer, who is in a school where awarding marks in the form of letter-ratings for students in every year group is policy, there is no choice. There is the concern, also expressed by Kohn, Sapon-Shevin and Schniedewind, that students may receive conflicting messages when values underpinning the structures of cooperative teaching and learning, those associated with working together, sharing common goals, resources and environment, are ultimately represented in the reward system of the competitive technical system.

Senior secondary colleges

Conflict between the values and the reward system of cooperative learning are seen as a potential problem by the writer. Marian Matthews (1993) sees it as a real one in the colleges of the Pontales district. Assistant Professor of Education at the Eastern New Mexico University, she describes the teachers at one particular college as being very well trained in cooperative learning and as having 'exemplary practices' in the model. However, after being in the college and interviewing students, she responded as follows:

> ...most of the students I interviewed were anxious to be accepted into Ivy League and other similarly competitive institutions. How can they value cooperation if their futures depend on excellent grades, restrictive college prep classes, high standardised test scores...?

Matthews' responses came after student comments such as the following, contained in a section of her report: 'One student mentioned a group member who was just "waiting until he was old enough to drop out; he didn't care what kind of grade the group got"' (Matthews 1993, p. 64).

As well as Matthews, others in the United States have questions about the use of cooperative learning in senior classes. Newman and Thompson of the University of Wisconsin question its effectiveness in senior high school, years 10-12. In replying to them Slavin (1989/1990, p. 53) makes four statements:

1. Relatively few studies examine cooperative learning at years 10-12 or at college level.
2. More research is needed in this area.
3. The results are not as consistent as those from elementary and junior/middle high schools.
4. There are several examples of positive achievement effects of cooperative learning in senior high school and college settings.

From Slavin's response questions arise. Why is there little research? Why are the results inconsistent? Perhaps there are too few senior classes using cooperative learning to provide study material?

A research project conducted by teacher educators from five United States' universities in five different states provides some information related to this question. Completed in winter (U.S.) 1994, and entitled *COOPERATIVE LEARNING: What teachers know about it and when they use it* (Sparapani 1994), the research paper has two findings of particular interest. First, individual teachers rather than schools or systems were introducing cooperative learning. Secondly, '[i]t was suggested that cooperative learning practices might not be viewed as appropriate beyond seventh and eighth grades' (Sparapani 1994, p. 5).

Returning to questions arising from Slavin's response, could it be that teachers are discouraged from introducing the model because the values upon which it is built conflict with those of their mandated assessment systems? The two proposed explanations for there being few senior secondary classes using the cooperative learning model certainly apply in Tasmania. However, it is to be noted that, particularly in senior classes where

students are not being prepared for university entrance examinations, an interest in cooperative learning has emerged. Here teachers are searching for ways to engage their less academically inclined students. Many of these young people will find their way into courses at the Technical and Further Education College where they will be trained to be skilled workers such as plumbers and chefs. For the instructors in these institutions a Tasmanian, Paul Kearney (1993), has written a cooperative learning handbook.

Gifted students

As noted in Chapter One, at the writer's school the declaration that all classes would be heterogeneous was avoided. There were two reasons: by a strong lobby of teachers it was considered that the more successful students would be disadvantaged by being in mixed-ability classes, and teachers would find such classes too difficult to teach effectively. Thus, a search for approaches that would assist teachers to become better facilitators of students' learning led to the study of cooperative learning. This model was selected because within it students interact in groups where '[t]eam membership is heterogeneous' (Bennett et al. 1991, p. 34). As well, the model is claimed to have the positive outcomes required by the writer's school: 'Academic gains...improved social and affective gains among the students' (Kagan 1994, p. 3 : 1).

In their plea for the retention of some form of ability grouping for the 'gifted' or for the high academic achievers, teachers at the writer's school are not alone. At The Johns Hopkins University, where one of the strongest proponents of cooperative learning conducts research, comes an article by Mills and Durden (1992). Their writing, which shows concern for one aspect only of the 'gifted' student's life, high academic achievement, says:

> Although this can theoretically be accomplished in cooperative learning groups, it is most efficiently and effectively done through some form of grouping by ability and/or knowledge levels. This is especially the case when curriculum acceleration is necessary to meet the needs of a student with exceptional ability in a special content area (Mills & Durden 1992, p. 14).

Mills and Durden (1992, p. 15), in calling for 'homogeneous' grouping for the 'gifted', do not suggest that cooperative learning as a model be abolished for they see its

principles as being 'politically correct'. Instead, they ask that educators not represent ability grouping and cooperative learning as being opposed to each other:

> Cooperative learning has been pitted against ability grouping since many of the strongest supporters of cooperative learning are also the most vocal critics of ability grouping...A more balanced, critical approach to the use of a variety of educational practices to meet the needs of students is advocated (Mills & Durden 1992, p. 11).

Then, in support of their 'grouping by ability' with 'curriculum acceleration to meet the needs of a student with exceptional ability', Mills and Durden (1992, p. 11) discuss cooperative learning beginning with: 'The acceptance of cooperative learning appears to be pervasive and largely uncritical'. They continue by noting that, although researchers are usually careful to point out that the claims made for the superiority of cooperative learning are based on comparisons with traditional classrooms, the descriptor applied to the choice of comparison is often overlooked. Continuing, they argue that to declare cooperative learning the most effective means of serving the needs of all students, even of the 'gifted', cannot be valid since the conclusion is not based on a direct comparison between cooperative learning and other instructional practices such as ability grouping.

Finally, still considering the academic needs only of the 'gifted,' Mills and Durden (1992, p. 14) declare:

> ...there is a great deal of research documenting the achievement benefits of curriculum acceleration for academically talented students...There is, however, no equivalent research base documenting the superiority of a cooperative learning classroom over an ability-grouped classroom with curriculum acceleration.

Marian Matthews (1992), who questioned the effectiveness of cooperative learning in senior secondary and in college classes, (See p. 67.) also asks about its use with 'gifted' students. In approaching the issue from the student's point of view, she interviewed 15 gifted sixth and seventh graders from a district where various teachers had been involved with cooperative learning for nine years. The model had been introduced by David and Roger Johnson (1991). Matthews (1992, p. 48) was interested in the benefits the pair put forward for their model:

1. Higher level processing because of having to explain material to others;
2. Improved self-esteem, attitudes towards school and acceptance of differences.

In looking at the reasoning behind the 'higher level processing,' Matthews noted that this was said to occur because the 'gifted' would be explaining to others. In rephrasing and in seeking differing analogies to assist different group members, the 'gifted' would be developing their own schemata.

Responding to the claimed value of '*explaining material*,' Matthews (1992, p. 48) said that the 'gifted' students, no number given, 'have a hard time understanding why other students can't grasp material that they have no difficulty with. They also resent having to explain the material to students who won't listen to them'. 'Gifted' students, she added, also resent time taken away from their own learning to work with uncooperative students. They enjoy explaining material to a student who wants to learn, but get frustrated if it is hard for the other student to understand. Matthews stated that none of her 15 students said that explaining to a team mate helped the explainer to understand. As, unfortunately, the paper provides no elaboration, such as the questions asked of the students; it is difficult to assess the value of Matthews' statements. However, using the scant information she provides, it seems that the 'gifted' students Matthews interviewed were dissatisfied with their experiences of working in groups. As she did not appear to have heard any evidence of community spirit, of employing peer tutoring skills or of successful peer tutoring, it seems that Matthews should have looked at the classroom interaction of the students interviewed. Whether they were in cooperative learning classes merely in name, or in practice, would seem to be important.

In probing to ascertain the influence of cooperative learning on the social skill development of the 'gifted', Matthews (1992, p. 48) quoted the following reply from a student:

> I did a project last year and I spent half of my time explaining to the others in the group what to do and they just sat there reading magazines in the library all the time. I did all the work and still got a D on it because they did absolutely nothing.

The advisability of looking at the whole picture; 'theory, classroom practice and student reaction;' becomes clearer as Matthews continued. She appeared to believe that Johnson and Johnson teach that 'gifted' students are expected to organise their team mates: 'The gifted students were supposed to divide the work equally among the group members' (Matthews 1992, p. 48). This is not the writer's reading nor is it her practice. It is her

understanding that appointing group leaders is not usual either. Instead, differing roles are assigned to all students with the aim being to create a sharing, helping community. As well, there is no evidence, apart from the D award, which is presumably for the whole group, of interdependence, a key element of cooperative learning. Matthews' student also fails to provide any evidence of individual accountability, the other element required to motivate students. In fact, in the student's answer, apart from the award, there is no evidence of any of the five basic elements of cooperative learning. Not only are the motivating elements absent, so too are those designed to facilitate positive interaction: face-to-face discussion, the practising of desirable social skills and the processing of the ways in which the students functioned in groups. With formal processing, discussion of the ways in which the groups functioned at the end of each group of cooperative learning sessions, how could such a situation develop in a *cooperative classroom*? This student seems to have described the product of poorly organised and poorly supervised *group work*, not that of a sophisticated model of teaching which takes years of study, practice, discussion and reflection to develop.

Matthews (1992, p. 48) was aware that Johnson and Johnson claim that cooperative learning develops students' social skills. To support her conclusion that the effects on the 'gifted' are negative, not positive, Matthews pointed out that the student whose words she quoted (See p. 71.) made disparaging comments about his/her team members. Then, to show that homogeneous grouping is more successful, helping the more academic students to learn 'humility and democratic values', Matthews included a student quotation from Silverman (Willis 1990):

> If we're are all on the same level we just help each other...overall it's pretty balanced. If one kid knows more on one subject, he teaches the other ones, and if another one knows another subject, he just tells them what he knows. I don't think we have a dominant person [in that case] (Matthews 1992, p. 49).

Matthews did not note the important labelling instruction given to the Silverman group: everyone is 'gifted', so no-one will dominate.

The writer agrees with Mattthews' inference that the 'gifted' student from the heterogeneous group shows that he lacks social skills. However, as the writer indicated in her earlier 'labelling' sentence, the Silverman student from the 'homogeneous' group

does not reveal that he is socially able. He is not exhibiting 'humility' or democratic values, as Matthews suggested, just that he accords those like himself similar academic status. Again, the absence of any hint that the student in the heterogeneous group appreciated the importance of being able to empathise with or negotiate with those who were in his group, adds weight to the proposition that Matthews was not interviewing a student from a cooperative learning class. As his mixed ability class was involved in group work, and the systematic teaching, modelling and learning of social skills had not been important, the 'gifted' student may have appeared to be an arrogant 'nerd' so the others 'left him to it'.

While Matthews' purpose in including student comment on group work may have been to show that 'gifted' students achieve more in homogeneous groups, she has not been successful. When academic achievement is considered, in her student example there is no indication of the criterion or criteria for which the 'D' was awarded. Both the Matthews and the Silverman quotations tell more about social skills. The Silverman reply shows that the 'gifted' student believes that he is able to work well with his academic equals. This, the writer suggests, is easier than achieving positive working relationships with members of a diverse group. As it is not clear that the Matthews' student was part of a cooperative learning class, rather than a member of a traditional class involved in group work, no conclusions regarding the effectiveness of cooperative learning in helping the 'gifted' to develop social skills can be made.

Johnson and Johnson (1991, p. 209), whom Matthews names as the academics responsible for introducing cooperative learning to the district from where her interviewed students were drawn, commend cooperative learning as a model that is of value to high achievers. The two consider that it enables such students 'to feel better about themselves'. It provides opportunities to use understandings gained through the social skills program when students practise and perfect collaborative skills and conflict resolution skills. More importantly, Johnson and Johnson say, the 'gifted' students can be accepted by their classmates and seen as a resource to be shared rather than as people who make them appear to be 'losers'. As they learn to work in collaboration, the students share the group's successes and make friends. As well, while they are learning

to work collaboratively, the 'gifted' are, according to Adams and Hamm (1994, p. ix), among others, preparing themselves for the workplace of today and tomorrow.

To return to Matthews' concern for the gifted students, for what was she arguing? Like Mills and Durden, (See p. 69.) she was asking for some form of homogeneous grouping within cooperative learning and, to strengthen her case, she adds a conclusion arrived at by Kulik and Kulik (1987).

> If we care about the achievement of gifted students, we must allow them some time to work together. When gifted students work together for part or all of the school day, their achievement surpasses that of gifted students who are not grouped together for instruction (Kulik and Kulik 1987) (Matthews 1992, p. 50).

Individuals such as Matthews, Mills and Durden are not alone in recognising the strengths of cooperative learning and wishing to harness or adapt them to meet the needs of the 'gifted'. At least one formal body has expressed interest. The directors of the Gifted Education Policy Studies Program, University of North Carolina have written to the editors of the official international magazine for members of the Cooperative Learning Association, *Cooperative Learning, The Magazine for Cooperation in Education* (Santa Cruz, CA). Part of their letter reads:

> We are particularly interested in the cooperative learning movement and its connection with the needs of gifted learners…The second phase of this project involves locating exemplary programs which have been able to bridge the needs of gifted students with cooperative learning programs (Graves & Graves 1991, p. 21).

In replying to the directors, the editors state their beliefs that cooperative learning benefits all and that resources given to small groups are taken from the body of students. Declaring that *all* students are 'gifted', they indicate that to seek structures exclusively for one group labelled 'gifted' would be to act contrary to the principle of equity in which they believe:

> …*all* students benefit from carefully structured cooperative group work. Many of us believe that giving students opportunities to work together in heterogeneous groups is educationally, socially and psychologically more desirable than having them participate in special programs for certain groups, whether "gifted" or "handicapped". The resources spent on these programs, we believe, would be better spent on enrichment within an integrated classroom….There is an equity issue here as well. *All* students are "gifted" in some way, we feel, and it is the responsibility of educators to discover how to tap and to cultivate these gifts (Graves & Graves 1991, p. 21).

To support their response to the directors, the editors draw attention to an article, *Giftedness as a social construct*, by Mara Sapon-Shevin of Syracuse University, New York. Sapon-Shevin (1989) says that before argument with regard to the effects of 'detracking' and cooperative learning on 'gifted' students are put, some unexamined assumptions need to be recognised. In doing so, she questions the concept of 'giftedness' and thus the existence of separate bodies and programs for students with the label 'gifted':

> ...it implies that there actually are "gifted children" who can be discriminated from "non-gifted" children, and that such identification and labeling is somehow neutral and scientific....In fact, the decision to label only some children as "gifted" and to base that label on a sharply limited set of skills and performance indicators is not an educational division, but a political decision (Sapon-Shevin 1989, p. 39).

The executive editor of the magazine *Cooperative Learning*, Liana Forest (1991, p. 21), and Sapon-Shevin oppose the setting apart of 'gifted' students on two principles. First, they question the validity of the criteria used for identifying such students. Secondly, they see equity, a democratic right, being denied by grouping according to perceived ability, when such action leads to students gaining experiences different from those which would occur had those affected been in heterogeneous groups. Forest and Sapon-Shevin are hermeneutic in their approach; i.e., they believe that by carefully presenting their viewpoint, and by listening to those of others so that all 'messages' are considered, there is the best possibility of contributing to a change which will be better for all. They seek change through sensitive communication.

Opposition to any form of grouping by ability is carefully put by the critical theorists, such as Apple (1979, p. 8), who declare that education is beset with inequalities. He says that through various labelling patterns, education stratifies students to 'fill the requirements of the ongoing division of labor in societies'. He adds that such traditions contribute to the continued domination of powerful groups and classes, helping to create the ideological and structural hegemony of the powerful. Through groupings by perceived ability or success, teachers encourage the perpetuation of inequalities and thus operate in the interests of capitalism. Critical theorists are loud in the condemnation of any practice such as grouping of the 'gifted' in classrooms. They view this as supporting the oppression of the weak by the strong.

Regarding themselves as being democratic; i.e., believing in and speaking sensitively of the right for all to equal participation; rather than Marxist, Liana Forest (1994) and Sapon-Shevin (1989) do not wish to alienate teachers by confronting them in the manner of Apple. They seek understanding of what they would see as their 'morally defensible position' which says there should be equality of access and social justice for all. They oppose the formation of exclusive groups. Instead, through communication channels such as papers, magazines and conferences, they aim to champion an epistemology which they see as being better suited to democracy, cooperative learning. To them the streaming out of the 'gifted' and giving them a special program is to deny the remainder of the student population.

Argument against the provision of exclusive curricula in the form of group composition and/or subject matter is an overarching moral question which, to many, is synonymous with being an educational question. Those who plead the case for the 'gifted', and those who declare that schooling should be inclusive have differing agendas. Communication between the 'gifted' lobby and proponents of cooperative learning is continuing.

The first edition, for 1994 of *Cooperative Learning, the Magazine for Cooperation in Education*, contains a paper by James Gallagher and Ruth Coleman (1994, pp. 21-25). Gallagher is Professor of Education at the University of North Carolina and currently president of the National Association for Gifted Children in the United States. His associate, Coleman, directs assistance programs for the gifted in North Carolina. Their article is followed by replies from Spencer Kagan (1994b, pp. 26-28) and by Johnson and Johnson (1994, p. 25).

Gallagher and Coleman begin their paper by noting that educators and parents 'have expressed concerns about the move to heterogeneous grouping in middle schools, fearing a watering down of curriculum and a lowering of educational challenge for gifted students'. They draw attention to Slavin's claim that high achievers gain from cooperative learning by explaining to group-mates. This statement they answer with: 'time is a fixed resource'. They add that if students are in cooperative groups, studying grade level material, 'they will not have time for the challenging curriculum that is recommended for them (Gallagher & Coleman 1994, p. 21). Again, like Mills and

Durden (See p. 71.) they are showing concern for one aspect only of the 'gifted' student's life, high academic achievement.

Continuing, Gallagher and Coleman (1994, pp. 21-25) report that a 1993 study, in which they were involved, found that there was a major gulf between educators of the 'gifted' and educators espousing cooperative learning. They, therefore, set up an investigation, consisting of five case studies, to determine whether the two could work together. Their paper in *Cooperative Learning* details their conclusions.

Gallagher and Coleman conclude that 'gifted' students saw their being in heterogeneous classes slowing them down. However, they note that the students preferred cooperative learning within the heterogeneous setting to more traditional teaching styles. The young people gave their highest praise to situations where all classmates were treated as 'gifted' and using cooperative learning. After expressing 'clear and overwhelming' enthusiasm for cooperative learning in homogeneous groups, they identified some areas of concern when the cooperative learning groups were heterogeneously formed: 'having to act as the "teacher", doing "all" of the work, being slowed down, receiving lower grades, doing "easy" stuff, and feeling uncomfortable when they appeared "too smart"'. Despite these concerns, Gallagher and Coleman noted that the students also felt they made a real contribution to group work, and that they 'took satisfaction in their ability to act as "helpers"' (Gallagher & Coleman 1994, pp. 23-25).

All the schools where Gallagher and Coleman investigated cooperative learning involving the 'gifted' had 'opportunities for gifted students to work together in cooperative learning groups'. While not stating whether it was decided that future 'gifted' groups in the schools would be heterogeneous or homogeneous, at the end of their report, the two state that all the schools had made a major commitment to cooperative learning. They had supported intensive staff development and the allocation of planning time to the long-term evolution of their cooperative learning programs. Gallagher and Coleman separate the issue of inclusion from that of the effectiveness of cooperative learning as a set of teaching strategies. They defuse the issue, merely supporting the use of cooperative learning with 'gifted' students.

> Cooperative learning has much to offer teachers and students, including gifted students. Further collaboration between proponents of gifted educators espousing CL can, and should, lead to fruitful experiences for all (Gallagher & Coleman 1994, p. 25).

As he wishes to continue with the dialogue with the 'gifted' lobby, in his reply to Gallagher and Coleman, Spencer Kagan (1994b, pp. 26-28), like Mills & Durden, (See p. 71) begins by drawing attention to what he refers to as a 'false dichotomy which sets cooperative learning up as the enemy of gifted programs': 'Which is better for gifted students, homogeneous gifted programs or heterogeneous cooperative learning?' He says that there should be two questions:

1. Should gifted students be grouped into special programs for the gifted.
2. Is cooperative learning good for the gifted (Kagan 1994b, p. 26)?

Ignoring the 'false dichotomy', Kagan proceeds to put his ethical questions which are like those of Sapon-Shevin (See p. 75.):

> Are the academic gains purchased for the gifted students in enrichment programs worth the price of elitism and increased segregation along ability and race lines? Is it morally defensible to support programs which benefit high achievers more than average achievers, rich more than poor, whites more than minorities, and students talented in the usual academic definition of achievement more than students with other talents (Kagan 1994b, p. 26)?

Supported by Johnson and Johnson, Kagan then provides details of the 'lost learning opportunities' of exclusive groupings. The gifted 'can formulate a distorted self-concept' because the comparison levels are skewed. Their preparation for a world of increasing diversity is decreased. He explains that their 'success in part will be a function of their ability to understand, accept, and work with diversity - skills acquired in heterogeneous cooperative learning groups' (Kagan 1994b, p. 27).

On the question of leadership skills, Kagan (1994b, p. 28) says that many gifted students have the potential to become leaders. Working in heterogeneous groups helps them to develop the confidence and knowledge of a wide range of students to assist them with developing their leadership skills. Linked with the confidence the 'gifted' gain from working with a diverse group is enhanced self-esteem.

Conclusion

Like the writer, many teachers have been drawn to cooperative learning in their search for teaching strategies which will facilitate the learning of all students in their mixed ability classes. The desire to provide equality of opportunity for all their students may drive this group to reject the formation of homogeneous cooperative learning groups. However, there are educators who believe that the 'gifted' should be presented with an enriched program delivered in an exclusive setting. At present, many leaders in the cooperative learning field, for example, Kagan and Johnson and Johnson, are vigorously pointing out the advantages of their teaching strategies, perhaps in the hope that the greatly improved personal development of all students in cooperative learning classes will lead to wider acceptance of heterogeneous grouping, particularly in primary and secondary schools.

In Tasmania, it is clear that cooperative learning is being used more widely in primary schools, and interest in its strategies is spreading to the secondary arena. Examination requirements, together with the need for more professional development in the model, have meant that cooperative learning has not been used extensively in senior secondary classes. As in the United States at present, most change in this form of interaction is being led by individual teachers, rather than being whole-school driven.

The assessment system by which many senior secondary teachers feel constricted, so that they are not inclined to adopt cooperative learning whole-heartedly, also affects perceptions of intrinsic and extrinsic motivation. As so much of their work in classrooms has been constantly assessed, it is difficult for teachers and students to work in a system where intrinsic awards only are valued. As cooperative learning is in its infancy, at the writer's school, extrinsic motivators, such as the awarding of group points for fine work, are being used. However, it is clear, as Sharan (1990) noted with his Group Investigation model, that students are being increasingly motivated by the desire to answer their own questions, pursuing their own learning.

Chapter 5

Preparation for Introducing Cooperative Structures

After establishing that the effectiveness of cooperative learning is determined by the adequacy of preparation for it, this chapter declares that much depends upon the teacher. Success, it says, with cooperative learning, described as 'the most complex set of teaching strategies,' demands a great deal of the teacher: knowledge, understanding, commitment and skill which takes years of practice and reflection to acquire.

The six areas of skill and knowledge that are said to control preparation for cooperative learning, and of which it is considered that teachers require mastery, are introduced and discussed in detail. Examples of activities teachers may use to assist with ensuring that students are ready to cooperate are included. At the conclusion of the chapter it is noted that in secondary schools, where not only is the mind set required for cooperative learning absent, but where there may be one which is largely contrary, considerable preparatory work may be necessary.

> The principal reason that schools are built is to provide students with the knowledge, concept skills, and understandings needed for survival in our society. The most important outcome of cooperative learning, and the one that has been most extensively researched, is enhanced achievement. If properly structured, cooperative learning methods can significantly accelerate the learning of all children (Slavin 1990, p. 13).

> ...cooperative learning has been shown in a wide variety of studies to positively influence a host of important noncognitive variables...the overall effects of cooperative learning on student self-esteem, peer support for achievement, internal locus of control, time on-task, liking of class and of classmates, cooperativeness, and other variables are positive and robust (Slavin 1990, p. 53).

The benefits of cooperative learning, as represented by Slavin, particularly his declaring that the academic achievement of *all* students may be enhanced by it, are impressive. Added to the academic gains is a 'host of important non-cognitive' advantages of this set of teaching and learning strategies. However, it is to be noted that there is a qualification, *if properly structured.*

Johnson and Johnson (1991, p. 27) are in no doubt about the superiority of cooperative learning; but, like Slavin, they warn teachers that considerable knowledge and skill acquisition by them must precede students' gains.

> Cooperation is the most powerful of the three ways to structure learning situations.

> ...It is also the most complex to implement. Besides knowing what cooperative learning is, teachers have to understand the various types of cooperative learning...and the essential elements...that make cooperation work.

With regard to this 'most complex' set of teaching and learning strategies, having, in earlier chapters, looked closely at what it is, why its successful use achieves so many positive outcomes, at the details of these gains, and at responses to some of its critics; following the advice of Slavin and Johnson & Johnson, this chapter presents an examination of the controlling concepts of cooperative learning. The next chapter sees these embedded in details of the various cooperative learning structures.

First, it would be useful to look at a summary of what is understood by the term 'cooperative learning'. It is one of the three ways of structuring learning: competitive, individualistic and cooperative. At present, especially in secondary schools in Tasmania, it would be the least used, despite its being 'the most extensively researched educational innovation of all time' (Kagan 1994, p. 3:1). In the 'cooperative' classroom, using collaborative learning activities, the teacher structures student interaction in small,

usually mixed-ability groups, encouraging mutual interdependence and providing individual accountability. In this atmosphere of mutual helpfulness, students talk with one another as they try to resolve issues through face-to-face interaction. Students are encouraged to learn by assimilating their ideas and by creating new knowledge through interaction with others. The teacher organises the classroom, teaches social skills, encourages critical thinking and responds to 'emerging insights' (Adams & Hamm 1992, p. 31).

As can be seen from the above summary describing the way in which cooperative learning functions; unlike the traditional classroom interaction patterns, the competitive and the individualistic; this is collaborative and, most importantly, there is detailed theory, together with planning, to structure the group work. This is vital for as Cohen (1986, p. 3) says:

> Although groupwork has potential for learning, talking and working together with peers is the source of a whole series of problems. Neither children nor adults necessarily know how to work successfully in the group setting. American culture, in particular, provides very few opportunities to learn group skills. These problems can be overcome with proper preparation of the task and of the students.

To be prepared to implement cooperative learning successfully, Kagan (1994, p. 4:1) says that teachers require knowledge of, skills associated with, and understanding of six concepts:

1.   Creation and maintenance of the will to cooperate, including class-building, team-building and reward structures;

2.   Team structures;

3.   Efficient classroom management;

4.   Skills to cooperate;

5.   Basic principles of cooperative learning;

6.   Structures developed for the model.

As all of these concepts, with differing emphases, are stressed by a number of cooperative learning theorists and practitioners, (Cohen 1986, pp. 1-155; Gibbs 1994, pp. 71-174; M^{C}Cabe & Rhoades 1989, pp. 3-29), Kagan's list provides a useful framework for the organisation of relevant information. It should be noted that not all elements of the list may influence every lesson.

Six concepts controlling preparation

Creation and maintenance of the will to cooperate

Class-building

For Gibbs (1994, p. 25), Bennet et al (1991, p. 122), Kagan (1994, p. 9:1) and M^{C}Grath & Noble (1994, p. 21) the keys to class-building are restructuring the social framework of the classroom and class-building activities. They see the former being the replacement of autocratic teacher control by the classroom meeting structure which prepares the students for full participation in a democracy. Formed at the beginning of the year, the classroom meeting circle is a place for introductions, for developing feelings of belonging and for establishing rules for working together. The classroom agreement; arrived at with the pupils, with their need to learn at the centre; is about the ways in which people will relate. It is suggested that the agreement be short and clear.

Teachers following the *Tribes* (advocated by Gibbs in *Tribes* 1994) specific branch of cooperative learning, are asked to have students begin the year by, in their community circle, agree to four principles in their interactions:

- Attentive listening,
- Appreciation/no put-downs,
- The right to pass,[3]
- Mutual respect (Gibbs 1994, p. 21).

The goals are to establish a 'caring environment' and to provide structure for 'positive interaction'. The *Tribes* community agreement offers a model which is compatible with cooperative learning concepts. In elaborating Gibbs (1994, p. 76) says that to have the will to cooperate students need to feel included and of value to others. She believes that teachers must be deliberate in their planning to have students contribute to the construction of the rules controlling their patterns of interaction. To strengthen her

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[3] The 'right to pass' is the right of a participant to say that he/she will not respond, and for this to be accepted without prejudice.

argument Gibbs includes a quote attributed to Seymour Sarason (*The Predictable Failure of School Reform*, 1990):

> When one has no stake in the way things are, when one's needs or opinions are provided no forum, when one sees oneself as the object of unilateral actions, it takes no particular wisdom to suggest one would rather be elsewhere.

Further support for class-building to achieve inclusion and to allow each student to feel respected comes from Glasser (1965, pp. 9, 10) who says that schools fail, not in promoting academic performance, but in fostering warm, constructive relationships essential for success. He believes this is a failure caused by loneliness, and that to be successful students require love and a feeling of self-worth. Within the classroom Glasser (1969, p. 16) contends that love takes the form of social responsibility to help and care for one another. Self-respect he adds, is gained from 'discipline and from closeness to others through love'.

To some onlookers, especially at the beginning of the year, placing so much stress on class-building rather than on academic material, may appear to lead to lower standards in the latter. Kagan (1994, p. 4:2) declares that the opposite is the case. Within the positive class climate there is a network among all students, creating a context in which teams wish to learn. Through the class meetings students believe that they have some control, and this improves the class atmosphere.

In further supporting the use of one regularly scheduled class meeting Kagan (1994, p. 9:1) concludes that it provides one of the most powerful tools for teaching mutual respect, responsibility, caring, social awareness, cooperative attitudes and democratic principles, all of which are goals of cooperative learning. He adds that they may be a major source of support for the teacher as, given a measure of control, students are more inclined to strive to improve the class, find solutions to problems, and suggest consequences for behaviour.

While it appears that when the class teacher is also a subject teacher, the concept of the class meeting may be taken farther, within learning areas there is value in organising short, regular meetings for the discussion of topics not only within the social parameters of the classroom, but also related to the learning area. It is to be remembered that

theorists claim that, at the beginning of the course, time spent on creating positive relations results in increased learning by the students. In a caring environment students feel they can take risks because they feel safe as their classmates have greater respect and tolerance for each other. With a greater sense of security students are prepared to be challenged to higher achievements. As well, they have a sense of personal competence and a sense of purpose because they know that, no matter the level, their work will be appreciated.

The class meeting structure conveys the message: 'you are capable people who indeed manage yourselves and help each other' (Gibbs 1994, p. 78). The holding of regular meetings with agendas provides students with a period to calm themselves after a problem has arisen, and to have suggestions for solutions prepared. Problems may not just be conflicts but opportunities for students to put forward valued suggestions which are improvements. Unexpected, creative, student-generated solutions to problems introduced in meetings demonstrate to students the strength of interdependence. Students, rather than the teacher, may have answers as the former are more likely to be closer in experience to those requiring help (Kagan 1994, pp. 9:1).

In writing guidelines for class meetings Kagan (1994, pp. 9:2) suggests that their function be to provide a forum where announcements are made, events planned, problems solved, class functioning improved and mutual support provided. In recommending that meetings be regular not 'just to put out fires', he is supported by McGrath and Noble (1994, p. 21) who note that William Glasser suggests that they be held at least once a week and preferably every day. There is a number of other recommendations. Where possible, each of the five major functions has time allowed so that students know where they may contribute and share. There should be an agenda on which items must be placed prior to the meeting. Nothing is placed on the agenda unless the teacher 'feels comfortable with it, and no decision can be made unless the teacher agrees.' The writer would not articulate the second and third rules, preferring to request consultation on the students' agenda, and declaring she hoped that every decision effected would be respected. However, she would tell the youngsters that as she is, through the principal legally responsible for ensuring safe, caring, learning experiences, if, on a rare occasion, they wished to act in a manner with which she strongly disagreed,

her decision would be final. The goal would be to give students power so that they would act responsibly as required of citizens in a democracy. In her approach the writer feels supported by Ianni (1989, p. 679): 'Adolescents do generate their own norms and roles, but this process does not and cannot develop in isolation from the institutional context of the communities in which they live and learn.' It is suggested that a committee with a rotating membership be in charge of certain aspects of class meetings, and that one of the major rules of the management committee be creating ways of recognising and celebrating individual and group learning gains together with positive attitudes and behaviour among students. Challenging students to begin and end each meeting with a positive note by praising or complementing class members is considered a useful strategy. When problem-solving is required, each team could chart its own solutions which could be shared by the whole class in a circle. When voting on alternative solutions, instead of a straight vote, which often polarises the class, the students could be introduced to consensus-seeking with *Spend It*. The whole class contributes to suggest alternatives. Students are given 3 tokens, 50 cents, 35 cents and 15 cents. They spend each token on a different alternative. The amount spent on each is summed to arrive at the class decision.

Kagan (1994, 9:2) emphasises the importance of class goals. With these in place, the teams contribute to a higher level goal so that all the teams feel themselves to be on the same side. Without these there is the danger of traditional individual competition merely being replaced by team rivalry: the classroom becomes a 'civil war of teams', with teams rejoicing in the failure of others as this contributes to their elevation. Class goals mean that class success leads to success for all. Positive interdependence among teams can be created through a task structure where there is a larger class project, with one aspect being developed by each team. Points earned by groups are summed to attain the class goal.

Apart from the class meeting structure, the other major approach to developing a class climate which nurtures social and academic learning is the use of class-building activities (Gibbs 1994, pp. 213-218; McGrath & Noble 1994, p. 20; Kagan 1994, pp. 9:4-9:11; Mannison 1993, pp. 10-22; McCabe & Rhoades 1988, pp. 33-46). They improve the climate in facilitating students' coming to know one another, by creating a positive class

identity, by encouraging the valuing of individual differences and by enabling students to experience mutual support and synergy. In the quoted texts that advocate class-building activities there is a wide selection from which teachers may select to suit their students. *Partner Introduction* (Gibbs 1994, p. 367) is an example of a 'becoming acquainted' activity:

> Partner Introduction
>
> Instructions...
>
> 1. State that we are a unique group about to start on an exciting journey together and, like any people coming together, we need to learn about each other.
>
> 2. Have each student find a partner he or she does not know at all or very well. Have the partners decide who will be the interviewer and who will be interviewed. For 1 minute the interviewer will tell their (sic) partner all the things that he/she does not know about them. The interviewee is only to listen and not respond. For example, an interviewer might say that I don't know your name, I don't know how many people are in your family, etc.
>
> 3. The partner being interviewed then responds for 2 minutes giving information that they (sic) would be willing to have share with the whole community.
>
> 4. Have the partners switch roles and repeat the strategy.
>
> 5. Have the community form a circle and have each student introduce his or her partner to the community, and share one thing they (sic) learned about their (sic) partner.

Team-building

Before true cooperation can take place, the will to achieve it must exist. (Kagan 1994, p. 4:2) Usually, especially in the secondary school, where students are more familiar with working alone, this involves considerable planning so that students experience activities that allow them to conclude that to cooperate is of benefit to them. The teacher may organise for this to occur in three ways: she/he plans team-building and class-building activities and establishes task and reward systems.

Numerous advocates of cooperative learning; among them Kagan (1994), Gibbs (1994) and Bennett et al. (1991); tell teachers that they should spend time on team-building and on class-building before asking groups to begin learning the usual skills and knowledge of the curriculum. This, they say, will facilitate more effective group functioning and thus, not only hasten academic achievement, but also encourage the large number of positive attitudes which are products of successful cooperative learning.

> What appears like time off task can be viewed as a very important investment in creating the social context necessary for teams to maximize their potential. Again and again, I have seen greater long run efficiency, learning and liking of class, school and subject matter if teachers take time for team-building and class-building. When there is positive team identity, liking, respect, and trust among class-members, there is a context within which maximum learning can occur (Kagan 1994, p. 4 : 2).

Not all team-building is time off academic work. There are many content-related team-building activities which serve the dual purpose of uniting the team and providing an anticipatory set for the academic lesson to follow. If the teacher is beginning to experiment with cooperative learning, a simple structure such as *Numbered Heads Together* (See p. 126.) may be used with little or no previous team-building. If, on the other hand, the lesson involves activities in which conflicts may arise, it is important that a strong positive team identity is developed prior to the lesson. For success in complex cooperative lesson designs, such as *Co-op Co-op* (See p. 130.) students must have communication skills and group processes which allow them to work well together. Generally Year Seven students have less difficulty working together because they functioned in teams in the primary school, or because they have had fewer years of being indoctrinated into the competitive thinking mode so that ratings on the academic self-worth track are not so powerful.

The general function of team-building is to develop trust. To function at optimum level students need to feel safe, safe to ask questions and confident that teammates will deal honestly and fairly with them. Trust in them comes from knowing teammates which, in turn, comes from working with them. Apart from increasing knowledge of one another, it is useful for team-building activities to help with the creation of a strong team identity and confidence that there will be mutual support from one's fellows. Many team-building activities have been designed to assist students with valuing differences, and a further group assists with demonstrating that working in cooperation can develop synergy which increases learning. Scearce (1993, p. 3) warns teachers who, full of optimism for using cooperative learning to enhance academic learning, 'want to skip the trust-building and get on with the task at hand. To do so is a big mistake.' The most common reason for the failure of team work, she says, is not inability to complete the academic task, but the 'inability of team members to get along; i.e., there's no trust'. Her advice is to begin with simple, non-threatening activities. Bennett et al. (1991

p. 260) add that not only should the team-building activities occur before any academic work, but that they should continue so that a 'sustained dedication and commitment to others over time' is developed.

A large number of texts contains clear outlines of useful team-building activities, in lesson format, that teachers may use. Rather than copy them, the writer will name the texts which she considers are of most value: Bennett et al., *Cooperative Learning* (1991); Gibbs, J., *Tribes*, 1994; Kagan, S., *Cooperative Learning* (1994); Craigen, J. & Ward, C., *What's This Got to Do with Anything?* (1993); McGrath, H. & Noble, T., *Different Kids Same Classroom*, (1994); Scearce, C., *100 Ways to Build Teams* (1993).

Team-building activities help students know one another better. They build a sense of comfort among teammates and a sense of belonging. Student learning is encouraged by their feeling known and accepted. Simple activities may be used in a Roundrobin structure. *Dream Car*, where students, in turn name their dream car and one reason for their choice; or *Quality Initials*, where students can develop a rhythm to chant information which will help them remember their names, are interesting examples.

Quality Initials

Step 1. **Teammates Create New Names**

Team members work together to create new names using their initials and adjectives (Spencer Kagan becomes Specially Kind).

Step 2. **Teammates Use New Names in Chant**

Team members practice these as a chant, initials first, then names, in a Roundrobin. (Everyone would say 'Specially Kind Spencer Kagan, Daringly Jovial David Johnson...')

Step 3. **Add Rhythm**

Rhythm is added as students chant the name and put it to a beat or a clap.

Step 4. **Add Movement**

Kinesthetic movements may be added according to favorite hobbies. Students make swimming movements for Spencer...) (Kagan 1994, p. 8:3).

Activities that help a team define its identity in a unique way assist members to feel pride in belonging. Successful completion of any team project can enhance the sense of team identity. On formation, creating a team name begins the team-building. Three simple rules could be given before the groups begin to choose their team name: (1) Each team member must have a say; (2) No decision can be reached unless everyone consents; (3)

No member consents to the group decision if he/she has a serious objection. These rules set the tone for future group processes which, if the suggested rules are accepted, must include participation, consensus, and respect for individual rights.

Team Boggle, in which students find as many words as they can from a letter grid, is another team-building activity presented by Kagan (1994, p. 8:7):

> **Rules:** Each team-member in turn contributes a word. To count, the letters must each connect to the previous letter by a side or a corner. For example, 'fit' and 'finite' count, but 'few' does not.
>
> **Scoring:** Each word is worth the square of the number of letters it contains. For example, 'fit' is worth nine points.
>
> **Goals:** Make as many points as possible in four minutes. Work to make a list of hints for another team such as 'Find a 36-point word that begins with the letter 'F' and means the opposite of 'unending'.

The Canadian, Craigen & Ward publication (1993), which is a large volume devoted exclusively to team-building activities, provides details of many excellent activities that are suited to Tasmanian schools, especially to Year Seven and Year Eight classes:

> *Straw Structure*
>
> Group Size: {Optional}
>
> Time Line: 10-15 minutes
>
> Equipment Needed: Box of straws, rolls of tape
>
> Space Required: Classroom
>
> *Activity Description*
>
> 1. Put students in groups.
> 2. Give each group a box of straws and one roll of tape.
> 3. Tell each group to make the highest free-standing structure it can by working together.
> 4. Give starting time and all stop when time is up.
> 5. Measure finished structure (Craigen & Ward 1993, GB9).

Kagan (1994, p. 8:10) considers that it is not enough for students to know each other and to feel that they are part of a team. He says that teams are stronger when members feel that they are able to count on each other for support. Any situation in which there is positive interdependence, he considers, creates the feeling of mutual support as students know they are on the same side. Kagan provides details of a long list of activities designed to foster mutual support. Almost all involve physical contact among students

and a larger space than that available in a conventional Tasmanian classroom. To be involved in these, students could be taken outside or into an area such as a speech and drama room.

Craigen & Ward's *Cooperative Balloon Pass* is an example of a mutual support activity which could be used in the classroom:

> ***Cooperative Balloon Pass***
>
> Group Size: 4-8 to a group
>
> Time Line: 5 minutes
>
> Equipment Needed: one balloon per group, chair for each student
>
> Space Required: area for chairs to be set up in a circle for each group.
>
> *Activity Description*
>
> 1. Sit on chairs in circle.
> 2. Pass balloon around circle using feet only, 3 times (Craigen & Ward 1993, GB43).

At some time along the team-building continuum; usually once the students have been involved in activities which help them to know one another better, and which foster team spirit, together with the belief that each member may be trusted to support the other; value clarification activities may be introduced (Kagan 1994, p. 8:11). They, by revealing so much personal knowledge which encourages trusting relationships, have the potential to strongly enhance team cohesiveness. Value clarification activities are designed to accomplish three things. First, they clarify to team members their own values. Secondly, they clarify for them the values of their team members and, thirdly, they help team members to come to the realisation that there is no right or wrong to values, that values are to be accepted as enduring individual differences with which the team must work.

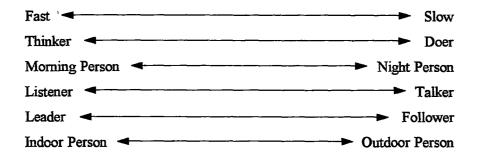*WHERE DO I STAND?* is a values structure presented by Kagan (1994 pp. 8:11-8:13). Students mark their position on a set of value lines indicating their preferences. Later they discuss their responses with their teams to discover and appreciate individual differences. An example that belongs to this group is *I AM.*

> I Am
>
> Instructions: Mark line closest to the word that best describes you.

Fast ◄─────────────────────────────────► Slow

Thinker ◄─────────────────────────────────► Doer

Morning Person ◄─────────────────────────► Night Person

Listener ◄─────────────────────────────────► Talker

Leader ◄─────────────────────────────────► Follower

Indoor Person ◄──────────────────────────► Outdoor Person

Students may also be asked to decide upon the relative importance of values. Team mates may rank terminal values from least to most important. These may include the following: a world at peace, family security, happiness, an exciting life, wisdom, self-respect, salvation and inner harmony. Students may also rank from one to ten, adjectives for instrumental values such as: honest, loving, cheerful, forgiving, ambitious, intellectual, obedient, imaginative, independent, logical and responsible. After working with these values, students could share and celebrate their uniqueness as revealed by their differences.

A development of marking stands on value lines, and of the ranking of values according to numbers is the team project such as *You Have to Have a Heart* (Kagan 1994, p. 4:2). Each team has to make a crucial decision. Members must assign priority numbers to five patients on a waiting list for an artificial heart. A brief description of each prospective patient is given. To reach a decision, first each student must rank the potential recipients. Next, students discuss their rankings and attempt to come to a consensus. The rule is that before a student may express his/her opinion, he/she must validate the thoughts or feelings of a team mate, even if they differ in their opinions.

In the cooperative learning situation it is important for students to be able to appreciate that the group product can be better than that of even the best individual. The sum of the parts interacting is greater than the sum of the parts alone. This is not only due to the pooling of skills and knowledge, but to the increased energy released, or to the synergy released, when individuals are working in cooperation. Any task in which interaction causes stimulation and refinement of ideas will develop synergy.

A simple activity which may be used to develop synergy is *Roundtable Squiggle Art* (Kagan 1994, p. 8:11). When students are in their teams, each student draws one line on

a piece of paper and then passes the paper to the person on the right. The papers go around with students building on the work of each of those before him/her to create a picture. Another simple activity is to ask a group to name the last eight cities where the Olympic Games have been held, or as many important news events that have been reported in the last forty-eight hours.

Alphajumble (McGrath & Noble 1994, pp. 88, 89) is another example of an activity that shows students the increase in motivation and success that they enjoy by working together. In *Alphajumble* the team's members collaborate to find the most unusual words they can think of in a number of different categories, such as a girl's name or the name of a country. All of the words have to begin with the same letter of the alphabet. Roles such as facilitator, recorder, reporter and cooperative skills coach can be allotted to team members. A student picks words out of a lucky-dip box. Each group has perhaps two minutes to think of a word beginning with that letter for each category. If one does not have a word for that category it is left blank:

Letter	Car	Food	Place	Colour
A	Aston Martin	Apple	Armidale	Auburn
P	-	Pineapple	Penguin	Purple

At the end of two minutes another student picks another letter of the alphabet and the groups play the same game again. The game can be repeated as many times as the class wishes. At the end of the game the Reporter in each group takes turns at reading out his/her group's word for each category for each letter. If no other group has that answer, then a point is awarded to that group McGrath & Noble's (1994, pp. 87-90). *Tropical Island* is another, perhaps more creative game, which shows the advantage of synergy. Kagan (1994, pp. 8:15-8:19) has a number of 'team projects:' *Survival in the Desert, Survival Expert's Ranking, Lost on the Moon* and *You Have to Have a Heart* which also facilitate the development of synergy.

Reward structures

The will to cooperate is affected by team and by class spirit; i.e. by class-building and team-building, and also by reward structures. Cooperative reward structures are

commonly created by making the awards of students dependent on each other. For example, a group award may be based on the sum of individual achievements of the members of the group. Members of a team may be told that they are all to achieve mastery; that any one of them may be selected to represent the team; and that the team award will be based on the presentations of individual students. This means that students busily tutor one another as no one is sure of the identity of the representative.

Teachers are warned that, although group assessments can motivate students, there are two major problems. If one student consistently performs poorly, resentment will build up among other students. They will see the weaker students as preventing them from achieving their goal, a high team score. It is suggested that a solution to this problem is to use improvement scoring so all students can perform well, regardless of initial ability level. The changing of team composition about every six weeks, and the sharing of less able, as well as of the most gifted, students around the groups are ways of addressing the issue. The second problem to which teachers are alerted is the feeding of group assessments into reports to parents. Kagan (1994, p. 4:3) says it is not acceptable for a student's assessment to be raised or lowered by the work of another student. A solution to the problem of having the work of a team member directly raise or lower that of another student on the report card is to have team scores, but to use them as a part of a recognition system, never as part of a report card assessment.

Teams

The teacher formally begins the year with the classroom meeting circle. Immediately she is working with students to develop feelings of inclusion and positive relationships so that the way is prepared for the young people to be willing to cooperate. Next she begins to develop their abilities to learn in small groups, or in teams, taking advantage of the knowledge 'that children learn by talking and working together'. They learn more about concepts and ideas by talking, explaining, and arguing about them with others than they do by listening to a lecturer or reading a book (Cohen 1986, p. 1). However, as Cohen adds (1986, p. 3), to take advantage of their potential, the teacher must become an 'educational engineer' who carefully designs and develops student teams.

With regard to the size composition and life time of groups Cohen (1986, pp. 60-63) and Kagan (1994, pp. 6:1-6:12) offer detailed advice. Ideally, they consist of 4 members, enduring for perhaps a month, long enough for strong, positive identities to develop. Teammates then have the opportunity to know and to accept one another, providing mutual support. Of course, the nature of the assignment to be completed will affect the period for which a group may remain together.

Groups of four facilitate pair work and avoid the social psychology of the group of three where there are often pairs and outsiders. In a group of four there are more learning pairs. Compared to a group of three, a group of four doubles pair choices to six. Kagan (1994, 6:2) notes that both the Piaget moral, and developmental work and linguistic development work indicate that we learn best from someone a little advanced on ourselves. With fours the possibility of achieving such matches is much better than when there are threes.

Further supporting the teams of four, Kagan notes that when groups are larger participation tends to be restricted and the management of them presents problems. Within larger teams it is more difficult for students to maintain roles and individual accountability while ensuring interdependence; so that it becomes easier for the student who lacks confidence to retire into the background, or for the dominant student to attempt to take control.

There is also advice (Kagan 1994, p. 6:3) for when classes do not divide evenly by four, or for when there is an imbalance in the sexes. It is suggested that the teacher looks at the groups formed and creates a five where the additional person could best help others. With two students left over, one could be stolen from a group of four so that there are two three-member teams. This, of course. means that a three left over is best kept as such. If there are more boys than girls, or more girls than boys, the best strategy is not to share the scarce resources equally, assigning one boy or girl to each team. One boy and three girls often amounts to one student receiving an inordinate amount of attention. One girl and three boys often is a team with one student being ignored by the other three. The solution given is to assign students to teams of two boys and two girls until there are

no more boys or girls and then have the remaining teams as either all girl or all boy teams.

The most common learning team formation is heterogeneous so that it not only mirrors the classroom and society, but also maximises opportunities for peer tutoring and serves as an aid to classroom management. To the extent possible each team has one high, two middle and one low achiever as well as a mix of boys and girls and of socio-economic groups. In supporting the use of the heterogeneous group as an efficient way of engaging and advancing the learning of all students in a classroom with a wide variety of proficiencies, Cohen (1986, p. 19) says:

> This format allows the teacher to challenge the students intellectually rather than teach down to the lowest common denominator. If each group member is required to turn out a product demonstrating understanding but is allowed to use the resources in the group to achieve that understanding, the student with the weak academic skills will not sit back and go along with the group. If the task is challenging and interesting, he or she will become actively engaged and will demand assistance and explanation. For students more advanced in academic skills, the act of explaining to others represents one of the finest ways to solidify their own learning.

Other than heterogeneous, team arrangements may be random, interest, homogeneous or friendship. Interest and friendship groups run the risk of promoting or reinforcing status hierarchies in the classroom, while random groups may include some where there are strong impediments to learning; for example, four very low achievers or three boys who are friends and an isolated girl. In the interests of valuing and celebrating differences in people, of mirroring that diverse groups must cooperate in the real world and to spread achievement widely, heterogeneous teams are best. Once cooperative learning principles are well established among students, there are times when teams may be composed differently. On one such occasion the high achievers could be combined to enable them to interact and experience stimulation of another type.

Topic-specific teams may offer lively and informative projects or debates. Kagan (1994, p. 4:2) provides an interesting way of structuring such teams. He uses what he terms a 'value line'. Students line up on a value line on the issue, from agree to disagree. They mark their position first on a piece of paper and then take their stance so they do not just go where their friends stand. The line is folded so that the strongest agree person is standing across from the strongest disagree person. The line is folded again so that the

strongly agree and strongly disagree pair walk over and stand with the two at the other end of the folded value line. These were two who either saw two points of view or did not care about the issue. These four students sit down as a team. The remaining pairs at both ends of the line in turn join together as a group of four and sit down.

Team 1   = No strong opinion
          = Strongly disagree
          = Strongly agree
          = No strong opinion

An advantage of randomly selected teams rather than those that are teacher selected, to try to achieve heterogeneity, is that the process is seen to be fair. There are many interesting ways of achieving random groups, and these can be used to encourage students to be enthusiastic. Tearing pictures into four pieces, passing the pictures around the class in any order, and then having students find their group by matching picture pieces is one. As well as helping to avoid resistance against the teacher's choice, and creating the perception of fairness, random grouping also side-steps stereotyping, thus providing the opportunity for students to leap out of the mould into which there is a danger of their being put. It also allows for groupings that the teacher would not choose, and reveals the interesting differences and unusual but successful combinations that irregular grouping may create. After looking at the advantages and disadvantages of random teams, Kagan (1994, p. 6:11) recommends that generally they cannot stay together for long periods. The carefully designed, long-standing, heterogeneous team, where maximum tutoring may occur and where management is easier, is to be favoured. He concludes that teachers should try 'to get the best of both worlds, use a basic long-standing heterogeneous team, with an occasional random breakout team.'

Kagan uses 'long-standing' to describe the heterogeneous team. For how long should teams endure? Kagan (1994, p. 6:15) suggests that, for long assignments, six weeks is the period he had in mind. In their discussion of this question McCabe & Rhoades (1989, p. 152) support this view 'a group may be together...as long as six weeks for a long-term academic assignment'. In elaborating on this point they say that a group may be together 'as briefly as three minutes for an opening or getting acquainted activity'. They add that during the first week or two of implementing simple cooperative learning, that it is 'a good idea to limit the cooperative group assignments to one or two days'. This

gives the teacher an opportunity to see how the students interact with each other, giving her some knowledge of their strengths and weaknesses so that future activities may be better planned. In their discussion of team duration Bellanca, Fogarty and Dalton (1991, p. 156) reiterate the first point made by McCabe & Rhoades: 'How long teams stay together depends on the purpose for which they are formed - and this will vary.' They continue with valuable comment on the important learning about cooperation, learning that may be bypassed if groups are changed too quickly:

> What *is* important with longer-term teams is to recognize that it will take them *time* to work through the phases of the small-group process on their path to becoming effectively performing teams. And during their journeys, you may observe a team that has great difficulty in working well together - often, it's tempting to split them up and have a member or members change teams. Our advice is - consider what students might learn if you do that. They may learn "the teacher's here to solve our problem for us", and they may fail to learn the very skills they need to work with other people. Where at all possible keep teams together for the duration and help them learn to resolve any difficulties they experience (Bellanca, Fogarty and Dalton 1991, p. 156).

In discussing her special set of cooperative learning, Tribes, Gibbs[4] (1994, p. 75) supports the idea that groups should be fixed for a long period. Within the Tribes concept, while the class functioning in the community circle is important, random groups are not. Much stress is placed on creating an environment where students are motivated to learn, because they feel included. Within situations where trust, safety and a sense of belonging are present, Gibbs believes students achieve higher standards:

- People perform better on learning tasks when they are members of "high cohesion" rather than "low cohesion" groups.

- Students who feel comfortable with their peers utilize their academic abilities more fully than those who do not.

Gibbs based her viewpoint on the research of Lott and Lott (1966, pp. 61-72). This has led her to claim that '[a] major difference between Tribes and some of the other classroom group methods is that people maintain memberships in the same group for an extended period of time'. The 'extended period of time' is not clearly defined; but it appears to be for the year. That the relationships within the teams be supportive is the important point, not the period of time itself.

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[4] 'Tribes' is the title of Gibbs' special cooperative learning model as described in *Tribes*.

Kagan (1994, p. 6:13) and Mannison (1993, p. 133) draw attention to the importance of appropriate ways of bringing the working together of teams to an end. They note that after groups have been working together for five or six weeks or for a 'semester', strong bonds should have been formed. Following the celebration of successes, Kagan says that unless steps are taken to allow students to express their feelings and prepare emotionally for the ending of the old team and the beginning of the new one, problems could ensue. Activities such as - the taking and displaying of group snapshots; having teammates collaborate to make a final team statement each; asking teammates to prepare introductions for one another to take to their new teams; and suggesting that students write a short parting letter to each of their teammates with emphasis on such areas as 'What I have learned from you,' and/or 'What I have enjoyed about working with you,' - could be used to bring a round of team activity to a satisfying conclusion.

Efficient classroom management

To make cooperative learning work, as well as leading students to create an inclusive classroom, and successfully dividing the students into teams constructed to facilitate maximum possible interaction among them; the teacher has to develop efficient management structures. Without them chaos results. Cooperative learning requires the efficient management of a classroom of teams where communication is occurring most of the time. This means that in a class of thirty students seven may be speaking or, if pair work is in progress, as many as fifteen voices may be used. As well, a number of students may be requiring materials at once. Despite the additional noise and movement, once management techniques have been experimented with and the more pressing problems solved, Adams and Hamm (1990, p. 12), among others, say that many teachers report that, in the cooperative classroom, their management problems decrease. The reason is that in the traditional classroom there is a mismatch between the needs of the students and the structure of the classroom. The nature of the student is to be active and interactive: students want to do and to talk. The traditional classroom, they say, demands that students be passive and isolated. As students do not give up their needs without a struggle, a great deal of the teacher's energy is spent keeping students in their seats and being quiet. The cooperative classroom, in contrast, Adams and Hamm say, is better aligned with the needs of students. It is based on the assumption that learning

occurs through doing and interacting. Feeling that their basic needs are met in the cooperative learning situation, students, the two claim, are no longer 'management problems'.

Nevertheless, in the cooperative classroom, it is recognised that there is a number of management skills necessary that would not be obvious in the traditional one. With the introduction of teams come concerns, not only about the noise level, but about the distribution and storage of materials, seating arrangements, giving directions and about methods of shaping the behaviour of groups. For example, instructing teams on how to do a complex project involves much more organisation than telling a whole class of students to open a text to a page and to complete a set of problems. One cooperative learning lesson may include a number of structures, each of which can have any number of steps. On occasions the teacher must convey a very complex set of instructions very briefly in order to maximise student-student interaction. Kagan (1994, p. 6:2) advises teachers to favour simultaneous instruction using clear, simple directions for each group. The use of cards works well. Small, individual cards may tell students their topics, where their groups are to work, and name their team members. As Donaldson (1978, p. 34) indicates, students like the control this gives them, and the class is quickly in order. The system is much faster and avoids the repetition and muddle that occurs when students do not listen or forget.

As with traditional classroom management, the establishing of a few simple, attainable class rules, preferably by the students, is advisable before beginning. As noted in the class-building segment, these are best made while students are in their introductory community circle. Gibbs (1994, p. 21) provides a useful model, while Kagan (1994 p. 7:4) has a set of useful guidelines for students composing their rules:

Guidelines for Class Rules
1. Make them positive;
2. Make them realistic;
3. Use simple wording;
4. Limit the number to five.

The cooperative classroom has to be organised quite differently from the traditional one, and the teacher needs to allow for this. Desks, or preferably tables, should be in groups, allowing students to work easily within their groups without troubling those nearby. Each student needs to be able to see his/her teammates clearly and have equal access to them. As well, the arrangement has to allow all students to face a common point for whole class instruction or demonstration, when this is necessary. If the student furniture is arranged in fours, most often this means that the 'arm chair horseshoe' plan is best: two students on one side of the table facing the front or typical demonstration/instruction centre and the other two seated sideways to the special centre.

Before they are required, the teacher establishes easy access to materials, efficient ways of distributing and collecting common materials and joint responsibility for the care of resources. Collaboration belongs here as well as with the acquisition of skill and knowledge of course work.

With so much communication occurring, as action not passiveness characterises the classroom, the noise level is usually higher than in the traditional room. A 'quiet' signal is needed. In the writer's room she has adopted the raised arm advocated by Kagan (1994, p. 7:2). When she raises an arm, all students are still, quiet, and looking at her. The teacher raises her arm; those nearby noticing hers raised, raise theirs; students not looking in the teacher's direction are tapped by others; the actions spread quickly so that, without any loud noises or shouting, everyone is quiet, still and listening.

In cooperative learning the art of giving directions is more important than in the traditional classroom because it is likely that many more students are acting noisily. First, as previously noted, when organising the teams was discussed, written instructions can save time by avoiding duplication. However, as some students are better auditory learners while others are better visual learners, it is advisable for teachers to talk through important instructions in addition to posting them on a chart or on the board. As well, giving instructions in bite-sized pieces is advisable as this avoids the giving of more instructions than students can perform without asking for clarification.

Adams and Hamm (1990, p. 23) make the point: 'Like any proven method cooperative learning is only as good as the ability of its practitioners to model the behavior.' Their advice holds true for the many different behaviours required by this group of strategies. Kagan (1994, p. 7:6) supports them by reminding teachers that students understand in a moment what to do if they have seen it done, while they take a great deal of time to understand if they are only told. He says that there are several ways for teachers to model. They can: model the behaviour themselves; pretend to be a member of a group and role-play the behaviour with the group; work with a pair or a group and then have them model for the class; or wait for the desired behaviour to occur spontaneously and ask students to do again just what they did, for the whole class to see.

As so many students will be using the teacher's instructions and tutoring others according to their understanding, in cooperative situations it is more important than ever that the teacher has ways of checking for understanding ready. Fortunately, there are structures within the strategies which can be used for this. For example, students may repeat directions to a partner or, if there is a sequence of steps, they may use Roundtable or Roundrobin (See p. 127) to have each student, in turn, write or say the steps, one per student.

Especially when cooperative learning is being introduced to a class, Kagan (1994, p. 7:6) advises teachers to structure activities highly. If students are given a task and, if this is not supported by an outline of information or a sequence of actions, the amount and quality of the teamwork may suffer. The following is an example from the writer's 'early days' with cooperative learning. She asked her Year Seven English class to share recommended books. In their seven teams, the students decided that they were interested in four novels, a collection of cartoons, a picture book and a non-fiction book. After a week to allow time for re-reading and the exchange of reading matter, the students, in their teams, were given three sets of instructions, each comprising four parts, one for each team member. There was a set of roles together with a set of information headings and a set of alternative mode presentations. This meant that, for example, the four members of a novel group gathered and expressed information on either:

- Characters,

- Time and place settings,

- Language and the way plot unfolded,

- Introduction and conclusion.

Before beginning, the class was shown a video of a book-sharing by students in the previous year group. This fulfilled the modelling role mentioned earlier.

In cooperative learning there needs to be a balance between the issuing of instructions and allowing students to take responsibility for their own learning. Adams & Hamm (1990, p. 16) describe traditional classrooms as places of 'learned helplessness'. Conversely, they see cooperative learning as an interaction pattern which encourages students to see themselves as capable learners and teachers rather than as puppets being manipulated by teachers. The art of teaching, they say, is being able to decide on the appropriate balance between instruction and experimentation. Without adequate direction, students flounder and lose interest; with too much they receive the message that they lack the intellectual capacity and skill to control their own learning.

Modelling has received attention as an aid to ensuring that instructions are understood in the cooperative classroom. Allied to this is Kagan's 'power of positive attention' (1994, p. 7:7). He reminds teachers that positive teacher attention sets the tone of the classroom. He says, 'Pay positive attention to what you want, and you will get it.' In other words, when groups are not working well, instead of drawing attention to their weaknesses, draw attention to an example which provides a fine model or have the desired behaviour modelled in some other way.

> Studies demonstrate that in traditional classrooms, if teachers pay attention to undesired behaviors, such as out-of-seat behavior or talking, the frequency of those behaviors increases. It does not matter if the type of attention is positive or negative. That is, even if the teacher severely scolds the students who get out of their seats without permission, other students will model themselves after the students who are receiving attention. So, too, is it in a cooperative classroom (Kagan 1994, p. 7:7).

Thus far we have seen that cooperative learning teachers need to organise teams and their seating arrangements, set a 'quiet signal', have students work out their own short list of classroom rules, give clear instructions which include limited elaborations, and pay positive attention to desirable behaviour. The teacher's management role is to facilitate

learning within his/her cooperative learning teams as peer tutoring is at the heart of this pattern of interaction. Adams & Hamm (1990, pp. 14,15) use contrast to clarify the teacher's role:

> Traditional goal structure tended to be teacher centered. Teachers controlled learning by imparting knowledge, maintaining control and validating thinking.... The skills needed for the 1990s can only be achieved by teaching students to be self-starting thinkers who can work together to solve problems. Small group cooperative learning involves significant changes in the role of the classroom teacher. In the cooperative learning classroom, the teacher is faced with the difficult task of encouraging students to become responsible for their own learning. One of the goals is to have students rely more heavily upon their classmates for assistance in doing a task and evaluating an answer. Only after they have checked with every-one in the group can they ask the teacher for help. Teachers specify the instructional objectives, arrange the classroom to maximize social interaction, provide appropriate materials, explain the task and the cooperative goal structure, observe the student interactions and help students solve some of the more difficult problems. They pay attention to the learning process and social relationships within the groups. And they evaluate the group products.

In concert with Adams & Hamm, Kagan (1994, 7:8) says that the teacher's role is one of consultant and observer, not evaluator and director. Responsibility for the task of learning, he stresses, remains with the students. The responsibility for correcting or enhancing the work remains with the students. However, if the students are moving down a blind alley with no possibility of discovering and correcting the error on their own, the teacher may intervene, but the intervention is usually only to make them aware of a contradiction or of some additional resources. If a request from the students is made for an answer, the teacher attempts to make students aware of their own resources, and provides an answer only if the students could not obtain one on their own. Kagan suggests a way of encouraging students to see their teams as their main resource with regard to questions, rather than reverting to the old structure where the raised arm brought the teacher's attention. If a student has a question, he or she must try first to get it answered within the team. If no-one on the team knows the answer, the team can consult with another team. If both do not know, then four hands, rather than one or two go up, signalling a need to consult with the teacher.

There is need for feedback in any classroom: students base their next steps upon the appropriateness or otherwise of previous efforts. The cooperative classroom is superior in this regard as there is often immediate feed-back from one's teammates. But, what is the teacher's position? As he/she walks among the groups, the teacher may give

effective recognition by making positive comments. As noted earlier, occasionally, the teacher may stop the whole class to point out to the group something positive that a team has done. This approach is particularly powerful when directed towards the 'social skill of the week'. The Adams & Hamm quote on the teacher's role says that the teacher has two attention centres: students' learning processes and students' social relationships. In this chapter, little has been said about the latter, but it is too important to be dismissed with several paragraphs at this point. Instead, this will be elaborated upon later in the chapter. (See page 106.)

Other than using verbal comments, the teacher may recognise achievements by using a chart to record special recognition points. Whereas a positive comment is valued in the moment, if it is recorded, there may be additional power to motivate students toward desired behaviours. The recorded recognition of points may be exchanged for a team reward, make progress toward a class reward, or may simply stand on its own as special recognition. In the writer's classroom the 'Best Team' chart is constantly pored over and, although she prefers to have the chart stand alone as the visible reward, she finds it useful for deciding which team may have first choice, which may leave first or which may be invited to be an audience for another class. Not only is the team with the highest score, but also the most improved team rewarded. Students are happy with small rewards as it is not the reward itself that draws attention, but the recognition. To model that learning, rather than winning by showing others to be less competent, is to be valued, the writer places greatest emphasis upon class scores. Tutoring, not competition, is encouraged.

Kagan (1994, 7:9) provides advice for the teacher who finds resistance to team rather than individual assignments. He urges that there be more attention given to team-building activities, suggesting that among the most effective for overcoming resistance are those which promote team identity and acceptance of individual differences. Another approach, he says, is to value patience: allowing the power of group dynamics to take over is often successful. Kagan advises that team learning not be attempted if there is any active hostility among students. If there is hostility, additional team-building is necessary. Once the resistance is overcome, he says, the structure of the

team learning experiences and the group rewards are almost always strong enough to convert tolerance to active acceptance and liking.

Skills to cooperate

Cooperative learning requires informed team organisation; efficient teacher management of teams; student will to learn created by facilitative team and class spirit as well as by positive reward systems; and student skill to cooperate. In the writer's opinion, and in that of most cooperative theorists, the development of students' social skills is a key concept. Without planned, regular attention to the teaching and learning of social skills, academic achievement, as well as the ability to cooperate generally, will be lower than it should be. Cooperative learning requires social skills: gains from collaborative work make cooperative learning the superior educational interaction pattern.

While Kagan (1994, p. 4:5) says; 'The need for instruction in social skills depends on the classroom and in part on the kind of cooperative learning which is to occur;' Johnson and Johnson (1991, p. 58) declare that the development of social skills is the 'fourth essential component of cooperative learning'. They add: 'Persons must be taught the social skills required for high quality collaboration.' To add weight to their argument they include a quote:

> I will pay more for the ability to deal with people than to any other ability under the sun.
> John D Rockefeller

The writer questions Kagan's willingness to accept that instruction in social skills may not be a defining characteristic of this model of teaching and learning. It is true that the skills of students will vary, but to leave the area to chance, is unacceptable. Bennett et al. (1991, p. 226-228) believe that the teaching of social skills is so vital that, in their lesson plan guides for teachers, they list two objectives for every lesson, an academic objective and a social objective. Gibbs (1994, p. 151) also includes a social skills aim in her Tribes cooperative lesson plan, *A Tribes Learning Experience*, for teachers.

So much importance is attached to the development of social skills by Bennett et al. (1991, pp. 111-115, 119-122) that they provide teachers with sample lesson plans where the object of a lesson is solely to teach a social skill. After identifying two long lists of

skills as social skills, Bennett and company suggest that teachers use a series of questions that they provide to help them decide which skills they should concentrate on developing in their classes; e.g., 'Which skills are most important for maintaining effective interactions among group members?' As well, they say:

> Teaching Social Skills Means Helping Students Understand...
> 1. why they are learning the skill;
> 2. what the skill is;
> 3. ways the skill will be practiced;
> 4. how well they use the skill and how they can improve their use of the skill (Bennett et al. 1991, p. 109).

In his discussion of social skills, Kagan (1994) explains his lack of enthusiasm for teaching them as advocated by theorists such as Bennett. He considers that the acquisition of social skills is like the acquisition of language. The latter, he says, cannot be satisfactorily taught formally and nor can social skills. Disparagingly he refers to those who would have social skills taught formally as 'trainers'. Following his discussion of the need for the teaching of social skills Kagan says: '...but social skills are probably best fostered by a heavy use of a formal approach for the first few years of schooling, with a transition after second grade, away from the formal approach, toward the natural approach' (Kagan 1994, p. 14:1).

There are at least three replies to Kagan's views. First, his assessment would have greater influence if cooperative learning were introduced and used with all students from the beginning of their education. Secondly, surely students in classrooms where social skills are taught have the best opportunities: they have what may be hazy understandings clarified by their being expressed in words, which enables them to be seen as concepts that can be reflected upon and therefore experimented with and improved; and they have the opportunity to practise their social skills. It seems to the writer that Kagan, like so many, is unnecessarily caught in the 'either/or' trap. The third response to Kagan, as suggested by the previous sentence, is that an eclectic approach is more likely to cater for the needs of all students.

Although he is not in favour of teaching social skills to students other than first or second graders, Kagan (1994, p. 14:2), in identifying the two main reasons for team failure, notes them as:

1. Students don't want to work together;
2. Students don't know how to work together.

He says that attention to team-building skills should establish the will to work together, and then lists a column of social skills problems which students, who don't know how to work together, have. He continues by saying:

> ...a social skills curriculum is necessary, not only to make our cooperative learning groups function well, but also to prepare our students with essential tools for success in work and life. For every student who loses his/her first job for lack of technical skills, there are two students who have lost their first job because of lack of social skills. Because of the breakdown in traditional socialization practices, for many students school is the only opportunity to acquire social skills. And acquisition of social skills is critical for success in today's world... Today social skills define success (Kagan 1994, p. 14:3).

As well as listing students' social skills problems, Kagan sets beside them details of the curriculum measures required to assist students with overcoming them. A glance down the problems reveals that these are not restricted to young children: many adults have them. Surely as life experiences alter their perceptions and as they develop, students' social skills will require honing and, therefore, specific attention to social skills is not misplaced in any year group. Leaving their acquisition to chance is irresponsible.

Social Skill Problems Define Social Skill Curriculum

Problems	Curriculum Needed
Teams are	
• Too noisy	Inner voices
• Off task	Taskmastering
• Without clear goals	Setting, revisiting agendas
• In conflicts	Conflict resolution skills
• Bogged down	Cheerleading, brainstorming
Students	
• Give put-downs	Praising
• Tell answers	Helping skills
• Talk all at once	Gatekeeping
• Don't ask for help	Questioning skills
• Don't offer help	Helping skills

- Don't listen to others................ ...... Listening skills '
- Grab papers.................................. Requesting
- Don't express appreciations............ Appreciating
- Don't respect opinions................... Paraphrasing

One Student

- Does it all..................................... Gatekeeping
- Does little .... Encouraging, gatekeeping
- Is too shy.................................... Encouraging, praising
- Refuses to work............................ Encouraging praising
- Is bossy...................................... Gatekeeping
- Is hostile...................................... Conflict resolution skills   (Kagan 1994, p. 14:3)

In reality Kagan's approach is little different from that of Bennett et al. who are strong advocates of social skills teaching. Kagan failed to note that 'trainers' like Bennett encourage teachers to ask themselves questions to determine where their students are on the social skills learning path so that lessons may be organised accordingly.

Kagan (1994, p. 14:7) says that the 'Social Skills Center is at the heart of the Structured Natural Approach'. Once a skill has been posted, it serves as an ongoing reminder to teacher and student of the social skill receiving attention. He notes that in choosing a 'skill-of-the-week' the teacher will be appreciating the value of 'focussed learning'. Whatever happened to his 'pick-it-up-as-you-go-along' idea? This is an especially interesting question when one reads his suggestions for introducing the 'skill-of-the-week' which include staging a simulation of solving a social skill problem! His idea of assigning a role, which corresponds to the social skill being addressed, to a student is one with which Bennett et al. would agree. For example, if the team were noisy, a quiet captain would be appointed. Or, if participation were unequal, a gatekeeper would try to ensure that all students participated equally. Rotating the role each day helps to spread awareness of the need to solve the problem.

The writer has found that there is no better remedy for the 'time and-attention grabber' than to give that student responsibility for the gatekeeping role. Bennett et al. (1991, p. 123) also suggest the use of gambits. They help students know how to fulfil their roles by providing positive models, under the headings, 'Looks Like' and 'Sounds Like'. This practice is based on the T-chart described by Johnson, Johnson and Holubec

in *Circles of Learning* (1986). Bennett et al. say that if the teacher wishes to help students with the social skill of 'disagreeing in an agreeable way', for the former the gambit model could be 'group members listening fully to another idea before commenting', and for the latter 'That's an interesting idea, but...'

In suggesting that teachers structure their cooperative learning lessons to social skills, Kagan is again expressing Bennett's model of giving lessons dual objectives, one social and one academic, in a different way. Kagan (1994, p. 14:4) wants teachers, who may find that their students are not taking turns, to use Roundtable or Roundrobin structures (See page 127.) as, in using these, students must take turns. His modelling and reinforcing of social skills may be accomplished by the teacher's asking a group, that is managing a skill well, to model for the class with this being followed by student or teacher praise, or the teacher may join a group to help with the modelling.

Kagan's final step of his Structured Natural Approach to the teaching of social skills is to ensure reflection upon past deeds, and the use of the ideas generated to plan for the future. He and Bennett again agree on ways of achieving this step:

> Set reflection questions.
> 1. How well did you resolve conflicts? (Discuss as a team and mark your group answer.)
> Superbly   Well   In an improved manner   Poorly
> 2. How could you improve? List one idea. (Bennett et al. 1991, p. 113)

Questions could be set for the team as in the example; or there could be student self-monitoring:

> 1. What were some of the things you said when you disagreed in an agreeable way?
> 2. What could your group work on next time to work together better? (Bennett et al. 1991, p. 139)
>
> Using 5 as the highest degree and 1 as the lowest, decide to what degree you were successful in the following areas:
> A. Adhering to rules
> • understanding and following the agreed upon procedure for the group discussion
>   (1)   (2) -   (3)   (4)   (5)
> B. Contributing
> • helping to plan its activities
> • helping others to achieve group goals
>   (1)   (2)   (3)   (4)   (5)   (Bennett et al. 1991, p. 140)

A team-mate observer is useful for alerting students to their problems. He/she is given a tally sheet with the names of students in the team. With a specific social skill in focus, he/she puts a mark each time students make positive comments. At the end of the session, results are examined, conclusions drawn and responses decided.

Basic principles

The skill to cooperate depends upon the development of social skills. Advocates of cooperative learning such as Kagan and Bennett et al. agree that this is so. Kagan (1994, p. 14:3), while stressing the importance of the skill to cooperate using statements such as: 'Today social skills define success', confines his planned teaching to the first few years of school. Bennett et al. perhaps recognising that cooperative learning may be introduced at any time in a student's education, and that continued improvement is desirable, include two objectives to each cooperative learning lesson, an academic objective and a social skills objective (Bennett et al. 1991, p. 286). On occasion the improvement of a social skill may be the sole aim.

- Simultaneous interaction,
- Positive interdependence, and
- Individual accountability

are basic principles of cooperative learning (Kagan 1994, p. 4:5).

Kagan omits 'social skills' and 'processing', reflecting upon the ways in which group members have collaborated, assessing them and planning for improvements. These are usually included, appearing in the work of Johnson and Johnson (1994, pp. 90-94) and of Bennett et al. (1991, p. 33).

The first principle of cooperative learning is simultaneous interaction. In the traditional classroom, usually one person at a time speaks, while in the cooperative classroom there is simultaneous interaction so that usually there are eight speakers, but there may be as many as fifteen. This fact goes a long way towards explaining the advantages of cooperative learning over traditional teaching. The cooperative classroom is one where students are active and they are thus more likely to be learning rather than being bored.

...interaction is characterized by students (a) providing each other with efficient and effective help and assistance, (b) exchanging needed resources such as information and materials and processing information more efficiently and effectively, (c) providing each other with feedback in order to improve their subsequent performance on assigned tasks and responsibilities, and (d) challenging each other's conclusions and reasoning in order to promote higher-quality decision making and greater insight into the problems being considered, (e) advocating efforts to achieve mutual goals, (g) acting in trusting and trustworthy ways, (h) being motivated to strive for mutual benefit, and (i) feeling less anxiety and stress (Sharan 1990, p. 30).

The second principle of cooperative learning, positive interdependence, is succinctly described by Johnson and Johnson in the same paper.

Positive interdependence exits when one perceives that one is linked with others in a way so that one cannot succeed unless they do (and vice versa) and/or that one must coordinate one's efforts with the efforts of others to complete a task. Positive inter-dependence is the most important factor in structuring learning situations cooperatively. If students do not believe that they sink or swim 'together', then the lesson is not cooperative (Sharan 1990, pp. 27,28).

Kagan (1994, p. 4:7) warns that there are weak and strong forms of positive interdependence and that there are dramatic differences between the amount of tutoring and encouragement teammates give each other according to the type of interdependence. When it is strong, such as when success for every team-member is not possible without a successful contribution from each, there is considerable cooperation with every member, especially the weakest, being heavily tutored. However, if the team score is the sum of scores, without the necessity for every member to score well, the weaker students may be ignored by the brighter ones who aim at maximising their own. In this situation cooperation is not being fostered: the interdependence is weak.

Positive interdependence can be created by the task structure (having a single team or class product, including division of labour among teams or individuals, limiting resources, or having a rule that a group cannot progress to the next part of an assignment until all have completed the section before correctly). It can also be created by the reward structure (creating a team score which is an average of individual scores or the sum of how many students reached a predetermined criterion, choosing a randomly selected individual paper as the team score, selecting the lowest score of the team as the team score). Other ways of creating positive interdependence involve resources and roles where students rely on the equipment of each student or on each person filling his

role of perhaps Gatekeeper, Recorder, Coach or Reflector well.   These tend to be weaker than the other three.

After positive interdependence and simultaneous interaction, the third key variable mediating the effectiveness of cooperation is a sense of personal responsibility to the other group members for contributing effort to accomplish the group's goals.   This involves having each team member being responsible for completing his/her share of the work, and facilitating the work of other group members. The individual is to do as much as he/she can to help achieve the group's goals.   (Sharan 1990, p. 31) Slavin (1983, pp. 429-445) showed that cooperative learning methods which provide a group grade or a group product, without making each member accountable for his/her contribution, do not consistently produce achievement gains.

Personal commitment or responsibility can be inculcated by structuring positive interdependence among group members so that they will feel responsible for helping one another achieve the group's goals. Reward accountability can be used. For example, if each student takes an individual test and a team assessment is formed by summing or averaging the individual scores of team-members, there will be reward accountability, if each student knows the contribution of his/her team-members to the team score. A second form occurs when each student is made accountable to the group for his/her portion of a project.

Students can be made individually accountable by having each student responsible for a unique portion of the team learning material, presentation or product.   The most powerful method the writer uses is to set team tasks, telling each team that the work of one member, selected at random, will be presented and that that assessment will be the mark for all. This ensures that all students are tutored. The team will not allow 'free riders', nor is there any purpose in the 'workhorses' trying to do extra to compensate for those who may decide that others are able to perform better than they. At this stage of acceptance of cooperative learning, with this method, care has to be taken to ensure that a student's individual final assessment is not strongly affected by the group award. The individual accountability element of cooperative learning is there to ensure that there are

measures to encourage every student, not just the more strongly motivated, to develop his/her skills.

The fourth basic principle of cooperative learning, social skills, was possibly not included in the category by Kagan (1994) because he named 'skill to cooperate' as one of the 'six elements controlling preparation'.   He considers that social skills are to be taught formally at the beginning of the use of this model of interaction. The skills will then be improved through use. Other proponents, Gibbs (1994), Bennett et al. (1991), Johnson and Johnson (1994) and McGrath and Noble (1994); see planned attention to the teaching and learning of social skills throughout students' education as being vital. Therefore, they include it as a basic principle.

Among those who wish to see social skills teaching as a continuous process are Johnson and Johnson (1994, p. 90) who declare: 'Students must be taught the social skills and high quality collaboration and be motivated to use them if cooperative groups are to be productive...social skills are the key to group productivity.'   They say that '[c]ooperative learning is inherently more complex than competitive or individualistic learning because students have to simultaneously engage in taskwork and teamwork'. They note that in order to coordinate efforts to achieve mutual goals, students must get to know and trust each other, communicate accurately and unambiguously, accept and support each other, and resolve conflicts constructively. They conclude that the more socially skilful students are, and the more attention teachers pay to teaching and rewarding the use of social skills, the higher the achievement that can be expected within the cooperative learning groups.

Considerable assistance with the planning of a course and of individual or group lessons to develop students' social skills is to be found in the work of Bennett et al. (1991, pp. 105-144). Gibbs (1994, pp. 219-384), and McGrath and Noble (1994, pp. 75-90).

In her writing on the evolution of cooperative thinking, Presseisen (1992, p. 1-4) emphasises the importance of dialogue. She notes that students engaged in cooperative learning need to reflect on what they think about the particular tasks of instruction and that they must also consider how they arrived at such thoughts. They are engaged in

metacognitive involvement, 'Instruction in the cooperative classroom requires students to share how they think.' Through dialogue, Presseisen (1992, p. 3) says, they can 'teach themselves more powerful dimensions of thinking'. It is the use of dialogue to teach themselves 'more powerful dimensions of collaboration' that is at the heart of group processing. By allotting two chapters of their interactive resource book, *'Cooperative Learning'* to providing details of activities designed to achieve successful group processing, Bennett et al. show that they attach great importance to the principle. Johnson and Johnson (1994, p. 91) say that without group processing, cooperative learning will not be effective: 'Effective group work is influenced by whether or not groups reflect on (process) how well they are functioning.'

In order to structure group processing, Johnson and Johnson (1994, pp. 91-94) recommend the following of five steps. 'The first is to assess the quality of the interaction among members as they work to maximise each other's learning.' The easiest way to accomplish this is for the teacher or a student to observe the cooperative groups as they work. A formed checklist such as one provided by Bennett et al. (1991, p. 132) is of value in this situation.

'The second step in examining the process by which the group does its work is to give each learning group feedback' (Johnson & Johnson 1994, p. 92). Allocating time at the end of each class session for each cooperative group to process how effectively members work together is vital. Group members need to describe what actions were helpful in completing the group's work and make decisions about behaviours that should continue or change. The information from students' checklists may then go on a chart to help focus discussion on current levels of effectiveness and on ways of improving the quality of the work of the groups. Emphasising positive feedback and celebrating improvements are two ways of encouraging success.

'The third step is for groups to set goals as to how to improve their effectiveness' (Johnson & Johnson 1994, p. 93). Members suggest ways the teamwork could be improved and the group decides which suggestions to adopt. It is here that the value of allowing time for discussion is important. Group functioning will not improve without reflection and time to decide on measures to take.

'The fourth step is to process how effectively the whole class is functioning' (Johnson & Johnson 1994, p. 93). Periodically it is useful, with students in the community circle, for the teacher or a student to conduct a whole-class processing session by sharing an observer's results.

Johnson and Johnson's (1994, pp. 93,94) last step of group processing 'is to conduct small-group and whole-class celebrations'. Building a sense of being successful about subject-matter mastery and about working cooperatively with classmates motivates students to greater achievement heights.

Structures

The successful cooperative classroom has well managed teams that are motivated and skilful at interacting within structures that promote simultaneous interaction, interdependence and individual accountability. Within cooperative learning, a structure is a content-free way of organising student interaction: structures describe the social interaction patterns of students. A lesson may contain many structures or one, or one structure may extend across a series of lessons. There are many different structures, each developed to satisfy varying requirements. Teachers need to know and appreciate the elements of each structure so they may achieve the desirable match of content and structure.

There are perhaps three different schools of cooperative learning, each of which has a different approach to the structure concept: Learning Together of Johnson and Johnson (1994), (Slavin 1995), the structural approach (Kagan 1994), and curriculum specific packages.

Bennett et al. (1991, p. 212) refer to Learning Together as a 'conceptual approach'. They describe it as being characterised by teammates in small, heterogeneous groups working together cooperatively to accomplish mutual learning goals. Rather than containing neat, organisation units, such as Jigsaw (See p. 128.), Learning Together is a framework which encourages teachers to understand the elements of cooperative learning and provides them with clear directions which could apply to any lesson. Advocates of Learning Together claim that it is superior as it encourages transferability

and further development of cooperative learning, while there is a danger that those introduced to the structural approach, and to curriculum specific packages, may learn to operate neat structures only (Johnson & Johnson 1991, p. 189).

Kagan (1994, p. 5 : 1) notes that those who have emphasised the curriculum specific packages have taken the stance that, without curriculum materials especially designed for cooperative learning, quality learning is not likely. The writer's view is that all schools of cooperative learning should be investigated and that Tasmanian teachers should take from all three elements that, according to their philosophy and aims, best develop students to live productive, happy lives. Practically, this means that the curriculum specific packages, which are costly and designed for students in other countries, are of least value.

Conclusion

Cooperative learning wishes to address many goals which may be summarised as:

- higher academic achievement,
- higher self-esteem and motivation,
- the will and the skill to cooperate.

As, particularly in secondary schools, individualistic and competitive interaction patterns have dominated, students do not have the mind set or the interpersonal skills to move straight into learning through cooperative structures. They require considerable experience with team-building and class-building structures, and with activities which develop their social skills.

Chapter 6

Delivery Structures

The delivery structures of cooperative learning are designed to provide frameworks where the principles of this pattern of interaction may be applied to achieve the outcomes planned. They comprise the third step in the introduction of this social model in the classroom:

1. Preparation of students so that they have the desired mind set;
2. Teacher understanding of the principles;
3. Teacher gaining knowledge of and using appropriate delivery structures to facilitate student interaction with lesson content.

It is believed that following familiarity and practice with structures known to be successful, many teachers will adapt them to their unique environments. Ultimately, some will design their own structures. This chapter presents details of the delivery structures of three schools of cooperative learning. First there is information about Learning Together, a general conceptual approach that encourages application of the basic principles of this set of strategies. Next, the structural approach with its multiple strategies, that provide models of ways in which experienced teachers may develop their own, is examined. Finally, curriculum specific packages, combinations of strategies and content, are introduced.

Learning Together

This framework for interaction was developed by two brothers, Roger and David Johnson of the University of Minnesota. It is not surprising that it was the product of the collaboration of sociologist and a teacher. Johnson and Johnson were in no doubt that their conceptual approach would result in long-term gains for teaching and learning.

> Expertise comes from applying what one knows to a specific situation to arrive at a unique adaptation. Conceptual understanding is a pre-requisite to expertise....The essential components approach requires teachers to learn both a conceptual understanding of cooperative learning and the skills to use that understanding to apply (and even create) strategies and teach cooperative lessons....Once understood, the essential elements allow teachers to think metacognitively about cooperative learning and create any number of strategies and lessons (Johnson & Johnson 1991, p. 190).

The Johnsons believe that there are five essential components of cooperative learning and, it is only when these are carefully structured, that cooperative efforts may be expected to be more productive than competitive and individualistic efforts (Johnson & Johnson 1991, p. 53). Learning Together shows teachers how they may build the five principles into a structure that enables them to apply cooperative learning in any subject at any grade level. The principles are: positive interdependence, face-to-face interaction; individual accountability; interpersonal skills and group processing.

Positive interdependence, the perception that the individual's work benefits the group and that the group's work benefits the individual; face-to-face promotive interaction, group members in close proximity acting to help, encourage, and support the achievement of each other's goals; and individual accountability, assessing the quality and quantity of each member's contributions and giving details to all group members, are common to all forms of cooperative learning, the structural or the curriculum specific packages.

Interpersonal skills, interaction skills that enable groups to function effectively, do not have as formal a place within the structural form of cooperative learning and less within curriculum specific packages. Processing, when group members assess their

collaborative efforts and target improvements, is not as prominent in the structural form and absent in the curriculum specific package.

As its title says, Learning Together recognises that the essence of cooperative learning is the togetherness of students and, when students are together, the quality and quantity of their learning will be affected by the way they react to and with one another. Students have to learn how to act towards and how to respond to one another. Planned attention to social skills, in situations where they may be modified, practised and modelled, is of great value to students. Cooperative learning theorists such as Johnson and Johnson (1994) and Bennett et al. (1991) have wide educational intentions: they are not just concerned that all students should use their structures as vehicles for learning content that is introduced through them. They want the structure itself to be continuously refined. They see this as being dependent upon reflection. They recognise that a weakness identified, and then attacked by a plan of action devised by the students is more likely to be eliminated. The teaching skill is asking the students the questions that cause them to become aware of inefficiencies and of excellence. (Johnson and Johnson (1991 p. 59) identify keys to good processing:

> Some of the keys to good processing are allowing sufficient time for it to take place, emphasizing positive feedback, making the processing specific rather than vague, maintaining student involvement in processing, reminding students to use their cooperative skills while they process and communicating clear expectations as to the purpose of processing.

The Johnsons (1991, pp. 62) say that although student activity is stressed in cooperative learning, there is much more to the teacher's role than merely placing students in groups:

1. Clearly specifying the objectives for the lessons;
2. Making certain decisions about placing students in learning groups before the lesson is taught;
3. Clearly explaining the task and goal structure to the students;
4. Monitoring the effectiveness of the cooperative learning groups and intervening to provide task assistance (such as answering questions and teaching task skills) or to increase students' interpersonal and group skills.

To assist teachers with establishing a Learning Together structure, which they may then develop, Johnson and Johnson elaborate upon the five elements of the teacher's role, providing nineteen steps. A detailed presentation of the philosophy and techniques may

be found in Johnson, Holubec & Ray (1984); while a less lengthy, but more extensive description of the steps outlined is included in Johnson and Johnson (1991). The following is a summary of the information giving details of the nineteen steps teachers need to take when using the Learning Together structure. The Johnsons (1991, pp 62-77) begin by saying that in *specifying instructional objectives* there is the need for teachers to specify an academic objective and a collaborative skills objective. When *deciding upon the size of each team*, teachers need to note that smaller groups, twos or threes, are best at first with no more than six in each team. And, *in assigning students to groups*, heterogeneity is recognised as being the goal, while personal traits of students are taken into account to facilitate learning. In *arranging the room* the seating is such that team members are close and facing one another, enabling them to communicate without disrupting the learning of other groups. The *planning of instructional materials* promotes interdependence by communicating that the assignment is a joint effort, e.g., each student may have part of the materials needed to complete the task. The *assigning of roles to ensure interdependence* may be through giving each group member a responsibility that must be fulfilled for the group to work effectively; e.g., Summariser, Checker or Research-runner.

The teacher, in *explaining the academic task*, not only makes sure that students are clear about the assignment; he/she may define relevant concepts and model examples. There is *structuring of positive goal interdependence* with the group goal being emphasised, and it made clear that students must work collaboratively to reach the group goal. In *structuring for individual accountability* there is frequent assessment of the level of performance of each group member. Thus, students know which members need encouragement, help or praise. By *structuring intergroup cooperation* teachers encourage the members of teams who have completed their assignments to help others complete theirs. The criteria by which the students' academic and social learning are evaluated are specified in the *explaining of the criteria for success*. As the word 'cooperation' has many different connotations and uses, the need for *specifying desired behaviours* exists.

This leads to the need for *monitoring students' behaviour* and this is best done with the aid of a formal observation sheet on which is recorded the number of times a special

behaviour pattern emerges. The more concrete the data, the more useful the information is. In monitoring, the teacher determines what problems students are having in completing the assignment and in working collaboratively. In *providing task assistance* the teacher clarifies instructions, reviews procedures and strategies for completing the assignment, answers questions and teaches task skills as necessary. The *teaching of collaborative skills* ensures that there is intervention to suggest more effective procedures for working together; while the *providing of closure* says that students should be able to summarise what they have learned and, where possible, understand where they will use it in future lessons. Teachers may wish to summarise some points, ask students to recall ideas or give samples, and answer any final questions students have.

In *evaluating the students' learning* the teacher uses a criterion-referenced system. Besides being assessed on how well they learn the assigned concepts and information, group members should also receive feedback on how effectively they have collaborated. Two awards may be given, one for achievement and one for collaboration. The next step is *assessing how well the group functioned.* Even if time is limited, some time should be spent talking about how well the groups functioned. The Johnsons warn that if no processing is done, group functioning may decay and important relationship issues may be left undiscussed. Gibbs (1994, p. 405) shows that academic gains are 'impressive' in classrooms where cooperative learning includes processing. She reports an 87% accuracy rate 'and *no* loss in retention of knowledge after three weeks'. With 'cooperative learning' which does not include processing, she reports an accuracy rate of 78%, and that after three weeks a retention rate of 73%. Group processing provides a structure for group members to hold each other accountable for being responsible and skilful group members. Groups new to processing usually require an Agenda. Finally, groups need to *celebrate their achievements*.

Johnson and Johnson (1991, p. 77) conclude that these nineteen aspects of structuring learning situations blend together to make effective learning groups. They stress that teachers will need to teach students the interpersonal and small group skills required to collaborate, structure, and orchestrate intellectual inquiry within the learning groups and

form collaborative relations with other teachers. Implementing cooperative learning is not easy, but it is worth the effort.

Curriculum specific packages

Whereas Learning Together is content free, and can be used to facilitate acquisition of a large range of content, the packages are content bound. They consist of one or more structures combined with curriculum materials especially designed for cooperative learning. The curriculum specific or package approaches represent a mixed set of task and reward structures which have evolved to meet the needs which arise in applying cooperative learning in specific content areas.

Team Accelerated Instruction

Developed by a team headed by Robert Slavin of The Johns Hopkins University, TAI is a mathematics program developed 'to meet the needs of diverse classrooms from Year One to Year Eight' (Slavin 1990, p. 262). Teachers in the United States, as in Tasmania, have heterogeneous classes where there are students who need to work on quite different skills and who progress at quite different rates. Slavin describes it as the first 'comprehensive cooperative learning model' that the group developed, and it 'combines cooperative learning with individualized instruction'.

> ...it was hoped that TAI would provide a means of combining the motivational power and peer assistance of cooperative learning with an individualized instructional program capable of giving all students materials appropriate to their levels of skill in mathematics and allowing them to proceed through them at their own rates (Slavin 1990, p. 262).

In heterogeneous teams of four to five members, students progress at their own pace through carefully designed individualised learning modules. Students are pre-tested and placed at the appropriate point in the individual program. Every day the teacher gives lessons to small groups of students who are at a similar point in the curriculum but who are drawn from different heterogeneous groups. Teachers use special concept lessons provided as part of the program. Following instruction from the teacher, students work in their teams on self-instructional curriculum materials. There are tests for students to complete once practice in dealing with a 'new' concept has been completed. At the end

of each week a team score is computed. This score is based on the average number of units covered by each team member and on the accuracy on the unit tests (Slavin 1990 pp. 84, 85). There is some peer tutoring in that team members are to turn to team mates for help but, as the individual learning modules are designed to be self-explanatory and, as team members are usually working on quite different levels, Kagan (1994, p. 5:10) considers this is minimal. The curriculum materials and training for TAI are available from The Johns Hopkins Team Learning Project, The Johns Hopkins University.[5]

Cooperative Integrated Reading and Composition (CIRC)

A primary school language/arts program, also developed by Robert Slavin (1990) and his associates, CIRC 'represents a bold attempt to apply the principles of cooperative learning and other recent research in the areas of reading, writing, spelling, and English language mechanics'. In CIRC the aim is to integrate the skills so that instruction in each reinforces the others. 'The program also incorporates training in metacognitive strategies for comprehension, retention, and thinking skills' (Kagan 1994, p. 5:12).

The class is divided into two levels: a 'code/meaning' group which receives instruction in phonic decoding skills, vocabulary, and comprehension and a 'meaning' group which has adequate decoding skills and receives instruction on vocabulary comprehension and inference. Sometimes the 'meaning' group is subdivided into two groups (Kagan 1994, p. 5:12).

Students are assigned to teams of four to five members. They are usually assigned in pairs to teams so that they have a partner on their reading level to work with on reading activities. Thus, the team usually has both 'code/meaning' and 'meaning' ability members within it. The work of all members contributes to a team score and to team recognition. Students' scores on quizzes, compositions and books reports are contributed to form a team score (Kagan 1994, p. 5:12).

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[5] The Johns Hopkins Team Learning Project, The Johns Hopkins University, 3505N Charles St, Baltimore, MD 21218.

Students have 'basal' readers. 'Basal' stories are introduced in teacher-led reading groups. During these sessions teachers set a purpose for reading, introduce new vocabulary, review old vocabulary and encourage discussion of a story after the students have read it. Within groups students are partner-reading, studying story structure, involved in story-related writing, practising reading difficult words out loud, involved in word-meaning exercises, retelling stories, or they are learning spelling. The study of reading and writing is integrated. For example, when students are studying quotation marks, they read stories containing conversations and they write dialogues. A pair-editing approach is used to facilitate writing for revision and evaluation of writing (Sharan 1990, p. 271).

Finding Out/Descubiemto

Finding Out/Descubiemto, FO/D, was originally designed by Edward De Avila (Linguametrics Group, Corte Madera, CA) as an instructional approach using activities from mathematics and science. The materials were specifically designed for developing thinking skills in Spanish/English dual language settings; all materials are in both languages. Further development of the program has been by the Program for Complex Instruction at Stanford under the direction of Elizabeth Cohen. In its present form, there are 130 activities grouped around 17 themes or units. Each unit's activities are on a theme such as optics, electricity or measurement (Kagan 1994, p. 5:11).

Finding Out is designed for students between the ages of seven and ten. Organised in small, heterogeneous groups and using activity cards and 'intrinsically interesting manipulatives', students engage in experiments about which, among other activities, they reflect, infer, estimate, confer and computate. The classroom management system requires a blend of individual accountability and collective responsibility. The students are trained to use each other as resources and there are no individual assessments. Elizabeth Cohen claims that, as a result of the engaging tasks, language skills and computation skills are integrated with higher order thinking skills, and students make good gains in achievement and in English language proficiency. Cohen concludes her report on Finding Out, which she wrote for Spencer Kagan to include in his *Cooperative Learning* (1994), with a plea for more of this type of program:

At the school and district levels this program offers a model of organization support that takes account of how schools need to alter the isolation of teachers if more sophisticated instruction is to survive over time (Kagan 1994, p. 5:12).

The structural approach

The structural approach to cooperative learning is based on the use of many distinct ways of organising the interaction of individuals in a classroom. These organisational ways are called structures. Using the three principles of all schools of cooperative learning; face-to-face interaction, individual accountability and group interdependence; many theorists have created and practised with different structures for different purposes.

A structure is content free. It is the social organisation used to deliver a wide range of academic content. The content is the 'what' of teaching, ranging from letter sounds to calculus. Content is delivered via structures; and the two comprise an activity. There are dozens of structures because students are asked to come to know so much that is different. There are, for example, structures to help teams master a skill, a concept or a body of information. Other structures enable students to share one another's ideas; while a third group develops students' thinking skills. Knowing the domains of usefulness of many structures allows teachers to choose the best structure for a given outcome; while an understanding and appreciation of the principles of cooperative learning makes possible the adaptation of a structure.

Numbered Heads Together

Numbered Heads Together (Kagan 1994, p. 5:11) is a simple four-step cooperative structure which can be used with almost any subject matter, with all year groups, and at various places during a lesson. The class is divided into teams of possibly four students. The teacher has students number off within their groups, so that each student is a 1, 2, 3 or 4. The teacher gives a directive to the groups such as, 'Make sure everyone in your team knows how to use the apostrophe of possession.' The students put their heads together to make sure that every member of their team understands and is able to explain how to use the apostrophe correctly. Teams are provided with correct models, together with an explanation and practice examples with answers. Peer-checking and

tutoring ensure that every student knows the work. When testing time arrives, the teacher calls a number (1, 2, 3 or 4) and only students with that number may respond.

Built in to Numbered Heads Together are all the elements of cooperative learning except recognised attention to social skills; however, when it is used by advocates of the structural approach, such as Bennett (1991), he/she will add a social skills objective to the academic one. The students work in teams. There is a management system that facilitates face-to-face interaction and cooperation. Its intrinsic reward system helps to motivate students, and there is positive interdependence. All team members know that when a number is called, the student whose number it is will represent them all; so everyone in the group is not only responsible for his own learning, but for that of his team mates, too. Individual accountability is present: the 'number-called' student has his/her work or the result of that work, on display before his/her group. Team mates will be disappointed if the reward is low and elated if it is high (Kagan 1994, p. 10:2).

Roundrobin and Roundtable

Roundrobin and Roundtable (Bennett et al. 1991, p. 205; Kagan 1994, p. 10:12, 8:3) are simple but potentially most effective structures for the sharing and generation of ideas. The latter occurs because of the synergy effect. They are useful at any stage of a lesson where students are in need of ideas or have lost some enthusiasm. Senior students who are well prepared for cooperative learning, through team-building, class-building and social skills activities, will automatically adopt them in the midst of working through longer, more involved structures. The teams, at best of three to five, form circles. The problem or question is put by the teacher or a class mate. Any student begins with his/her verbal suggestion, in the case of Roundrobin. The student to his/her left either develops that idea or adds another. This process continues in a systematic fashion for a set time or until sufficient information has been reflected upon or brought forward.

With Roundtable instead of communication being oral, it is written. The team has one sheet of paper and one pen which are passed to the left, and the ideas are added as the resources move around the table. A variation of this procedure is to have each partner hold and use a different coloured writing tool while the paper is passed. This visually

reinforces that all partners are contributing equally while also allowing the teacher to document individual contributions.

These structures are particularly useful as they are open-ended. While they may be used in a fifteen-minute session, they may be built upon, so that their end product may be a well-constructed, superbly researched and edited essay, or the solution of a difficult mathematics problem, or the design of a science experiment. Added to this, they have built-in social skills practice: students need to take turns equally. Many other social skills may be discussed, modelled and practised during activities involving these structures. Among them are: asking for clarification; praising; using quiet voices; expressing support/no 'put-downs'; criticising ideas, not people; accepting differences; and disagreeing in an agreeable way.

Jigsaw II

Jigsaw was developed by Elliot Aronson and his colleagues (Clarke 1994, p. 35) His original method requires extensive development of special materials. A more practical and easily adapted form of Jigsaw, Jigsaw II was worked out by Slavin (1986a).

Jigsaw II (Bennett et al. 1991, pp. 219-221; Kagan 1994, pp. 18:15-18:17) can be used whenever the material to be studied is in written narrative form. It is most appropriate in subjects such as social science, and in related areas in which concepts, rather than skills, are the learning goals. The instructional 'raw material' should usually be a chapter, a story, or a biography. The writer has used acts of a Shakespearian play, *A Midsummer Night's Dream*, which students were to attend.

Students work in heterogeneous teams of four to six. There are two sets of teams, 'home' groups and 'expert' groups. In their home groups, each student is given his/her 'expert sheets'. In the writer's case, there were six home groups of five members. Each member was given either a summary of an act or a sheet giving details of the play's elements; e.g., the fairies. In home groups students read their information. This done, students from all groups with the same 'expert sheets' move to form 'new' groups, 'expert' groups. For example, to the writer this meant that all students with a summary of Act I formed an 'expert' group on this part of the play. In their 'expert' groups

students discuss, tutor and learn their information. At the beginning of the time in their 'expert' groups students are told that each of them, on returning to his/her 'home' group, will teach the material being studied. The efficiency of this teaching will be tested as there will be a quiz, or some other form of test, which the whole class will undertake after every expert has shared his/her information. The scores of each student contribute to the 'home' team score. It is each expert's responsibility to ensure that he/she understands and teaches the information well for his/her group will suffer if this does not occur. On the other hand, understanding and fine teaching could result in cheers all round as team scores are high.

The key to the value of Jigsaw is the interdependence created: every student depends on his/her teammates to provide the information he/she needs to do well on the tests. The structure has individual accountability: students realise that, if they do not comprehend the information and do not select the key elements to stress to their team mates, their mates will be aware of this. Individual accountability and interdependence encourage 'experts' to seek peer tutoring. Help is more readily sought, in small groups rather than in whole class situations and, this takes advantage of the fact that peer tutoring is a powerful teaching tool which leads to higher academic achievement. When students are introduced to Jigsaw II, Slavin (1995, p. 123) suggests the preparation of an 'expert sheet' for each unit. This lets the 'experts' know what to concentrate on while they read.

The writer's use of Jigsaw II to prepare students for an unexpected opportunity to attend a live performance of *A Midsummer Night's Dream*, which is not studied in the English courses, was a great success. Having gained a great deal from sharing *Macbeth*, the students were ready to enjoy and to learn more. They also realised that the more they knew about the play, the more pleasure they would gain from the performance. The Jigsaw activity was attacked with concentration and vigour so that the results of the quizzes on it were outstanding for their accuracy. But of most value was a later development. Having participated so well in Jigsaw, and watched an excellent performance of the play by university students, some of whom were known to them, the students wrote extensively in their personal literature journals. The writing of *every* student was spirited, showing a level of insight into the characters which the writer

considered remarkable. Without exception, students commented that they felt it was 'knowing about the play before I went' that made the difference. In fact, a combination of factors, not just the Jigsaw activity, made, what was for many a first attendance at a live Shakespearian production a wonderful occasion.

Group Investigation

Jigsaw II and Group Investigation, together with Co-op Co-op (Kagan 1994, p. 18:1), are referred to as task specialisation methods of cooperative learning. Task specialisation solves the problem of individual accountability by having each student be uniquely accountable for his/her own contribution to the groups; the group's task is inherently interdependent, rather than being artificially made interdependent by the use of a group scoring system. In Group Investigation, teams prepare information and then report it to the class.

Slavin (1990, p. 93) claims that Group Investigation is the most extensively researched and successful of the task specialisation methods. It was developed by John Dewey (1970), but has been refined and researched in more recent years by Shlomo and Yael Sharan (1992).

Rationale

In providing rationale for the strategy, Slavin (1990, p. 94) summarises the educational philosophy of its creator:

> Dewey viewed cooperation in the classroom as a prerequisite for dealing with the complex problems of life in a democracy. The classroom is a cooperative enterprise where teacher and pupil build the learning process on mutual planning based on their respective experiences, capacities, and needs. Learners are active participants in all aspects of school life, making decisions that determine the goals toward which they work. The group affords the social vehicle for this process. Group planning is one method of ensuring maximum pupil involvement.

> A cooperative-investigation method of classroom learning derives from the premise that in both the social and intellectual domains the school learning process incorporates the values it advocates. Group Investigation cannot be implemented in an educational environment that does not support interpersonal dialogue or that disregards the affective-social dimension of classroom learning. Cooperative interaction and communication among classmates are best achieved within the small group, where exchange among peers and cooperative inquiry can be sustained. The social-affective aspect of the group, its intellectual exchange, and the meaning of the subject matter itself provide the primary sources of meaning for students' efforts to learn.

The use of Group Investigation makes it obvious that, before any cooperative learning structures are used to organise the acquisition of content, that time be taken to increase team-building and class-building skills as well as social skills. Without this preparation, Group Investigation, a complex structure in which students are involved in multi-faceted tasks that demand greater student autonomy and group self-direction, would not be possible. Successful implementation of Group Investigation requires prior training in communication and social skills.

As the name implies, Group Investigation is appropriate for integrated study projects that require the acquisition, analysis and synthesis of information in order to solve a multi-faceted problem. The academic task should allow for diverse contributions from group members, and not be designed simply to obtain answers to factual questions. For example, Group Investigation would be ideal for teaching about the history and culture of a country, or about the biology of the rain forest. Generally, the teacher designates a broad topic, which the students then break down into sub-topics. These sub-topics arise from the students' backgrounds and interests, as well as from the exchange of ideas among the students (Slavin 1990, p. 94).

As part of the investigation the students seek information from a variety of sources inside and outside the classroom. The students then evaluate and synthesise the information contributed by each group member in order to produce a group product. Central to Group Investigation is students' cooperative planning of their inquiry. Group members determine what they want to investigate in order to 'solve' their problem; which resources they require; who will do what; and how they will present their completed project to the class. Usually there is division of labour in the group and this enhances positive interdependence among members.

In a class conducting a Group Investigation the teacher serves as a resource person and facilitator. He or she circulates among the groups, sees that they are managing their work, and helps students deal with any difficulties they encounter in group interaction and in the performance of the specific tasks related to the learning project. The teacher's role Slavin advises (1990, p. 95), is learned by practice over time, as is the students' role. Firstly, the teacher must model the social and communication skills

expected of students. In discussions with groups the teacher models a variety of skills such as: listening, paraphrasing, reacting non-judgementally and encouraging participation. The investigation of sub-topics of the students' choice may be supplemented by the teacher's instruction on other topics he/she feels are important.

Implementation

In Group Investigation pupils progress through six stages. In outlining the stages, Slavin (1990) notes that teachers will adapt his guidelines to their pupils' backgrounds, ages, and abilities, as well as to the constraints of time:

Stage 1: Identifying the Topic and Organising Pupils into Groups

- Students scan sources, purposes, topics, and categorize suggestions.
- Students join the group studying the topic of their choice.
- Group composition is based on interest and is heterogeneous.
- Teacher assists in information gathering and facilitates organization.

Stage 2: Planning the Task

- Students plan together:

    What do we study?

    How do we study?

    Who does what? (division of labor)

Stage 3: Carrying Out the Investigation

- Students gather information, analyze the data, and reach conclusions.
- Each group member contributes to the group effort.
- Students exchange, discuss, clarify, and synthesize ideas.

Stage 4: Preparing a Final Report

- Group members determine the essential message of their project.
- Group members plan what they will report and how they will make their presentation.
- Group representatives form a steering committee to coordinate plans for the presentation.

Stage 5: Presenting the Final Report

- The presentation is made to the entire class in a variety of forms.
- Part of the presentation should actively involve the audience.
- The audience evaluates the clarity and appeal of presentation according to criteria determined in advance by the whole class.

Stage 6: Evaluation

- Students share feedback about the topic, about the work they did, and about their effective experiences.

- Teachers and pupils collaborate in evaluating student learning.
- Assessment of learning should evaluate higher-level thinking (Slavin 1990, pp. 95-96).

Elaboration on all the stages of Group Investigation is available in Slavin's *Cooperative Learning* (1990). Fourteen pages of useful information, including prepared sheets to assist students, are available in Bennett et al. (1991, pp. 222-236), e.g., 'Planning Sheet for Cooperative Learning' and 'Report to Steering Committee'.

In their discussion of a Group Investigation project Gunter Huber and Renate Eppler (1990, p. 169) stated that compared with other models of team learning, Group Investigation calls for many interpersonal competencies as prerequisites, but also offers many opportunities to express those skills. As previously noted, the best preparation seems to be extensive as well as intensive team-building and experiences with less demanding forms of cooperative learning. They recommend regular reflection about group processes. For this reason, the class they observed gathered every week in an additional seating circle and members exchanged their experiences. They tried to identify characteristics of team processes that led to success or failure, to analyse and exchange individual ways of perceiving and evaluating the events, and to generalise subjective as well as inter-subjective experiences to establish regulations or norms for future cooperative activities.

Conclusion

In selecting structures to use as part of cooperative learning, most Tasmanian teachers have two options. First, they may adopt the Johnson and Johnson model, Learning Together; which is characterised by small, heterogeneous teams working together to achieve mutual learning goals. Using this framework, which has five elements, teachers may develop their own structures.

Secondly, Tasmanian teachers may adopt the structural approach, using a selection of structures such as Jigsaw II. In choosing this model, the writer would advise them to follow the lead of Bennett et al. in having a social skills objective as well as an academic

objective to each lesson. Several structures have a built-in social skills component, but these are in the minority.

The third approach, which is, in fact, that taken by the Canadian team headed by Barrie Bennett, is to be eclectic, using the concepts of Johnson and Johnson combined with the special structures of the structuralists. The curriculum specific packages are not an option for most Tasmanian schools as they were developed overseas. They meet the needs of students with different experiences and expectations. In this state's terms, they are also expensive.

Chapter 7

Introducing Cooperative Learning to a Classroom

This chapter provides details of the steps the writer took in introducing cooperative learning in her classroom. Conducted in a school where the pattern of interaction was unknown to all but several whose knowledge of and experience with the model was limited, this was a gradual process that extended over two years.

The chapter begins by telling of the steps taken to ensure that the classroom ethos, rather than being a competitive one, where the academically strong appear to be valued most, became one where the emphasis is on learning, academic and social, and on the personal development of all students. It follows the strategies for changing students to caring, sharing young people who see themselves as capable learners and tutors. Next comes information on the introduction of the delivery structures of cooperative learning. There are details of the sharing of the writer's work with staff members and of the widespread acceptance of the possibility that this model could offer much to the school as a whole.

The chapter, and thus this dissertation, concludes with plans to adopt cooperative learning as the official major pedagogy of the writer's school.

Background

The search for a more appropriate teaching and learning methodology

The journey began in September 1993, when the writer began searching for a teaching model which the staff at Reece High, Devonport, of which she is a member, would consider more effective. This occurred as a result of her indicating, in November 1992, that she would like to discuss the introduction of heterogeneous grouping for students in senior English classes. As indicated in Chapter One, there was strong opposition, and this led to the writing of a paper outlining the advantages and disadvantages of 'streaming', or ability grouping (Yaxley 1993, unpub.).

When the literature search for the paper was conducted, *Locked In/Locked Out* (Massachusetts Advocacy Center 1990) was read. Through this document the Center set out to outline the effects of ability grouping which it concluded were undesirable. A second goal of the Center was to find and provide details of more appropriate patterns of interaction for schools. In drawing attention to these the Center stated: 'For all students the grouping is less critical than the quality of instruction' (p. 129). This declaration encouraged the writer to investigate cooperative learning, put forward by the Center, among other sources, as a more desirable methodology.

Purpose of the literature search

The literature search and reflections upon the information studied provided the material contained in Chapters One to Six of this work. It was believed that the search needed to answer the following questions:

1. What is cooperative learning?
2. Is it effective?
3. In what ways is it effective?
4. How does it achieve improved learning?
5. What do teachers need to know in order to use it?
6. What support is available for teachers wishing to employ it?

The replies to the questions had to be accurate, able to be simply summarised so that their concepts could be shared quickly, and supported by a wealth of practical detail. For implementation of cooperative learning across the school to occur, the information needed to show that this pattern of interaction not only maintained academic standards in a disciplined way, but that it met two of the declared goals of the staff:

1. To have students better motivated, and

2. To assist with the raising of student self-esteem.

As well, the processes used to produce Chapters One to Six had to provide sufficient knowledge and develop the understanding necessary for the introduction of cooperative learning to a classroom. The importance of this view was strengthened by Johnson and Johnson's (1994b, p. 59) statements:

> In order to effectively use cooperative learning, teachers must understand the nature of cooperation and the essential components of a well structured cooperative lesson...The complexity and promise of conceptual understanding of cooperative learning make fidelity in implementing the elements of cooperative learning essential.

Necessity for a thorough study of cooperative learning before implementation

Having read and reflected upon cooperative learning, the writer was committed to its implementation. However, it was understood that the introduction had to be successful. The promise of success would not be adequate. If fellow teachers were to be encouraged to take up the innovation, they would have to be convinced of its superiority. As well, unless the model presented could be shown to meet their needs, not only would they reject it, there was a strong possibility that the writer's implementation would not achieve the gains promised. As Hertz-Lazarowitz and Calderón (1994, p. 309) warn, 'teacher isolation is the most serious impediment to effective implementation of instructional innovations'. There was the realisation that, unless other teachers were encouraged to collaborate to bring this changed approach into being, it would fail or be implemented at a much lower level. Three factors effected this understanding. Cooperative learning would introduce a changed culture so that as Graves (1994, p. 283) noted:

Placing cooperative learning groups into the competitive and fragmented climate of the average school seems like setting out tropical flower seeds in Alaskan tundra during the winter. As great as the potential of cooperative methods might be for improving student learning and self-esteem, the approach could easily die without a beneficent environment.

The second factor is linked to the first. If teachers are to foster collaboration among their students, they should be acting in a similar manner. Lazarowitz and Calderón (1994, p. 310) support this view:

The fundamental assumption of our implementation model is that cooperative learning in small groups is not only for students but also for teachers. The author's recent research on mentoring beginning teachers shows that CL structures are very effective in building collaboration among teachers. Teachers that form collaborative teams generally implement cooperative learning at a higher level. This combination of CL implementation with peer collaboration helps teachers make the connection between teaching students and being a learner within the teacher's community. Moreover, it creates the organizational framework for long-term retention of collaborative work in the school.

The third reason for the support of other staff members being necessary is that learning to implement cooperative learning is not easy. The teacher requires feedback and the power of synergy produced by teacher collaboration to assist students with their learning together:

Almost all of the authors whose work appears in this volume, Sharan's *Handbook of Cooperative Learning Methods*, emphasize the critical importance of teachers' cooperation for mutual assistance in planning, implementing, coordinating, and evaluating their work with cooperative learning methods...since cooperative learning is a more sophisticated form of instruction than whole-class direct teaching, teachers will require feedback and support from colleagues (Sharan 1994, pp. 344, 345).

Workshop attendance

In January 1994, Canadian cooperative learning theorist and practitioner, Barrie Bennett, one of the authors of *Cooperative Learning*, an interactive resource book, was invited to Tasmania. The workshops he conducted were called *Extending Teaching Repertoires*. In the detail elaborating upon the title appeared 'cooperative learning'. The writer, after an initial rejection, lobbied the school's professional development committee for assistance to attend. Eventually just the attendance fee was met. As the workshop was over four days during the summer holiday and involved considerable expense for travel and accommodation, no other staff member could be persuaded to try to gain acceptance. This was a disappointment as the writer knew that for innovation from workshops to be transferred it is desirable to have a team to attend. This allows for

discussion of ideas, observation of one another's implementation, for the giving and receiving of feedback, and for collaborative 'think tanks' to solve problems, and assist with planning.   As well, learning and sharing in a social setting gives pleasure, encouraging more activity which leads to change being implemented faster and at a higher level of competence.

During the workshop, participants were in cooperative learning groups.   By role-playing the parts of students, teachers were able to empathise with the members of their classes and thus develop better understanding and appreciation of cooperative practice.   Theory information was given in short bursts usually interspersed between changes in strategies and closely related to the action.   By using pages from Bennett's *Cooperative Learning* (1991) teachers became familiar with how the sheets could assist in their classrooms, encouraging them to continue to experiment with and adapt them to their needs.

Attending the workshop was of great value.   It provided an excellent model which, for the writer, significantly developed her appreciation of the changed culture that cooperative learning represents.   It was clear that it could validate Theodore Sizer's preferred metaphor: 'The governing metaphor of the school should be student as worker, rather than the more familiar metaphor of teacher as deliverer of instructional services' (Sizer 1992, p. 208).

Having read, reflected and attended a high quality workshop, in February 1994 the writer decided to begin the implementation of cooperative learning.   At that moment what did it mean?   What were the goals?

1. To demonstrate the belief that student action, not teacher action, should be at the centre of the classroom,

2. To use the knowledge that learning is best accomplished in a social setting where students may discuss their understandings; explaining, questioning, arguing, elaborating and drawing conclusions; to advantage by working in pairs and then by using cooperative learning structures,

3. To work to help students create an environment where there is trust and therefore a willingness to take risks.   This would be a place where all students believe they

have a place and where each feels that his/her contributions and achievements are appreciated,

4. To develop a social skills program so that students are able to enjoy learning together in groups because they do so successfully, even creating synergy,

5. To have students know that they are capable learners who can responsibly make decisions about their own learning,

6. To have students develop their thinking skills through reflection which takes the form of discussion,

7. To have students know and appreciate that cooperation is the most important and effective form of interaction in their society, and that by developing the skills associated with it, they are equipping themselves well for their roles as citizens in a democracy,

8. To have students engaged in their learning because they have choice together with increased knowledge of how they learn.

Where were the goals to be implemented?

The school and classroom environment

The classroom where cooperative learning has been in the process of being implemented over the past two years, 1994 and 1995, is part of Reece High, a secondary school with students in years seven to ten.   One of two high schools serving the country city of Devonport, Reece has a student enrolment of a little over seven hundred and a teaching staff of around fifty-five full-time members. The student intake is of mixed ability. There is a large group of highly able students and a slightly larger number with modest abilities, together with about fifteen who have defined learning disabilities. For the last group the school receives additional staffing and financial assistance. Over 40% of the students attending the school are members of families that receive government financial assistance in providing books.

Situated on the northern side of the school, the particular classroom used by the writer is sunny, warm, carpeted and slightly above average in size. It has a cloak room and a store room with access from the classroom only. The furniture which is in good condition is easily moved and there are is an abundance of display board space together

with a wall of bookshelves. All of these features facilitate the room's use as a cooperative classroom. Its major disadvantage is that it is some distance from the school's resource centre, the library and the computer laboratory. Since she has been introducing cooperative learning the writer has had the same teaching 'load'; i.e., the same subjects, and the same year groups to teach. The load has been:

Year Group	Subject	Periods Per Week [†]
7	Humanities (English, SOSE[6] & Health Education)	10
8	English	4
9 (Lower Band)[7]	English	5
10 (Upper Band)	English	5

[†] Each period is 40 or 45 minutes in length

By request the writer has been the class teacher of the Year 7 group. As 110 minutes per week have been allotted to class teacher activities, this period added to the Humanities allocation, provided the writer with a substantial block of time to try to change the classroom culture into a more caring, collaborative and responsible one. As well, it was decided to concentrate on working with the Year 7 class from the first lesson of the year. As these students would not have their expectations of secondary school as firmly set, to change their attitudes and ways of working was perceived to be the most accessible goal.

Classroom activity

The classroom community

Three decisions had been made. Cooperative learning would be introduced a step at a time, giving teacher and students time to reflect upon their ways of interacting in order to

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[6] Studies of Society and the Environment

[7] As an interim measure, on the way to introducing heterogeneous classes, English staff members agreed to 'banding', the division of the year group into halves, upper and lower, according to perceived ability and past performance.

achieve continuous improvement.   As the model was built upon effective social interaction, attention would be given first to class-building, the building of a sense of community, to try to ensure that all students felt included, related and appreciated as soon as possible.   The major aim was to begin building trust among the students and between teacher and students. The third decision, which has been mentioned earlier, was that the Year 7 class would be the one where most activity leading to cooperative learning would be concentrated.

Working with the Year 7 group to build a sense of community started with the use of the community circle.   Varied activities, such as *Meet Someone Special* and *Interview Circle* (Gibbs pp. 252, 258), were given high priority.   It was important for the students to know one another well and feel included before any cooperative learning structures were used to develop skills, formulate questions or draw conclusions.   Conscious that the cooperative learning classroom is one where student learning rather than teacher delivery is at the forefront, the writer saw the community circle playing an important part in the process of her coming to know the students well. This was seen facilitating the selection of appropriate structures, materials and broad study topics.   Sizer's (1992) questions and responses helped to draw attention to the important place of teachers' knowledge of their students in the classroom where students activity comes first:

> How can teachers know the students, know them well enough to understand how their minds work, know where they come from, what pressures buffet them, what they are and are not disposed to do?   A teacher cannot stimulate a child to learn without knowing that child's mind - the course of action necessary for an individual requires an understanding of the particulars (1992, p. 40).

In keeping with what was to become usual practice, the teacher next used the community circle to share information needed by the whole class. At this time the students were told that the aim was to make their classroom cooperative because observations and study had shown that such rooms were best for students of the 1990s and beyond.   The principles of the teacher's beliefs and observations about such classrooms were listed:

1. Student learning, not teacher talk will come first,
2. Students learn by doing and especially by talking about their learning,
3. Students will often teach one another,

4. Students learn best with and from one another; so the practising of social skills will occur often,

5. Students will make the rules and this means they will be responsible for keeping them.

Another important feature of the cooperative classroom was attended to in the community circle on the first afternoon. Following the teacher's setting of the cooperative scene, the students were invited to decide upon no more than five, simple, general rules which could be used to guide classroom interaction for the year. Students were reminded that these would set standards that they were responsible for keeping. An example adapted from Gibbs' *Tribes Agreement* (1994, p. 92) was posted quickly to provide an example and then removed:

1. Listen attentively,

2. Contribute your best,

3. Appreciate others' efforts,

4. Respect others.

Periods of time given to listening to teacher talk were short, so that during the first weeks community circle activity time, although usually occurring twice a day, was largely given over to class-building activities. Interspersed with these were sessions when ideas about the functioning of the cooperative class elaborated upon after being shared.

In the third week of term, in the community circle students were introduced to having teams of four responsible for organising and controlling the class meetings. Teams operated for a month, rotating the roles of a) convenor, b) agenda organiser, c) secretary, and d) observer whose task was to congratulate participants on their collaborative efforts and to suggest ways of improving the conduct of the meetings.

Providing a forum for the discussion and modelling of social skills was a further important function of the community circle. This, too, was begun in the first week with *attentive listening* being looked at and practised.

As well as being the place where a) class-building began, b) the principles of the student-as-learner dominated class were introduced, c) students made the rules for classroom interaction, d) students learnt and practised meeting procedure, and e) social skills were discussed and modelled; the meeting circle was used as a general demonstration of skills arena. Most importantly it was used to give a sense of closure and pride in achievement. It was a place for celebrations. During the first and second weeks, when the time-table permitted, the teacher found actions to celebrate. The aim was to have the students see learning at school as fun.

Among the Year 7 students the community meeting circle concept was introduced and developed fully, being the forum where the sense of community was nurtured. With the other classes its functions were modified so that the meeting procedure was not introduced. This occurred because the teacher was concerned about the time factor: classes other than Year 7 were allotted much less time in the cooperative classroom. As well, the teacher was unable to manage a large number of innovations at once.

Social skills

> In the classroom, work in cooperative small groups is most effective when a teacher includes the cooperative skills students will need in the goals of the lesson and builds in enough time for reflection at the end to assess how well they were able to use them (Graves 1994 p. 295).

Awareness of statements such as those of Graves led to the use of a carefully planned social skills program for all classes, with that for the Year 7 class receiving especially close attention. Reading of the histories of the incoming 1994 class revealed that the need for social skills development would have to be a priority. The group contained almost twice as many boys, and of the boys, five were said to be 'behaviour problems', while all but four had poorly developed language skills, and a further three had diagnosed learning disabilities. The girls, conversely, were said to be well adjusted and motivated. The class appeared and did present a challenge: how could these young people learn to work together?

In the first week, following the introduction of the concept of the importance of social skills in the community circle and planning of the social skills program, stress was placed on having the students participate in pair activities where social skills improvement was

the goal. The program was based on the resources presented by Bennett et al. in their text, *Cooperative Learning* (1991 pp. 105-126), supplemented by ideas from Kagan (*Cooperative Learning* 1994, pp. 14:1-14:36) and Gibbs (*Tribes* 1994, pp. 213-379). In mid March, when as the teacher felt that she and the class were prepared for the introduction of simple four-person cooperative structures, social skills learning alone was the goal of at least half of the lessons. Although students in higher year groups had not experienced a special social skills program, their need for them appeared to be less. In fact, the Year 10 class was so well socialised and cooperative that no more than two hours would have been spent on social skills discussion and practice during the year. The stating of a social skill as one of the twin goals of a lesson was sufficient to alert the students to its use.

Pairs work

Wishing to concentrate on building a sense of community and to ensure that social skills development was adequate, the teacher did not move the students into working in groups of four immediately. She appreciated the warnings of theorists and practitioners such as Graves (See p. 144). Yet, she considered that having the students work as individuals for other than short periods of time would prejudice later success. As an interim measure, she asked students to function in pairs. At the beginning of the year desks and chairs were arranged in fours and students sat where they chose with the teacher encouraging the arrangement of two boys and two girls at each set of four desks. Friendship pairs were usually seated together. When pair work was introduced, on the first two or three occasions the friendship pairs automatically worked together. To provide opportunities for increased social learning, later the teacher began her instructions with: 'Today I would like you to work with a person with whom you have not cooperated before, someone normally seated at your table'. As they had gradually been made aware of the principles of cooperative learning, (See p. 18.), once the pairs had completed their activities, the processing or reflection step was declared mandatory. This, the teacher considered, would prepare the students well for the potentially more demanding groupwork in fours. Having articulated their concerns and found answers to them, and having congratulated themselves on their successes, the students, it was decided, would be more capable learners in the bigger groups.

The students in all the classes that came into the 'cooperative room' functioned very well in pairs. When asked to work with a student from another table they responded well. Part of the appeal of the situation was that the students could legitimately discuss their work. A second reason was that, as they knew they were considered capable tutors, the students met the expectation.

Structures

The students were introduced to the special structures (See Ch. 5.) that are part of cooperative learning gradually, with, as expected, the simplest structures being used first. The organisation of the students in heterogeneous teams that could work together well was a vital preparation for this development. It was considered desirable for the early teams to be successful. For this to occur the team arrangements needed to be acceptable to the students, yet true to the standards that were to prevail. The strength of cooperative learning comes from collaboration and from adolescents enjoying working together. However, there is also the point that those with whom young people work are important to them. Their perception of the status of their team mates influences their self esteem and their motivation:

> This time in a child's life is a dramatic one of experimentation and of social change. It is a time of experimentation with new roles and values, and a time to discover identity. Who one is depends on who one is with. A sense of acceptance and power among peers is central to young adolescents' sense of self-worth thus central to their motivation and learning. Their major concerns seem to be more connected to coping, surviving and adjusting than to success (Gibbs 1994, p. 182).

The teams prepared for most structures were usually teacher-selected and heterogeneous; consisting of two boys and two girls, one high ability student, one low ability student and two average ability students. Teams usually worked together for about six weeks on special topics when they used advanced structures such as *Co-op Co-op* (Kagan 1994, pp. 19:1-19:7) or *Group Investigation* (Bennett et al. 1991, pp. 222-235). They also remained together for about six weeks when they were completing units of work; e.g., a novel study, involving a series of simpler structures. However, there were also scattered periods when students were in groups that were randomly selected by; e.g., all having been given red cards or electing to study the same section of a *Group Investigation* project. Although some fun came from several of the

random groupings, the teacher-selected teams were usually better organised and their achievements were better spread. Friendship groups were not used as it was believed that they could lead to the isolation of some class members.

Simpler structures, such as *Inside Outside Circles* (Kagan 1994, 10:11) and *Rotating Review* (Kagan 1994, 10:15) provided enjoyment, motivating students to learn and to understand material that they would normally not find interesting. Spelling words and punctuation rules were learnt with the assistance of *Numbered Heads Together* (Kagan 1994, 10:2) or *Learning Together* (Bennett et al. 1991, p. 212) and known by every member of most groups. *Graffiti* was especially popular and competently used by all year groups. To the group members the quality and quantity of information written on the large sheets of paper used was a clear evidence of the value of collaboration. Each member had an abundance of information to assist with the writing of a report on; e.g., Isobelle Carmody as an author. When this structure was used to process the information and understandings gained by English students in all year groups, it was interesting to observe that there was no difference in the amount written or in facts or conclusions. However, the standard of the essay-form report written by each student did vary: the Year 10 students certainly produced superior writing. *Jigsaw II* was also a highly motivating structure as was *Constructive Controversy*, which is particularly suited to helping students meet the requirements of the English and Studies of Society and the Environment courses. In the Year 7 class the use of the *Group Investigation*, particularly in 1994, produced work of great diversity, from the outstanding to the disappointing. However, it was not the structure itself at fault, but rather the poorly developed information-gathering and information-organising skills of some students. The less successful students were interested in their chosen area of study and they enjoyed being busy with their forms of expression, but they were antagonistic to learning how to produce a well researched, carefully planned and accurately expressed report. Pretty charts with pictures and just a few sentences were their goals. Arranging for extra library lessons where special attention was paid to locating information, making notes and writing reports made almost no difference. The students whose reports were disappointing did not want to learn the literacy skills the teacher regarded as being important. After reflecting upon the idea of multiple intelligences, the teacher developed

a sheet of alternative responses which enabled these students, all boys, to express and share their knowledge and understanding differently; e.g., in design, in paint, or using film. The results were excellent. However, for the teacher there was a disturbing question: Is it correct to allow students to avoid learning skills which they find difficult?

Assessment

For students in every year group, Reece High School's assessment system is criterion-referenced. Students receive letter ratings from A, the highest, to D, the lowest, on a list of criteria, usually numbering about twelve in the writer's subject areas. Every student receives an award for the criterion 'works cooperatively'. From their cooperative learning activities all students received a number of ratings on this criterion. When other skills; e.g., research or editing competence, or knowledge were assessed, group scores divided among team members stood on an individual's record sheet. Such scores affected the final result for 'works cooperatively'. They were permitted to affect the individual's knowledge or skill (in other than cooperation) award, only if they were not the sole or majority ratings given for those criteria. When cooperative learning was for the purpose of learning information or for developing skills, after group presentations and assessments, in about one-third of cases individual tests were done. The results of these were recorded and used for final assessments. Care was taken to see that these were not allowed to overshadow the group assessments.

The measures outlined had to be carefully considered and articulated: students other than those in the 'cooperative' classroom usually did not receive any group awards. To use an assessment system which differed significantly from that in place for other students would not have been acceptable. As well, groups awards, although common in the workplace and in other areas of life, were not part of the individualistic/competitive paradigm that dominated the school. To initiate conflict, because an obviously different assessment system existed for students in the 'cooperative' classroom, was seen to jeopardize the future of the project.

To try to ensure that not allowing group awards to influence individual overall awards too strongly did not deliver to students the message that cooperative learning was unimportant, special steps were taken. Improvement goals were often set and the class as a whole praised for its learning. Visitors; other teachers, students or parents; were invited to see the improved work. Much was made of celebrations for improvement. Students were rewarded with special treats such as an extra library lesson, cooking and eating a special treat, or being allowed a games period. For the teacher, the quality and depth of the students' achievements provided encouragement for the program of continued reflection, refinement, reading and sharing about cooperative learning.

Transfer of cooperative learning

Colleague observation

When she introduced cooperative learning to Reece High School, the teacher was aware that others would judge the pattern of interaction on the achievements in her classroom. As research and practice had shown that the innovation was highly successful, the teacher felt the burden, of its future in Reece High School perhaps depending on how well she introduced it, very heavily. Fortunately the 'difficult' Year 7 class that she taught in 1994 proved to be a great asset. Other teachers found them extremely difficult to teach. Yet, the teacher praised their efforts and visitors to their 'cooperative' classroom were amazed to find the students engaged, disciplined and producing work of which they could be proud. The question was: Why was there so much difference between the way that 7G functioned in their home room and the way that they did in other parts of the school? Cooperative learning began to receive the credit.

By May 1995, credit for superior teaching outcomes had definitely been attributed, by a significant group of staff members, to cooperative learning. To compensate the teacher for having been given an extremely diverse Year 7 group, which other staff members found difficult to teach, for 1995, the teacher was to have only one 'disruptive' student. By the end of the first week, the 'disruptive' student had been removed from the school. His classmates, as a group, proceeded to produce outstanding work and were

considered, by all their other subject teachers, to be very well self-disciplined. The social skills program together with the peer tutoring of cooperative learning received the credit.

School professional development

Professional development evenings

In 1994 on the professional development evenings, which all staff members had to attend, the teacher offered 'Cooperative Learning' as one of the options on the program. Groups were limited to about fifteen. In this sharing of her knowledge and experience the teacher was assisted by a colleague with whom she had shared resources and often discussed the joys and difficulties she was experiencing in her classroom. At the sessions the teacher gave a little information on the theory of cooperative learning. After this she and her colleague asked the teachers to role play a class to which they taught a cooperative learning lesson. The structure used was *Jigsaw*. Feedback sheets that the teachers completed, indicated that they were impressed. Further sessions were offered and were very well attended.

Professional development committee

Becoming a member of the school professional development committee in 1994, the teacher lobbied for resources to assist with the extending of knowledge of cooperative learning among the staff. Funds were set aside for the purchase of a collection of texts on the model. As well, it was agreed that the school would become a member of the Association for Cooperation in Education.

Aware that the International Association for Cooperation in Education was holding its five-day annual conference in Brisbane in July, 1995, the teacher wished to attend. To gain the support of the committee she wrote a paper on the benefits of cooperative learning as a pattern of interaction and how it could provide Reece staff with a changed model of education. The experiences the school offered to students, she argued, needed to change because students, their environment and resourcing levels had changed. In her opinion, cooperative learning held the best promise of development for the school. The proposal was accepted.

The teacher went to the International Conference on Cooperation in Education. At the conference, while participating in workshops she searched for a change agent whom she considered could best initiate a whole school change in culture at Reece. That she should do this was recommended by the Principal. In 1994 Reece had gained a new principal who followed the teacher's cooperative learning experiences, encouraging her to continue with them. Returning from the Brisbane conference, the teacher reported to the professional development committee. For the group she wrote a paper outlining a school plan for 1996. The paper a) again outlined the gains to be achieved from cooperative learning, b) showed how cooperative learning could meet the needs of Reece High and, in doing so, be accepted by the staff, and c) recommended that Carole Cooper[8] be employed to lead the staff in a culture change which would put the learning of students rather than the delivery of teachers at the heart of the school. It was proposed that Carole would work with the staff on the two whole-day professional development days before the students returned to school in February. Subsequently, she would return for the six evening sessions so that there would be ongoing support for the development of the changed culture. The proposal was supported. However, as so much expense and the whole of the compulsory professional development time was involved, the agreement of the staff had to be gained.

The teacher modified the paper presented to the professional development committee and presented it to the staff (See Appendix I.). Her colleagues were given a week to consider the proposal. When the vote on the paper's recommended actions was taken, the vote was unanimous. In 1996 the whole staff at Reece High will experience professional development designed to place the learning of students first. Cooperative learning will be presented as the preferred model of interaction and its development within the school will be supported (See Appendix 3 for Carole Cooper's program for the first staff professional development day.).

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[8] Carole Cooper of Global Learning Communities, international education consultant and advocate for cooperative learning

Appendix 1

Reece High School Professional Development

1995 Program

    a) National and Departmental initiatives

    b) Reece departmental and individual teacher needs

        Almost without exception teachers who have participated in Reece departmental and individual programs believe that their funds of professional knowledge and skills have been enhanced. Teachers have been able to select from a wide range of offerings so that our Professional Development (PD) has been diverse: teachers and students have benefited from this diversity.

1996 Focus

In 1996 we could strengthen our program by adding to our ability to meet the myriad of individual requests a whole school focus. We could gain from both worlds by having a whole school push for improvements in areas that affect everyone. Where does the push need to be?

1993 Staff Meeting

In September 1993, our principal at the time, Roxley McCormack, asked the whole staff to identify the three most pressing problems presented by Reece students. Each teacher was to present his/her own list. Collation resulted in the following points, which were unanimously endorsed as representing the views of all teachers:

    a) Class sizes too large,

    b) Students lacking self-esteem and motivation,

    c) Students requiring better developed social skills.

These problems have not become less obvious: they have been exacerbated. With a powerful, whole school push we could do something about self-esteem, motivation and social skills. If the students were better able to work together, if they were confident in

their ability to learn and, as a result, better motivated, everyone at Reece would be more successful and happier.

Improving Social Skills, Self-esteem and Motivation

Social skills, self-esteem and motivation are linked: they are interdependent, affecting one another. To develop them we need the power of a whole school program which will gain its strength from:

a) Everyone having a common aim,

b) Everybody working together,

c) Leadership of an experienced, articulate, knowledgeable, independent and practical mentor.

1996 Whole School Program

We need a mentor to help us develop a social skills program which is integrated into our whole approach to teaching and learning. We know that to introduce a separate unit called a social skills course would be useless. Half of us would laugh at the idea and the others would throw up their arms incredulously. The learning of social skills, we know, has to be part of a wider approach, one where student dignity is a priority because social skills and dignity are so closely related. To achieve both we need teaching techniques which are student-centred, not teacher-dominated. When students are part of a school where activity is truly student-centred, where students are perceived to be the more active ones, their dignity and social skills increase, and so do their self-esteem and motivation. How do we achieve this 'pie in the sky' situation, the student-as-learner-centred school? We move towards it by:

a) Increasing our range of teaching strategies,

b) By placing student, not teacher, activity and interaction first.

Leadership

Where do we find the mentor with the professional knowledge, intellect, understanding of our school and the sheer charisma to lead our diverse staff?

When I recently attended an international teaching and learning conference, I went with a definite shopping list. On it was: 'Find a mentor for Reece High, someone to help us develop more appropriate skills and attitudes among our students.' After poring over the workshop and keynote address booklet, I deliberately selected experiences with Reece's need for a leader in mind. I listened and worked with experts from Australia, New Zealand, Canada, U.S. and Holland. Of the international experts Carole Cooper stood out.

Carole Cooper

A highly experienced academic who has been a high school science and health education teacher, Carole is a practical person. Originally from Michigan, but now officially resident in Launceston, Carole is in demand world wide. She is an energetic, articulate woman who is a director of Global Learning Communities, an educational consultancy. She seems to have the gift of not only showing that she is experienced, perceptive and knowledgeable, but also that she can lead other teachers in their search for ways to help students achieve success.

In discussion with seven teachers from around Australia, teachers who had attended a three-week summer school which was part of a course entitled Educational Leadership, conducted in Launceston, it was found that all the teachers had seen this as the most outstanding professional development activity they had experienced. All the teachers on the course named either Joan Dalton or Carole Cooper as the dominant force in the course. They were described as outstanding presenters whose ideas were challenging but met their needs. Carole was preferred by the secondary teachers.

1996 Part Professional Development Submission

We suggest that Reece takes advantage of our having looked at a range of outstanding educational leaders and invites Carole Cooper to assist with developing a range of teaching and learning strategies. With her we could move towards more active student learning where social skills, self-esteem and motivation are enhanced.

If the staff agrees to the selection of Carole Cooper, the committee suggests that she be employed to lead our PD sessions on the two days before the students return in February. As well, to support ongoing development, it is suggested that Carole works with us during the six evening sessions spaced through the year.

The committee would like to leave the proposals with you to discuss and consider until next staff meeting when, if you approve of the step, a vote on their adoption could be taken.

Corowa Yaxley

Professional Development Committee

Appendix 2

Report to Reece High School Council[9]

International Teaching and Learning Conference

For the benefit of the students and, ultimately, for the whole community, teachers at Reece are committed to developing the best teaching and learning practice designed to assist our students with being better equipped for the twenty-first century. To contribute to this end, I attended the International Cooperative Learning Conference held at Nudgee, Queensland.

Within Nudgee College gathered many outstanding researchers and teachers from Canada, United States, New Zealand and Australia. Through superb keynote addresses and excellent workshops, participants were affirmed in their belief that students develop best when the largest proportion of their learning is collaborative: higher order thinking and knowing are achieved when students work together.

Researchers reminded teachers that societies are cooperative, that cooperation gives them strength, allowing them to advance and to function humanely. Captains of industry and commerce, as well as public servants and those who work to improve the lives of their fellows, stressed that they must be collaborative: together they gain more.

Over and over the following messages came from the Conference. Added to knowledge and learning skills, our students require high order interpersonal skills, social skills, which allow them to work together. Learning collaboratively develops these and their critical thinking abilities. For now and the future young people must be flexible thinkers who are able to work with and evaluate change while, at the same time, building upon

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[9] Report written to gain the support of the Council for the 1996 Professional Development Program where cooperative learning is foremost.

the best of the past. Particularly for teenagers, working with classmates enables them to capitalise on their natural urges to communicate with and to take notice of one's peers.

By sharing the Conference experiences, reading information gathered, and with the possibility of securing the expertise of one of the world class Conference presenters at the school, Reece teachers will have opportunities to extend their teaching repertoires. Our students will gain most.

Corowa Yaxley
Professional Development Committee

Appendix 3

Reece High School Professional Development Program

February 12, 1996[10]

Purposes and Learning Outcomes:

1)   Learning of students is the primary outcome of these professional development programs.

2)   We wish to:

- examine the latest motivational and cognitive theories and their influences on curriculum,

- extend our repertoires of effective teaching and learning strategies to facilitate the learning of ALL students,

- and, in meeting the former aims, ensure that the concerns raised by the staff survey are addressed. We wish to increase students' social skills and improve students' self-esteem and motivation.

3)   As a staff we desire to:

- create a social climate in which students feel related and real self-worth;

- recognising that the most powerful social influence on secondary students is the peer group, incorporate cooperative learning so students can talk and think critically and take responsibility for their learning;

- help students develop their interpersonal and intrapersonal intelligences through using a social model of teaching and learning;

- work cooperatively as a group to reach high achievements.

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[10] The program was proposed by Carole Cooper. The desired outcomes, listed at the beginning of the program, were given to Carole Cooper by the Professional Development Committee.

4)   We would like assistance with:

- classroom climate-building,

- team-building

- classroom management skills with active students,

- developing social skills,

- understanding the principles of cooperative learning,

- using cooperative learning with students.

Agenda

8.30 to 10.00am	Introduction
	Expectations, Outcomes and Context for these Programs
	Team-building
10.00 to 10.20am	Morning Tea
10.20 to 10.30am	New Groups
10.30 to 12.30am	Where We've Been, Where We're Going and Why
12.30 to 1.15pm	Lunch
1.15 to 2.45pm	Establishing the Learning Community
	Environment
	Class and Team Building
	Formation, Duration of Groups
2.45 to 3.15pm	Sample Academic CL Lesson
3.15 to 3.30pm	Summary and Planning Your Own Next Steps
	Review of Cooperative Strategies Used
	Action Planning for your Application

- Carole Cooper

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