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ABSTRACT

A study recorded the experiences of elementary school students with cooperative learning in two schools in Singapore. The students worked cooperatively in various assigned social studies tasks through the process of social interaction and sharing with their peers. One school was used as the experimental school while the other served as the control; four classes were chosen from each school. These experiences were captured through taped group discussions and interviews conducted with groups of pupils. A detailed analysis of their conversations documents some of the group processes and learning settings that seemed to affect group behaviors, motivation, and satisfaction of working together in cooperative groups. The quality of talk differed between the high and lower ability pupils. Different strategies were used by the two groups of pupils to process different types of tasks. In their interactions, they displayed different helping behaviors. Preliminary findings seem to indicate that personal gains, especially from the academic perspective, were an important determinant of participation in group interaction in the Singapore school context. The two groups of pupils also employed different social skills in their interactions. They differed in their ways of negotiating social relationships and coping with barriers to group cohesiveness. Findings suggest that the cooperative learning strategy has tremendous potential in helping lower ability pupils improve their learning and academic performance in social studies. Contains a table of data and 21 references. (BT)

# Primary Five Pupils' Cooperative Behaviours and Perceptions of the Use of Cooperative Learning in Social Studies Classes in Singapore.

by

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# Primary five pupils' cooperative behaviours and perceptions of the use of cooperative learning in social studies classes in Singapore

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## Abstract

*In this investigation, the experiences of primary five pupils in Singapore were recorded as they worked co-operatively in various assigned Social Studies tasks and as they journeyed through the process of social interaction and sharing with their peers. These experiences were captured through taped group discussions and interviews conducted with groups of pupils. Based on a detailed analysis of their conversations, this paper documents some of the group processes and learning settings that seemed to affect group behaviours, motivation and satisfaction of working together in co-operative groups. The quality of talk differed between the high and lower ability pupils. Different strategies were used by the two groups of pupils to process different types of tasks. In their interactions, they displayed different helping behaviours. Preliminary findings seemed to indicate that personal gains, especially from the academic perspective, was an important determinant of participation in group interaction in the Singapore school context. The two groups of pupils also employed different social skills in their interaction. They differed in their ways of negotiating social relationships and coping with barriers to group cohesiveness. Implications of these findings for classroom teaching are discussed.*

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## INTRODUCTION

In the last three decades, work in the area of small group instruction concentrated mainly on the development and incorporation of various cooperative learning structures into subject matter curricula (Kagan, 1992; Johnson & Johnson, 1990; Slavin, 1980;). Research had focused on examining the effects of various cooperative learning structures on pupils' academic achievement and social development (Sharan, 1980, Slavin & Karweit, 1981). Among these research work on cooperative learning, Slavin reported that only about two-thirds of them had found positive effect (1983a). There was a significant third of the research which had failed to obtain the expected results.

This position invariably led to a realization of the need to understand further the potential mediating causal mechanisms to cooperative learning. Second-generation research studies on cooperative learning explored social variables concerning the dynamics of working in groups and the types of interaction among group participants. They included examining the frequency and type of peer cognitive and psychological support, encouragement, regulation and feedback; social facilitation; interdependence and quality of assistance; opportunities for giving and receiving explanations; elaboration of explanations; processes of communication and norm setting among group members; management of controversies/arguments and concurrence seeking; diffusion of responsibilities; feelings of control within groups and enjoyment of social interaction. Strategies employed thus far to establish mediating effects were fraught with difficulties and consequently, no clear conclusions could be drawn. It would appear that cooperative learning studies have now entered into a third-generation phase where researchers have to use various means available to ascertain more conclusively the causal mechanisms that will enhance academic achievement (Knight, 1990).

In cooperative learning settings, members are expected to work collaboratively towards the achievement of various assigned learning tasks. Interaction and communication are intended to occur among group members. To strive for common goals and objectives, pupils are expected to display helping behaviours towards their group members, thus giving support both cognitively and affectively to one another.

Findings of Battistich, Solomon & Delucchi (1993) have indicated that the effects of cooperative learning on pupils are generally mediated by the quality of group interaction. Friendly group members who show concern for one another's welfare, help one another and work collaboratively towards task accomplishment characterize high quality group experiences. In their study, it was found that frequent high quality group experiences were positively associated with classroom environment, liking for school, intrinsic motivation, concern for others, self-esteem and standardized achievement test scores, whereas frequent low quality group interactions were associated with negative pupil outcomes.

Sharan's study (1980) has found that the process of interaction and communication serves as the medium in the use of cooperative learning groups to influence pupils' cognitive learning and academic achievement. Webb (1982) also concluded that an individual's role in group interaction is an important influence on learning. Different group interaction patterns can give rise to a variety of achievement results. Some forms of interaction may be beneficial while others are detrimental to learning and achievement.

Tesser & Campbell's self-evaluation maintenance model (1982) predicts that pupils are likely to compare themselves with others and this comparison will influence pupils' behaviours in groups. The model also predicts that a pupil's behaviour in groups is related to the value he or she places on the assigned task. Participation in group tasks is expected to increase if the individual perceives the task to be attractive, self-relevant and is one where he or she would like to succeed on.

This study on pupils' cooperative behaviours and perceptions of the use of cooperative learning is an attempt to understand the "phenomenology of changes" (Fullan, 1991) that develop in pupils, both cognitively and affectively, as the strategy is being implemented in the Social Studies classrooms. It is hoped that an analysis of pupils' talk as they engaged in various collaborative academic tasks and structured interviews will throw further light into understanding the results reported earlier on Social Studies achievement, pupils' attitudes towards Social Studies and classroom climate (Lee, et al, 1996). The report will proceed to examine the process of how pupils made the changes to cope with a new mode of learning and the difficulties encountered as they journeyed through the experience of learning through social interaction and sharing with their peers.

## METHODS OF STUDY

### Using Pupils' Talk

The Bullock Report (1975) recommended that teachers should build on the natural tendency of children to engage in spontaneous talk. Barnes (1977) also emphasised the significance of dialogue and informal pupil talk in the classroom. Left to work in small groups, without the presence of the teacher and hence, freed from the constraint of working towards the "right answer", pupils were more likely to explore and search for their own meanings which would lead to better understanding and learning. Pupils became more confident in using their own language to explore, discuss and share ideas with one another in their cooperative learning groups.

In a cooperative group work project conducted by Cowie and Rudduck from 1985-89, an analysis of pupils' talk was done to study the process of change from traditional teaching to a cooperative learning setting. They examined the way pupils responded to the new and unfamiliar task of carrying out a collaborative enquiry through discussions with their peers and the problems they encountered as a result.

## The Singapore School Context

On the Singapore educational scene, some attention has recently been given to the use of cooperative learning in the Social Studies classrooms. This is evident by the fact that the strategy has been introduced as a feature of the primary Social Studies curriculum. Teachers of the subject are expected to organise pupils into small heterogeneous groups of two to six to cooperatively work towards the achievement of various academic tasks and goals of the syllabus. Being a newcomer to this field, it is imperative that more energy be channeled to its implementation rather than carrying out rigorous research studies to investigate the variety of factors that might affect the success of using cooperative learning to teach subject content.

Consequently, using pupils' talk and giving pupils a "voice" in their own learning are relatively new instructional and educational research techniques. It is anticipated that local pupils might feel a greater sense of inhibition and less confidence in controlling the process of group interaction and communication as compared to their western counterparts. The tasks of managing controversies and negotiating for talks might loom larger to them than what they actually involve.

Further, in a meritocratic setting as in Singapore where competition and individual capabilities are valued, it is feared that the quality of interaction and helping behaviours might be negatively affected in the group talk. In such a system, there might also be a tendency for pupils to display selfish behaviours whereby they weigh the worth and rewards of each cooperative learning task to the extent of contributions made. However, it is expected that the unique feature of streaming pupils into EM1 (high ability), EM2 (medium ability) or EM3 (low ability) in the Singapore school system should avoid the problems of comparison of abilities and the need for self-evaluation maintenance by the members in the cooperative learning groups.

## Pupils' Cooperative Behaviours to Social Studies Tasks

This paper will examine a number of the conclusions drawn from the transcripts of the cooperative group discussions in Cowie and Rudduck's study (1990). In that study, pupils were asked to write an account of a historical event based on some documentary evidence given to them. It was observed that:

a) There were some genuine attempts to think about the difficulties in the evidence provided, but pupils were generally not trained and consequently could not manage these types of higher level tasks with ease.
b) Groups varied greatly in their abilities to hypothesise, think speculatively and negotiate for mutually acceptable ways of working and learning together. Some pupils failed to relate information given in separate documents. They worked on giving a summary of each document, rather than doing a critical analysis and synthesis of information given in all three documents.
c) Many moments were spent on correcting doubts of spelling rather than thinking critically on the authenticity of the historical facts.

d) It was difficult for pupils to manage the tasks of organising the group members and offering constructive criticism to one another. Peer criticism showed itself as good-humoured ridicule.
e) On some occasions, pupils were prepared to take easier routes to resolve a dilemma, for example, to go for an early closure without checking on its logic, attempt to get the answer from the teacher or simply, just do what they could within the time limit and get through the job.
f) Some pupils allowed time to exert a constraint on their group discussion and hence, failed to recognise the anomalies in the evidence.
g) Pupils generally faced the constraint of habit where the write-up account was seen as "finished work" which had to be "right", instead of "tentative work" which could be improved upon.

In this study, it is hypothesised that all the behaviours described above will manifest themselves in varying degrees as the primary five pupils engaged themselves in collaborative group decision-making and writing tasks. The high ability pupils are expected to demonstrate better skills at handling higher level tasks, but will face more problems in their use of social skills, like collaborating on a task, negotiating for talk, listening to others' views, giving feedback without offending, settling disputes, managing conflicts in opinions, getting at consensus and agreeing on conclusions. This is because of a clustering of stronger personalities in the EM1 classes as a result of the process of streaming pupils by abilities in the Singapore schools.

**Pupils' Helping Behaviours**

Studies on helping behaviour had generally defined the variable as on-task interaction with other members in the cooperative group. Typically in these studies, the pupils were observed in sequence for 5-20 seconds intervals. Helping behaviour was usually determined by the percentage of intervals pupils spent interacting with others on the given task.

This study will not focus itself on the frequency of help given or received by pupils to and from each other. It is, however, concerned with whether pupils are able to give process feedback instead of terminal feedback to one another. In the local setting, it is unlikely that teachers spend quality time on training their pupils to use such helping skills for group discussions. This position could lead to detrimental effects on pupils' learning of Social Studies within their collaborative groups.

Further, this study is interested in examining how primary five pupils use each other as resources in Social Studies classes. Do they frequently ask questions or check out information of one another? Which group of pupils, the high ability or the lower ability, demonstrates more of such helping behaviours? Do they display intolerance of those that need help? In a competitive environment like Singapore, it is anticipated that there will be pupils who would feel that cooperative group discussion has the potential of holding them back from progressing ahead of others or that giving help to others is a "you-win, I-lose" situation. If these feelings are strong, the quality of interaction and communication among members of the cooperative groups will be affected.

## Pupils' Social Skills

A number of research studies examined how pupils engaged in reasoned disagreement during cooperative group discussions (Lindow, Wilkinson & Peterson, 1985; Barnes & Todd, 1977). In Barnes & Todd's study, it was found that unresolved conflicts and tension would hinder meaningful learning in cooperative groups. Tension in groups might be generated as a result of competition and interpersonal conflicts. Members sometimes competed for speech and job roles. Resentment was evoked in members over tacit claims to authority and belittlement and rejection of others' contributions. Existing rivalry, personal aggression, mistrust and self-protection would lead to an exchange of insults, thus preventing collaboration in the given task.

Some researchers had observed negative interactions in group efforts that reduced interpersonal attraction and impeded learning and achievement (Johnson & Johnson, 1979). One reason put forward was the pressures exerted by group members to conform, concur and compromise instead of true collaboration to reflect over their decision making. The second reason might be due to groups adopting a status-based norm of interaction whereby ideas of low status pupils were ignored or denigrated while those of high status pupils were given more importance regardless of the merit of the ideas (Cohen, et al, 1990). Hill (1982) had posited that medium and low-ability pupils might hinder the performance of high-ability pupils. Barnes and Todd (1977) had found that some groups could develop a high level of anxiety over the demands of the task, thus preventing them from attending to the cognitive requirements of the task at hand. Also, some harmonious groups' typical style of acceptance and consensus prevented them from challenging misleading conceptions and inaccurate conclusions, resulting in less learning through group collaboration. Learning could also be inhibited by the group's failure to make meanings explicit and to draw relevance from their discussions to the given task.

In the same study, it was observed that the more academically competent group members were most concerned with completing the tasks quickly, thus discouraging their low-achieving peers from active participation in cooperative group work. Many pupils and groups saw speed of task completion as a criterion of success in group work. Slavin (1984) had found that the low-ability pupils were simply told the answers by their high and medium-ability peers. The former pupils were therefore deprived of the opportunity to learn to work on their own and hence did not benefit from the collaboration.

Good & his team (1989-1990) observed that the high achievers tended to either dominate or work alone. Among these high-achieving pupils, some of them had manifested relatively passive behaviours in their cooperative groups. Latane, Williams & Harkins (1979) introduced the idea of "social loafing" where some pupils exerted less effort in cooperative learning groups because they did not perceive themselves as personally accountable for the group product and individual contribution to final product was not easily identifiable by the teacher.

To what extent do pupils in the local classrooms demonstrate these aspects of behaviours? How do pupils in Singapore engage in reasoned disagreements on Social Studies tasks? It is expected that the high ability pupils (EM1) will encounter more conflicts and tension than the lower ability pupils (EM3). This study will attempt to

observe the differences in the use of strategies by the two groups to negotiate for speech and claims on authority to decide on courses of actions and conclusions to various Social Studies tasks.

## SUBJECTS

The subjects for this study comprised primary five pupils from two established Catholic girls' schools situated in the public housing estates of Singapore. One school was used as the experimental school while the other served as the control. Out of eight primary five classes in the experimental school, the principal selected four intact classes for the study. Among the four classes, one was an EM1 class; two were EM2 classes and one EM2/3 class. In the Singapore school system, EM1 pupils are generally assumed to be above average, EM2 average and EM3 below average in academic ability. Streaming of pupils in this manner is done as a requirement of the bilingual system of language learning in the local school setting. Incidentally, the only four primary five classes in the control school were exactly alike in composition as the experimental classes. This factor had to some extent ensured comparability in the two groups of pupils taken for the study. However, it might be necessary to note the difference in ethnicity composition of pupils in the two schools. The experimental school comprised 79% Chinese, 2% Malays, 13% Indians and 6% Others while the control population was made up of 97% Chinese, 1% Malays, 1% Indians and 1% Others. The former group was therefore more diverse in ethnic composition than the control group of pupils.

## MEASURES

Two particular measures were adopted in the study. Firstly, each of the four researchers went into the classrooms on two separate occasions to observe the four experimental teachers conduct their Social Studies lessons using various cooperative learning structures. Eight lessons were observed altogether. One lesson was on "Planning for Landuse on Long Island" and the other, the writing of an autobiography of the "Journey of a Water Droplet". On each occasion, the children's talk within their cooperative groups was recorded on audiocassettes. The discussions carried out by two cooperative groups were recorded simultaneously. Altogether sixteen group discussions were recorded. The discussion on the "Planning for Landuse on Long Island" task was recorded in April 1995, while the discussion on the writing of an autobiography of the "Journey of a Water Droplet" task was done in August 1995. Recordings only started after the children were given sufficient time to become familiar with the workings of cooperative group work. This was to reduce the pressures that might be felt by the children of having to cope with both the demands of new and unfamiliar social situations as well as the feelings of recording shyness which were anticipated to affect the learning of the pupils.

Secondly, pupils were interviewed for their perceptions of cooperative small group instruction. Three rounds of interviews were conducted. The first round was done in May 1995. The four experimental teachers identified samples of pupils for the interview. They were asked to pick a well-functioning group and another perceived to be a more problematic group. Eight groups of pupils were interviewed for each round.

The same arrangement was repeated in the second round of interview, which was carried out in November 1995. The third round of interview was conducted to check on the differences in instruction provided to the control group of pupils. To ensure consistency and to facilitate focus and direction, a series of questions was written up for use at each of the respective interviews. Prior to the start of the interviews, the four researchers had come together for a discussion in an attempt to achieve consensus on the inclusion of questions and procedures to be adopted during the periods of interviews.

## DATA ANALYSIS

All recordings of group talks and interviews with the children were transcribed verbatim. The analysis focus was mainly on finding patterns to gain a better understanding of what went on in the group talks, the role these conversations played and their effects on behaviours, motivation, satisfaction, quality of learning and academic achievement in Social Studies.

The approach used to analyse the dialogues was based on the "Two-Frame" theoretical construct advocated by Barnes and Todd in which the "Content Frame" offers an interpretation of the subject in hand, while the "Interaction Frame" offers an interpretation of the social relationships which are shaping the interaction (1977, p.101). The "Content Frame" referred to the way the subject matter was approached, the order of speaking and negotiation for shared meanings based on an interplay of alternative frames of reference held by different members of the cooperative groups. The "Interaction Frame" guided the examination of the interactive and communicative relationships among members, their roles and positional rights in the cooperative groups, their expression and bid for control in a discussion.

Based on Barnes & Todd's framework, the following questions were used to guide the analysis and interpretation of the pupils' dialogues:

1. The "Content Frame":
   - What are the signs of learning, characteristics of talk and differences in helping behaviours displayed by groups for each type of learning tasks?

2. The "Interaction Frame":
   - What are the social processes and skills used in cooperative groups?
   - How do pupils negotiate social relationships?
   - What are the causes of conflicts and how do groups overcome barriers to group cohesiveness?

Sections of the dialogues, which were seen to be significant and had impact on the learning process, were first identified and interpreted separately and individually by each of the four researchers. Subsequently, a detailed discussion was held to derive consensus in interpretation among researchers and to have a more complex understanding of the issues involved in the dialogues recorded. When consensus was reached, sections of the dialogues were quoted and used as evidence of interpretation and conclusions. These measures were taken to establish inter-rater reliability to the study.

## RESULTS & FINDINGS

### Findings on Content of Group Talk

It is interesting to observe the results obtained on the Social Studies achievement test scores of the experimental and control groups of pupils as presented in Table 1. The gains in scores on the test increase inversely with the levels of academic abilities of pupils.

Table 1: Differences in Mean Scores on Social Studies Achievement Test between Experimental and Control Pupils

| Mean | Total Score | | | Recall Items | | | Higher-order Items | | |
|---|---|---|---|---|---|---|---|---|---|
| Score | X | C | Diff. | X | C | Diff. | X | C | Diff. |
| EM1 | 76.75 | 77.21 | - 0.46 | 71.51 | 73.24 | - 1.67 | 83.07 | 82.04 | 1.03 |
| EM2 | 70.44 | 65.07 | 5.37 | 69.26 | 63.62 | 5.64 | 71.89 | 66.83 | 5.06 |
| EM2/3 | 68.67 | 55.14 | 13.53 | 72.11 | 54.28 | 17.83 | 64.46 | 56.20 | 8.26 |

From the data, it appears that cooperative learning strategies are more suitable for the academically weaker pupils. However, further exploration into what processes took place as the pupils worked on the various tasks assigned in their cooperative learning groups is needed to provide deeper insights and understanding into the results obtained in the achievement test.

### 1. Cooperative Behaviours in Different Group Tasks

Findings to this part of the report are the results of an analysis of recordings of discussions carried out by pupils on two specific Social Studies tasks:

1. Using sequential roundtable, pupils were to write an imaginative composition on the water treatment process and
2. Using numbered heads together and group discussion, pupils were to plan for the physical landuse of an imaginary "Long Island".

### 1.1 Differences in Helping Behaviours for Recall Task

For the EM1 pupils, the approach to learning was more holistic as is observed in the following excerpt of their talk:

> From the reservoir, it goes to the pumping station and from the pumping station, ... raw water mixing tank ... sand filters ... clear water tanks ... pumping station ... to the service reservoirs and then to the needs of the people
>
> Let's memorise all over again

For the EM2 pupils, they tended to break down the task material into smaller parts. The approach to learning was more serialist as evidenced by the following excerpt of talk:

> Rainwater is collected and stored in the? ... Reservoir.
>
> Rainwater is pumped into large tanks called? ... Service reservoir.
>
> What is added to remove impurities and particles?

What is added to prevent tooth decay? ... Fluoride ... Correct.

The water is then passed through what to remove fine particles and impurities? ... Settling tanks ... Yes.

The water is pumped through what? ... Treatment plant .... Okay, clever.

I'll test you one by one, okay.

From the two excerpts, it is also observed that the EM1 pupils tended to remain individualistic in their cooperative learning groups. They were more concerned with memorizing the water treatment process by themselves rather than making attempts to help each other learn. In comparison, their EM2 counterparts had displayed more helping behaviours in supporting, encouraging and giving praise to one another. Perhaps, the better pupils in EM1 had found the task of recalling the stages of water treatment rather easy to handle and therefore felt that they need not go through the elaborate process of social interaction and communication.

### 1.2 Differences in Helping Behaviours for Group Writing Task

Comparing excerpts of pupils' discussion, a number of major differences were observed in the helping behaviours of pupils as they carried out the writing task assigned. For the EM1 pupils, they were found to be rather task-oriented and time conscious as can be seen in their talk presented below:

Okay, let's imagine the story. (Teacher gives instructions that they are given 20 minutes to complete the task. The gatekeepers are to keep watch of the time)

Okay, where is my watch? ... Just write something and then draw some water also.

Make sure you don't laugh, otherwise we get a demerit point.

Hurry, hurry ... Melissa, you start writing the first part ... 5:03 we have exactly 17 minutes ... you help Lisa ... hurry up ... Why Lisa? You write so slow.

Hurry up ... what did I say? ... A dark tunnel ... 5 minutes time, hurry up.

Wrong already. Some of them were ... went into other kinds of tunnels ... Lisa, write faster.

Jam and Ram ... found themselves rushing out of a tap. Their friends were found in factories ... factories and farms ... and other homes ... okay, finish.

For the EM2 pupils, they seemed less concerned about task completion within time specified as was indicated in their talk:

Let's discuss about our water droplet ... Let me get a piece of paper ... So what shall we do first? ... Okay, I'll pass the paper around and you all will write on it ... Alright, you are 1, you're 2, you're 3.

"Help, help, I'm falling" That's the first sentence ... Very good idea ... Then what? ... "Splash, down I go" ... No, no. "Hey, why are you guys over here?" ... Okay.

Title - Autobiography of a Water Droplet ... Good work, my friend ... Okay, your turn.

Now it's in the sand filters. "Why am I surrounded in ... with all ... by so many dirty stuff ... so much dirty stuff" Okay? ... Yuccas! Someone's having body odour (giggles) I smell body odour ... I smell water odour.

Whee, down I go ... Is it okay? ... Down the slide ...Whee, I am sliding down ... Don't want "down", because "sliding" already means down ... "I'm sliding"

For the EM2/3 pupils, they encountered more learning problems and time and task less drove their discussions:

> Okay, I have fallen into a reservoir ... I fallen into a big reservoir
>
> Oh, I can't find my sisters and brothers. I can write or can't? ... Can't (Pause)
>
> Now we go to the next question ... Now we go into a small and narrow ... narrow? ... Hard?
>
> Their turn. Number 3, can we move to the next station? ... I am in the big water tank ... I am in a big mixing tank ... I'm or I am? ... I am ... I am in a big mixing tank (pause) ... M-I-X-I-N-G ... Still continue, right? Cannot go to the sinking tank or what?
>
> I have fallen into a big reservoirs ... Where got 's'? ... Reservoir ... Where got plural?
>
> Why don't we try like stop using 'oh'?
>
> Can I write there is something dropping on me? ... No, not so good ... I think ... Stop laughing-lah you ... I think there is something dropping on me ... Where?
>
> I think I am in a big tank ... A huge, huge tank ... H-U-G-E ... I think I am in a huge R-E-S-T-T-L-I-N-G tank.

The EM1 pupils were more task-oriented than the other two groups. They went straight into the task without squabbling over roles. Though more individualistic in their behaviours, they were prepared to sacrifice individual differences for the sake of task accomplishment. The relationship among members remained affable throughout the session and each member seemed ready to compromise where necessary. They were not only task-driven, but time-driven as well. The group was conscious of the time factor and members knew the importance of achieving goals within the time constraint. This shows that the more academically inclined pupils are better developed in their metacognitive processes. They are aware of the interaction of task demand, goal achievement, time management and reward. Cooperative learning processes seem to have been well monitored and adapted by the EM1 pupils to ensure that the end result is not sacrificed irrespective of the approach employed for learning.

In comparison, both the EM2 and EM3 pupils were less driven by task and time. They consulted each other on their decisions and actions. Both groups were more careful in their assignment of roles to members and they followed more strictly to the rules of taking turns and encouraging and supporting one another in their contributions to the accomplishment of the assigned task. It is rather obvious that the weaker pupils were less confident with the language used and were slower with the use of facts and vocabulary as compared to their EM1 counterparts. The EM2 pupils had some difficulties with shades of meanings of words. The EM3 pupils had even more learning problems. A number of words they could not even spell. They spent much more time on spelling, repeating, assuring and confirming for one another. Often, they did not have the use of vocabulary at call and could not monitor accurately their own errors. They wasted time on trivia like "a big tank" and "a huge, huge tank", "Finally, I have" and "I have finally". This shows that the weaker pupils are not as capable as their brighter counterparts in both their mental and metacognitive processes. However, the cooperative learning structure used to facilitate the completion of the writing task does seem to have provided the EM2 and EM3 pupils the facility to clarify their thoughts through thinking aloud and to have their ideas confirmed by peers without fear of censure. Judging by the laughter expressed by the EM2/EM3 pupils as compared to the tenseness felt by their EM1

counterparts, the cooperative learning structure appears to have created the right climate and motivation to the former group of pupils for learning. Cooperative learning in this sense might have contributed to the quality of learning content, hence, to the larger differences in the Social Studies test mean scores between the experimental and control groups of EM2/3 pupils.

### 1.3 Differences in Helping Behaviours for Group Decision-Making Task

In the decision-making task, it was observed that the EM2 and EM3 pupils spent a disproportionate amount of time on giving reasons to justify for their decisions to insert various items on the given map to represent land use, for example,

> This is the hospital ... This is the hotel ... Cut this shorter, then we can add in more things ... This will be the road, okay? ... Yeah ... I think this can represent water ... Okay ... The swimming pool? ... Swimming lagoon ... Put the lagoon here ... This is the condo ... I think we should go according to colour.

Of course, there were instances where pupils attempted reasons for their inclusion of particular facilities, but they were generally few and far between. Some of the reasons given included:

> ... the hospital, right? ... It cannot be so near the road ... It will be noisy ... Why not try and do it this way?
>
> The beach shouldn't ... so far from the water.
>
> ... Why not put in a zoo?
>
> ... Community Chest here, then Salvation Army, all down here-lah, for the old.
>
> The beach area should be near the water body.
>
> ... How about above MRT line? The hospital will be floating in the air (laughter) ...
>
> ... I put one park next to the hospital. It's for the people who are in the hospital, for the patients to go there ... (next to the school) Aiyoh, then the kids wouldn't go to school, they will play there.
>
> ... Build in a lagoon within the area because we have a sea which is quite convenient here.
>
> I put another hospital here ... Ah, so many hospitals here for what? (No answer)
>
> I think we should put the school around here because it is near to the flats ... We should put the school here because it's near the MRT
>
> ... (Teacher: Why do you put a school here?) ... Because it's convenient

For the EM2/3 pupils:

> We put some sports recreation because there is decent roads.
>
> The hospital must be down here, around the sports recreation. If anyone gets sick ... If anyone gets injured, they can go to the hospital right away ... hospital down here so that it'll be easier for people to go to the hospital.
>
> Your sports recreation, we put a hospital beside it. If anyone gets injured or fell down already, they don't have to drive. Just very near you know.

There were a number of difficulties observed in the way the EM2 and EM3 pupils approached the decision-making task.

First, there was little evidence of pupils' clear consideration of purpose, factors and theme for the use of land on the island. It was observed that both groups did not attempt to establish a clear and logical structure at the beginning of discussion to guide them in the task of making decisions. They did not, at any point in time, discuss the implications of employing reclaimed land for recreational and residential purposes in the context of Singapore. The method adopted by both groups of pupils to meet task requirements was merely to follow the list of suggested items of landuse given in the handout and to ensure that all the items were included in their maps.

Secondly, it was observed that the pupils failed to recognise the importance of the size of land prior to the choice of facilities. At no point in time was the question of "How large do 700 hectares of land represent?" discussed. One pupil from the EM2 group did briefly raise the issue on the use of scale, but unfortunately, the others did not appreciate the application of the concept in the assigned task and subsequently the issue was completely dismissed. "Cut this shorter, then we can add in more things", "Shouldn't draw too big", "Can draw a bit more", "Just fill in more flats", "Wah, so crowded", "Draw bigger, so big space ... you draw so small" and "I want BIG BIG one ... Sports hall must be bigger ... Big big track ... Park must be bigger ... Lake, no need to be so big" are all indications of pupils' narrow conception of size and scale.

Thirdly, both groups of pupils seemed to encounter difficulties in applying even the most fundamental concepts in a mapping task. Besides the ideas of size and scale that were not well recognised, the pupils were also rather vague about the concepts of landmarks, compass rose and compass. Their uncertainty was clearly reflected in statements like "The restaurant is here, slanting, use a compass", "Later we draw in trees", "Petrol kiosk ... We have roads, but we don't have petrol kiosks", "How many houses must we draw? ... I think it should be at least 13 or 14", "Maybe build more trees?" "Draw one flower and colour it" and "MRT station". Talks of this nature give insight into the importance of providing a solid grounding in basic concepts and principles prior to the assignment of a decision-making task to pupils.

Fourthly, surface processing instead of deep meaningful processing of information was evident during the cooperative group work. For example, the statement on "Community Chest here, then Salvation Army, all down here for the old" shows clearly that pupils tended to make decisions based on intuition and emotions rather than anchored on basic principles of scarcity and cost of landuse. Similarly, the decisions to include an airport, a zoo, lakes and more than one hospital are clear indicators of pupils' limitations in ability to use appropriate principles. They failed to consider the practical and economic factors of having a number of lakes and hospitals on a small piece of reclaimed land. They could not relate to the fact that a small country like Singapore is unlikely to be able to sustain another airport and zoo, especially so if the zoo suggested is a large one.

Some of the reasons given by the EM2 and EM3 pupils for their choice and inclusion of facilities reflected the maturity in the thinking level of young children. For example, statements like "I put one park next to the hospital. It's for the people who are in the hospital, for the patients to go there", "(Probably referring to sports and recreational facilities) Aiyoh, then the kids wouldn't go to school, they will play there", "The hospital must be ... around the sports recreation. If anyone gets sick ... injured, they can go to the hospital right away ... If anyone ... fell down ... they don't

have to drive. Just very near" clearly reflect the children's narrow conception of the world. Inference questions like "What are the implications of a straight boundary on the southern side of the island?" "Why do they have a straits where it would be more cost effective to join the piece of reclaimed land to the mainland?" "What types of sea sports can possibly sustain such an expensive project?" were simply beyond the two groups of learners.

Fifthly, it could be seen that the EM2/3 pupils were not only poor managers of time in a decision-making situation, but they bowed down easily to pressure. All reasons and logic were thrown to the winds towards the ending part of the cooperative group discussion. Remarks like "We agree, you put anywhere", "Oh, never mind", "Okay, anything", "Nobody cares about that anymore", "I thought you say it's library?" "Hey, want cinema or not? ... Cinema? Okay, I agree", "The sports is orange ... I forgot ... Orange is cinema already" clearly indicate poor use of organisation and coordination skills which are essential in group decision-making. This provides clear insight into the relationship between time given and quality of discussion and learning of content.

However, despite all the difficulties the weaker pupils seemed to encounter with the decision-making task, it is interesting to note that the experimental group of pupils did manage to make a gain mean score of 8.26 marks in the higher-order items as compared to 1.03 marks gained by their EM1 counterparts. Interpreted in the light of the above analysis of EM2/3 pupils' attempts at decision-making, this difference of 8.26 marks might indicate significant mileage gained in the attempt at raising the thinking level of the weaker pupils through the use of cooperative learning efforts. The gain in mean score achieved by the experimental pupils might be due to the positive interdependence among cooperative group members and the mutual support given by their peers. It is possible that the use of cooperative learning structures has provided the avenue for the weaker pupils to pool their limited resources together and to spur each other on to the accomplishment of higher-order tasks which might seem insurmountable if taken on by the individual alone.

**2. Pupils' Perception of Social Studies Learning**

There was one unique feature that came out clearly in the interviews with the EM1 pupils. Marks, grades and examinations seemed to determine their liking of Social Studies. Statements like:

> If I get good marks, I like Social Studies. If I get bad marks, I hate Social Studies.
>
> I like food ... the time we do our food project. That was my highest.

reflected their motivation towards the subject. There were EM1 pupils who displayed intolerance of others' religious practices as was reflected in their remarks like:

> I hate Fort Canning Park. It's so horrible ... on the trees, there are red, yellow, blue ribbons and at the bottom of the trees, there're joss sticks.

Social Studies was not perceived as an easy subject or a subject that could be enjoyed by all. The pupils had remarked that:

> I don't really like Social Studies. I don't even know trucks use diesel or fuel, then what?

I don't understand the exam script. I find it very hard.

Surprisingly, even the EM1 pupils singled out the mapwork as difficult to learn.

> Sometimes, I don't like the topic because of the maps. I can't memorise them. I don't know why, I try ... it doesn't go into my head.

> Then must remember that stupid map ... written examination is so hard. I can't remember anything. I put northeast, they come out northwest. So irritating.

Such perceptions held by pupils in the learning of Social Studies are perhaps reflections of their inability to use appropriate learning organisers, their lack of a clear sense of directions and focus, and also, the emphasis given to rote learning instead of meaningful learning of the subject. There was indeed clear evidence to indicate that the method employed by the EM1 pupils to study the subject was mainly hard memorisation of facts. A number of the EM1 pupils seemed to hold this mindset and they did strongly believe that memorisation was the best and only way to learn Social Studies. This was reflected in their statements like:

> You must sort of memorise this whole topic and then tell your group members. It's quite hard to memorise it in just 5 minutes.

> If I forgot one sentence, I try to remember it, but it just slip out of my mind no matter how hard I try to get it in. If that sentence went out, that means my whole group doesn't know about the actual fact of that topic.

> Like our Chinese teacher said, if you want to know something, you have to do it yourself. So you memorise, you have more ... uh ...uh ... like you know the thing more ... better than other people telling you what to do.

It is indeed interesting to note the conflicts in approaches employed by different teachers in different subjects and the transfer effects they have on the perceptions and, consequently, the learning of Social Studies. Again, it is seen here the preference of brighter pupils to adopt a more individualistic orientation in their learning and class behaviours.

### 3. Perceived Academic Gains through Cooperation

There was one very interesting phenomenological change that took place over the period of treatment using the cooperative learning strategy. Every group of EM2 and EM3 pupils grew to like the strategy despite problems and difficulties of implementation, but there were pupils in the EM1 class that developed an aversion to the strategy. The latter group of pupils felt strongly that the strategy was a hindrance and it had obstructed them in achieving their own personal achievement goals as is reflected in the following remarks:

> In doing group work, you have to wait for others. Sometimes they are not punctual, and you have to find the materials first. For individual, I don't have to wait so long. You can take your own time and do, like find for more materials on the topic.

> I really prefer individual. You can look for your own materials for your project.

> I prefer individual because if I did something wrong, some in my group will sure not be happy. If I do individual, anything wrong, then I can learn from mistake.

Yet, it was an entirely different story with the EM2/3 pupils.

> It's better to work in group, at least there are people to help you when you don't know anything ... It's better to have a group and your friends around you to help you.

> (We prefer group work) because it's easier and more fun. We don't need to do all the things ourselves and we don't need to stretch our heads. Since there are four minds, so we can do it better instead of one person doing it.
>
> I also like group work because sometimes we learn something different we can teach our friends and my group and then they can teach me different type of things. We can do more things about the subject ... you learn more about the subject.
>
> ... but if you do group work, you can do even more ... It improve our Social Studies ... If you are weak in the subject, you might improve in this way ... understand the subject more.

With such strong feelings as those expressed by a group of EM1 pupils, it is indeed surprising that the treatment is able to sustain a decline in their attitude mean score as compared to the control group of EM1 pupils. This could only mean that there were a good number of EM1 pupils who, like the EM2/3 pupils, appreciated the academic benefits of learning through cooperative group work. Some of the EM1 pupils did acknowledge that the projects done were interesting, the cooperative group structure did make the job easier for each individual member, allow them to think more than usual and to spend time researching together, hence more information was obtained on the subject.

A number of pupils perceived the academic benefits of using cooperative learning strategy in core subjects like English, Mathematics and Science. One EM1 group of pupils believed that cooperative group work would be useful for the completion of English worksheets. It was felt that under such conditions, they need to rely on group members to share and confirm answers to questions. Another group liked the use of cooperative group quizzes in both English and Science. They perceived quiz as a useful tool to test their minds. On the other hand, one EM2 group of pupils would like the strategy to be applied in Mathematics, especially in situations where pupils were assigned complex difficult problem sums to attempt. They felt that cooperative group work would allow them to think together leading to understanding and systematic solutions of problems.

## Findings on Group Social Processes

### 1. Pupils' Use of Social Skills

It was observed that during the cooperative group work, the pupils in their Social Studies classes were executing a substantial number of social skills. Pupils in fact could cite very specific examples of how each skill was used. The EM1 pupils were clear about the skill of disagreeing agreeably. They explained that:

> when you disagree, don't hurt others, example, (saying) 'stupid fool, why do you do that?' ... say nicely, use nice words, not vulgar ones ... encourage them ... shouldn't pass rude remarks, shouldn't scold.

This group of pupils also knew the importance of using praise in cooperative groups to make the work relationship a happier one. Techniques used by them included a pat on the shoulder or the use of encouraging words like "well done" and "good work". They were conscious of the likelihood of dominance and non-contribution by the more aggressive and quieter members respectively. Remarks like "Please keep quiet and let other people give their ideas" were used by them to control the situation:

However, it appeared that the use of such social skills had not been internalised by a few of the EM1 pupils as was clearly shown in the following episode:

> Actually I want to sit alone because if somebody sit with me, I feel so squeezy. After recess, I perspire a lot. Although I don't play, I still perspire a lot, so whenever I touch anybody accidentally, "Ugh, why you so sticky?" So I feel so ... if I don't perspire, I'm sick, having fever, that's the problem.

"She's not sticky, she's sweaty" was the only response from her group members. This reflected not only poor social skills, but also a lack of empathy and callous behaviour towards the feelings of another fellow human being.

As with the EM1, the EM2/3 pupils could also give very specific examples of the application of social skills in their cooperative group work:

> Keep on trying, try harder, you can do it ... work harder ... Have to praise each other, if you don't, you think it is not good. Then you have to ask them to do better, encourage them ... Sometimes a person doesn't know anything, so we help them ... Sometimes we say okay, never mind, you think of another idea, keep it up or something like that ... We shouldn't just look down on others, we should encourage them.
>
> Or when someone is sad, they cannot do the things properly, so we try to cheer her up, tell her to become happy, tell her that she can still do the thing properly, better than us.
>
> Sometimes when some of us are discouraged, my friends will help me and tell me that I can do better, don't feel discouraged. They will help me not to think poorly of myself, then I can think better than others.
>
> (When she was told not to talk) Sometimes I am not happy, but I still say that I am sorry.
>
> Don't speak so loud; speak softly 6 inches voice.
>
> Listen actively and must call them by their names, not any other names.

It appeared that the cultivation of social skills that were needed to work effectively and successfully in groups had been very carefully planned and developed by the teacher in the EM2/3 class as was seen in the following recollection of her pupils:

> In the beginning of school, in Primary 5, we still don't know each other. I was sitting with one of my friends at the side. (Teacher) wanted us to get to know each other, so she make us discuss with my friend, Vanessa, like "What is my name about? What is my favourite food?" and all, then I will write it down. Then (teacher) will ask us to stand up and talk, like what is my name and a lot of other things.
>
> Last time, I pull a long face when doing group work, but after some time I find it so fun, I change myself ... It has helped me to become not so rude, ask people in a nice way ... Now I am happy, but last time very moody.

The teachers' concern for social skills in cooperative group work was again reflected in the emphasis given to the use of T-charts and pinch cards in the respective classes. Both the EM1 and EM2/3 groups of pupils could even recall the components included in the pinch cards as "speak up and cooperate with each other", "encourage and not use bad words" and "keep your voices down". The pupils seemed to like the idea of using pinch cards to assess the group's performance on each social skill. They perceived that it showed them "who have done best for today", it made them "think about themselves ... what used and which not ... try again ... try to improve next time, try to get a happy face". Generally, pupils seemed concerned about getting a happy rather than a so-so or sad face. Even with the EM1 pupils, they made efforts to

improve by "telling each other not to shout so loudly ... reminding each other of the demerit points".

## 2. Approaches to Conflict Resolution

There were clear differences observed in behaviours and the approaches used for conflict resolution between the EM1 and EM2/3 groups of pupils. The higher ability pupils were more impatient or intolerant of one another and they displayed more aggressive behaviours towards their group members, which became even more obvious when placed under stress condition. As they worked in their cooperative group projects, they seemed to:

> get angry with members ... get into fights ... shout/yell a lot at each other ... get so mad/upset with each other.

In some cases, it appeared that some group members used the yelling, shouting, throwing of tantrums, showing of anger and acting rough as tactics to scare others into submission. Probably due to stronger personalities among the higher ability pupils, an often used approach to resolve such conflicts was to avoid talking to one another totally, with all keeping quiet and each just doing her own little part. Some other groups had resorted to balloting and drawing of lots,

> Coach picks, all go along with the ideas ... we are happy with the vote because it's fair.

Of course, there were also the more agreeable groups who attempted to:

> sort of suit each other ... sometimes give in ... not always want your own way.

There were groups, however, that never argued as they operated differently:

> We do things very fast. We need not meet together. We discuss and each person gets the information and that's all. And afterwards, it is sometimes before school we go and discuss.
>
> They don't help me in any form, but in group project mostly we will say, you read, you do this one, we will take turns to do the whole project. So we don't waste time on discussing or meeting together.

The weaker pupils seemed to employ more conciliatory approaches to resolve their conflicts. They had used the "stop" or "so-so" signal, given pats on the shoulders of the parties involved, reminded each other to go back to the basic question or the leader advising them to be more cooperative, used the "majority" rule or the discussion strategy where everyone's view was sought as to the best answer. These pupils had commented that:

> We don't take things so seriously ... don't mind ideas not being accepted.
>
> When we disagree, we pull a long face, then we will start quarreling, others will say that let's plan another thing.
>
> (The project was) very horrible... they use the wrong colour ... but it doesn't matter, it gave us fun.
>
> Sometimes we discuss our own ideas, then we choose which is the best.
>
> Try to think harder and remind each other that fighting wouldn't do any good. Sometimes Liwen will stand up, sometimes me. Sometimes we give in to the person ... Sometimes you feel angry, but just continue.

As with the EM1, there was one instance where a group of EM2/3 pupils had to resort to splitting up when their ideas were all conflicting. Members went their separate ways to do their own work and subsequently handed in the piece of work with the most number of points. However, it appeared that these incidents were rare and they seemed to pale in comparison to their EM1 counterparts.

### 3. Coping with Various Personalities

All cooperative groups had to deal with different personality type members. They included the "loud" ones who were bossy, talkative, quarrelsome and aggressive towards others. On the other extreme, there were the "quiet" members who appeared to be non-contributing towards the cooperative group projects. Some of the more clumsy, messy, untidy members were most upsetting to their neat, fussy, meticulous peers. Other personality types included the comical, fun-loving or non-concerned members. In general, the weaker EM2 and EM3 pupils seemed to have coped better with different personalities than their EM1 counterparts. The latter group of pupils often had serious "clash in ideas". They found difficulty in accepting and working with each other in their cooperative groups.

> Sometimes I don't like cooperative learning. Cannot get things done your own way. Others won't let you do it ... Cannot use your own ideas. Has to give way to others and take turns to write.
>
> I don't like working in groups. Others argue over ideas. I dislike arguments on ideas. Prefer to write down my own ideas. Didn't want to pick a fight, so I just keep quiet.
>
> I prefer individual because if you work in a group, you got to wait for this person, wait for that person -- what if that person is late? ... Forgot? -- I get so mad I want to kill that person.
>
> We don't work well as a group maybe because our characteristics are different. She is quite hot-tempered, while this person is willing to spend a lot, while I love to read ... sometimes I am quiet and I don't really like to talk and they think I am not cooperating. By nature maybe, we don't like each other. Or maybe, a habit of somebody. Who knows? Just don't work well.
>
> I tell you when I walk out of this classroom, I'm going to pinch you.

The EM2/3 pupils were not spared of having to handle strong and aggressive personalities as is seen in the following episode:

> (If she is in her good mood) she will speak in her normal voice, if she is in her bad mood, she will shout at us. Every time she shouts at Sarah. She sometimes calls me "bodoh".

Generally, the EM2/3 pupils made efforts to avoid head-on personality clashes:

> We will just ignore her, or I just cried or I will go and tell my mother.
>
> Sometimes we get to quarrel with each other and some of them will cry. Like some of us don't like group work and some of us say it in a rude way, then we hurt our hearts, so they cry. After that, we get over it. The person say to the person who is crying, then apologise to her.
>
> There are some of them who are quite stubborn in the group. We just give them a job or they choose something.

The EM1 pupils were not as tolerant of their quieter peers whom they perceived as keeping ideas to themselves and not contributing to the group work. A meticulous member among the EM1 pupils might not be able to tolerate her peers who were less concerned about the minute details. In one of the projects, an absent member felt so upset over the torn paper with a piece of scotch tape at the back that she simply had to

reproduce the whole piece of work on a fresh piece of paper by copying her peers' handwriting. Despite the others' objection, she ignored and proceeded to meet her own expectations. The result of course turned out well and the others were happy with it, but this incident did clearly show the dominance of personalities in cooperative learning groups.

## IMPLICATIONS & CONCLUSIONS

Taking the data as a whole, it thus appears that the cooperative learning strategy has tremendous potential in helping the lower ability pupils in the Singapore schools improve their learning and academic performance in Social Studies. The strategy seems able to meet their needs, ability and personality. The benefits derived from the use of the strategy for this group of learners are significant in terms of both recall and higher order learning. Comparatively, the mileage gained in the recall of subject content is beyond expectation (difference in mean scores of experimental and control for recall items is 17.83). The use of cooperative learning structures in the Social Studies classroom has, perhaps, given the lower ability pupils the opportunity to help one another break down information into its various components and, as a consequence, the task of remembering facts is made clearer and easier for them. Also, the use of the strategy has created a vehicle for this group of learners to use each other as a medium to practise verbalising and recalling the content of the subject. Through this approach, it is likely that the learning of such content is thus reinforced and transferred to long-term memory, resulting in the comparatively better mean score for the recall items obtained by this group of pupils in the achievement test.

Even though the difference in mean scores between the experimental and control EM2/3 pupils for the higher-order items in the achievement test is not as large (8.26), but this is significant relative to the other two groups of learners (EM1 is 1.03 & EM2 is 5.06). The smaller achievement gain for the higher order items is perhaps best understood in the light of the multitude of problems faced by this group of pupils in their learning of Social Studies. First of all, they encountered difficulties with the use of the English Language, including the choice of vocabulary and even the spelling of key words. This can very well slow down their processing of information essential for the higher order tasks, like writing and composing, decision-making and problem solving. Also, it is found that many of the processes and skills required to handle decision-making tasks are not well developed in this group of learners. They lack a firm grounding in basic concepts and principles for applying to decisions. Their power of reasoning is not as sound. The development of thinking abilities in this type of learners can be a long and tedious process, but a worthwhile attempt. This is because they have positive perception and attitude towards the learning of Social Studies. As they have derived much motivation and satisfaction working in their respective groups, as well as having the social skills to manage group discussions, the strategy of cooperative learning may well be the answer to facilitate the development of thinking and improved learning for this group of pupils.

On the other hand, the cooperative learning strategy may not be as suitable for the higher ability pupils in the Singapore classrooms, especially so for the recall of information. This is because the higher ability pupils tend to perceive speed in acquiring and remembering information and in completing a task to be very much

related to academic achievement. Hence, some of them have shown impatience with the cooperative learning structures which they perceive as more of a hindrance rather than a help to their learning. Furthermore, it appears that the learning style of this group of learners is more holistic, hence they do not appreciate others' interference in breaking up their learning into parts. It thus seems that putting the high ability pupils in cooperative groups for performing recall tasks which they do not perceive to be attractive, relevant or of academic value, the effect can be detrimental to learning and academic achievement scores (difference in mean scores of experimental and control for recall items is –1.67).

If cooperative learning is to be used for the higher ability pupils, it appears that the tasks assigned must be those which they value and perceive to be challenging and meaningful. Unfortunately, this group of learners has narrowly defined such tasks as work that contributes to achievement scores and grades. This observation is made clear in the results obtained for the higher order items in the achievement test (difference in mean scores of 1.03 for EM1 as compared to 8.26 for EM2/3). Even where the strategy is applied for the higher level tasks like decision-making and writing in Social Studies, the benefit derived from the effort is still minimal and hardly significant. This may be due to the fact that Social Studies, being a non-examination subject, is perceived by this group of learners as of lesser value in terms of its contribution to academic achievement thus reducing the attractiveness, relevance and challenge of all tasks related to the subject. The validity of this conclusion is supported by their view that the cooperative learning strategy will be useful in facilitating the learning of English where they generally feel less confident. However, it is obvious that this group of pupils has not realised the full potential of using cooperative learning as a vehicle in social learning. Their concern is only in using their peers as a resource for confirming answers in the English worksheets. Therefore, in line with Johnson & Johnson's meta-analysis study (1989), it seems critical that for cooperative learning to work well in the Singapore classrooms, tasks need to be carefully crafted to ensure that pupils perceive both goal and reward interdependence. These elements have to be built into the tasks to serve as incentives to learn through cooperation with peers.

Finally, if the strategy is to be used with the higher ability pupils, the challenge to the teacher is to make thorough preparation and to provide training in the use of social skills. There seems to be stronger personalities among this group of learners. It may be critical for the teacher to study the sociometry of such a class before implementing the strategy. Cooperative groups have to be carefully selected and members assigned. Allowing freedom of choice for membership and roles has greater potential for conflicts and tension among this type of learners. As a final word, it is essential for this group of pupils to learn skills in managing collaborative work, negotiating social relationships and resolving conflicts that may threaten group cohesiveness and hence, affect quality of interaction, motivation, satisfaction, learning and academic achievement. As concluded in Johnson & Johnson's study (1989), the importance of the mediating effects of group processing on learning and achievement cannot be overemphasised if the full potential benefits of cooperative learning are to be realised.

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