Towards Constructive Academic Conflict:

A Study of the Quality of Children's Group-talk

in Hong Kong Primary Schools

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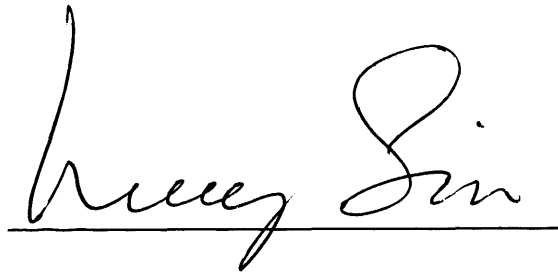
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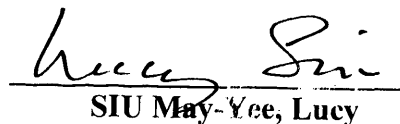
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(SIU May-Yee, Lucy)

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i

ACKNOWLEDGEMENTS

Table of Content

List of Tables

List of Figures

List of Data Sheets

Appendices

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ABSTRACT

The purpose of the present study is to investigate the quality of students' group-talk in order to understand how learning takes place during small-group discussion. The study took place in twenty-two Primary Five classes in eight elementary schools in Hong Kong. The average age of the Primary five students was eleven. In each class, about eight groups of discussion in General Studies lessons were audio-taped and one from the eight groups was randomly selected for observation. During whole class teaching, observation record was also taken. This data collection process was repeated twice for each class. The General Studies teachers and eight randomly chosen students from each class were interviewed. A Seesaw Working Model emerged from the current findings.

The Seesaw Working Model explains children's group-talk through three seesaw positions. The 'Homeostatic Seesaw Position' is the optimal case while the 'High Cognitive Diversity and Low Social Unity Seesaw Position' and the 'High Social Unity and Low Cognitive Diversity Seesaw Position' are the two non-optimal cases. The optimal case shows that optimal learning requires a balance of cognitive diversity and social unity, as well as self-regulation and movement in group-talk. Cognitive Diversity refers to students' reasoning, conflicting views or open conclusion. Social Unity refers to students' humour, disagreement skills, maximum participation, or concern for peer social acceptance. The Working Model has yet to be tested at wider levels in future research.

CHAPTER ONE

INTRODUCTION

1.1 Background

For many decades, progressive educators have urged practitioners to "give students more responsibility for controlling the pace and direction of their learning" (Barnes & Todd, 1995:2). Educators in the United States, like Anderson (1959) or Helen (1960), have long advocated that small-group discussion was an appropriate way of achieving this kind of student-controlled learning in which children can control the direction of their own learning. However, there appears to be a lack of research on small-group discussion that can offer close analysis of students' actual group-talk whereby this kind of learning can be further understood. Barnes and Todd (1995) pointed out this situation.

> *"Although teachers are successfully using small group methods which imply a social constructivist view of learning, it seems likely that it is still a minority who could give an account of how the learning takes place or describe the influences that shape students' participation"* (p.7)

In the sixties children's small group discussion had not just been advocated for giving students more control in their own learning, it had been regarded as beneficial to the child's cognitive and socio-emotional development. Piaget (1962) sketched the significance of interaction between peers for children's group-talk. It helps children to 'decenter' and become sensitive to other's perspectives (Light and Littleton, 1994). Neo-Piagetians go further to develop the concept of socio-cognitive conflict. They consider how the communication with another child, who has different perspectives, may shift a child's understanding (Bell *et al.* 1985).

1

However, the neo-Piagetians "have not studied the actual talk involved in such conflicts of ideas" (Mercer, 1996:90). One of the reasons for the lack of studies on children's actual group-talk may be that children's actual talk involving conflicts of ideas has been regarded as disruptive and subversive. In British primary schools it was not until the 1960s that group-talk was encouraged through a progressive philosophy of education. Surprisingly, "little was known about the quality of most of this group work until the 1980s" (Mercer, 1995:91) when the ORACLE Research (Galton *et al.* 1980) was implemented. However with a few notable exceptions (Bellock *et al.*, 1966; Britton, 1969; and Barnes & Todd, 1977), "little close analysis of pupils' talk was disclosed" (Mercer, 1995: 92).

Though there appears to be insufficient research on children's group-talk, the use of group-talk seems to have attracted the attention of some teachers. The growing interest in children's group-talk, and particularly towards the processes of learning through social interaction, reflects a theoretical shift in learning and teaching perspectives. There is a shift to emphasize the social and contextual nature of human learning (Brown *et al.* 1989; Lave & Wenger 1991; Greeno 1997). Post-Vygotskian ideas of teaching and learning as supporting performance (Tharp & Gallimore, 1988) or as a process of guided participation (Rogoff, 1990) suggest that learning is generated through capable others or participation in group activities. Learning is not merely a construction process in the individual's mind but is also embedded in the socio-cultural context of the learning situation (Salomon, 1997).

Contemporary views of learning and teaching are changing traditional classroom interaction patterns, affecting both teacher and student roles. Student-controlled learning contexts, or small-group co-operative working modes, are allowing students more opportunities to participate, observe, and actually practice co-construction of knowledge. Although teacher-centred interaction is still

2

important in today's instruction, students' group-talk is beginning to gain attention. Therefore, it is important to understand how students co-construct knowledge in small-groups. It is equally important to understand what factors generate particular interaction patterns conducive to learning. Examining the cognitive and social dynamics of students' group-talk may reveal the essentials of the enabling conditions for effective group-talk and constructivist learning.

1.2 Purpose of study

In the previous section, the benefits and criticisms of studying children's group-talk are outlined. However, in research "little close analysis of pupils' talk was disclosed" (Mercer, 1995:92). Although neo-Piagetians have developed the concept of socio-cognitive conflict in children's group-talk (Bell *et al.* 1985), the neo-Piagetians "have not studied the actual talk involved in such conflicts of ideas" (Mercer, 1996: 90). There appears a lack of overseas and local Hong Kong research utilizing close analysis of children's group-talk related to conflicts of ideas. However, the criticisms and lack of research do not imply not worth trying to improve and develop issues connected with both the theory and practice of education (Bailey, 1991).

Although research on actual group-talk appears not widespread, studies on children's group-talk in the United Kingdom and in Canada seem encouraging some positive effects. In the United Kingdom, from 1987 to 1993 the British government funded the National Oracy Project. It aimed to encourage teachers of all subjects to make use of small group-talk with students of any age. Numerous teachers in the United Kingdom noted, recorded and transcribed classroom talk. These teachers shared their interpretations and looked for ways to extend students' talk-contexts (Barnes & Todd, 1995). In Canada, Brubaker *et al.* (1990) published a

3

collection of theoretical and practical articles on small group learning generated from different countries. At the same time, the Toronto Board's Curriculum Implementation Plan encouraging children's interactive learning was launched (Green and Myers, 1990).

In this thesis, reflecting on the effects of group-talk provided by Barnes & Todd (1995) and Green & Myers (1990), it will be encouraging to continue research on children's group-talk, so that local practitioners and policy makers may draw insights to inform teaching practice and improve student learning. The study on children's group-talk described in this thesis is a small-scale study. The working model and any findings must be viewed as such. The author makes no claims to generalizable findings. More large-scale studies may be replicated and test the provisional working model of the present research.

The intention of the present study is to carry out an intensive analysis of children's social interaction and cognitive strategies as they appear within the acts of communication. The underlying purpose of this work is to examine the processes of children's interactive learning. The current thesis aims at developing a working model to reveal what happens during children's spontaneous verbal interaction in their small-group discussion. In order to capture the spontaneity of children in their group-talk, this study started with the following overarching research question. However, more specific research questions emerged during the processes of reviewing literature and through the initial data collection and data analysis phases. The overarching research question is:

"What is the quality of children's group-talk?"

4

1.3 Significance of study

In order to meet the megatrends in education (Caldwell, 1994; Caldwell & Spinks, 1992; Naisbitt, 1992), there seems to be a need for student-controlled small-group interactive learning. For example, there is a need for a flexible work force composed of people with the skills to be self-directed and life-long learners.

People learn best through social interaction and through talk (Vygotsky, 1978). However, the education systems have not really exploited such approach to learning. The nineteenth century approach to education will not work well in the present twentieth century. So, it is a sociological imperative now whereas before it was not. Before, the economic conditions had been such that it needed to train people in very narrow ways. That was what education had been required to do. The world is changing. What is happening now is that we are moving to the megatrends in education where such conditions are no longer acceptable. Student-controlled small-group interactive learning may help. Students may learn to be sensitive, responsive and flexible to the ever-changing internal and external environment (Cheung & Cheng, 1996) through autonomy in group learning. There also appears to be a need for students to forge new understanding on disagreements, thus creating Constructive Academic Conflict through new work forums in group-talk. Neo-Piagetians have alerted the importance of socio-cognitive conflict in children's group-talk. They have reminded how communication with another child who has different perspective may shift a child's understanding (Bell *et al.* 1985).

These days, with the advocate of child-centred education (Dewey, 1933), many would agree that student-talk is very important. Many practitioners give lip service to student-talk because students may build up knowledge together through students talking in groups in the classroom. Lip service breaks down when the practitioners get into the area of sharing power with students. The power to initiate things in the

classroom may be a threat to teacher control. Management of classroom control has led to the misunderstanding of teachers and students about conducting Academic Conflict in students' group discussion. Academic conflict in this thesis refers to situation in the academic context of small group discussion whereby group-members generate conflicting views in class. Often, Academic Conflict is so misunderstood and mismanaged by teachers and students that it hampers students' group-talk in class discussion.

In Hong Kong, with the Chinese cultural values embedded, it may be difficult to implement Academic Conflict in group-talk. From a cultural perspective, Chinese tended to avoid cognitive and social conflict. Being concerned to protect social face, East Asians avoid open and aggressive ways of discussing conflicting ideas (Hwang, 1985; Cocraft and Ting-Toomey, 1994; Leung, 1997). Their Confucian values advocate harmony, avoiding conflict, and conforming to prescribed social behaviour. The Chinese will rather suppress their conflicting views in order to respect the pride and dignity (or face-giving) of others. Furthermore, group-learning and the importance of individual conflicting opinions originated from western-based ideas. Whether it may be transferable to Eastern culture still need extensive research to support it. Considerations must be taken whether it may not even be desirable to try. Caution must be taken not just to clone from the western-based learning ideas. This may prompt the significance of this study. Current findings from the Hong Kong setting may suggest what is to be changed, why change is necessary and what information can be provided to bring about the change for Constructive Academic Conflict in the Hong Kong education context.

On the other hand, Tjosvold has conveyed that it is worth trying to empower students to manage Academic Conflict. According to Tjosvold: "People try to check their ideas and feelings" (1991:xiii) when confronted with conflict. He continues:

"Well managed conflict invigorates and empowers teams and organizations. Without a full airing of different points of view, decisions can be disastrous, common tasks meaningless, and relationships shallow. Life without conflict is both unproductive and dull." (Tjosvold, 1991:xiii)

Competence in "different points of views" and "relationships" is important. Practically, if an emergent working model can embrace the concept of socio-cognitive conflict and prompt ways for diversity of ideas and socio-emotional harmony during students' group-talk, the potentials of the working model may then guide students to head towards Constructive Academic Conflict. Students' learning towards Constructive Academic Conflict is likely a wise investment for preparing the individuals, groups and the community for future challenges.

The literature review in Chapter Two shows that there appears a lack of widespread research on close analysis of students' actual group-talk in the East and West. Hong Kong research on small-group co-operative learning is scarce. There is even scant Hong Kong research on actual group-talk in small-group co-operative learning. A thorough literature search from books, journals and the Internet yielded nothing about published research on Hong Kong primary school students' actual group-talk.

The present study aims at developing a working model based on intensive analysis on some local primary school students' actual group-talk. It may be the very first formal study conducted in Hong Kong. It is hoped that the emergent working model resulting from this research may provide a ground for policy makers to formulate related policies to develop the current practice of small-group interactive learning in the Hong Kong school system. It is also hoped that the emergent working model may give insights to pre-service or in-service teachers to develop small-group interactive learning in school.

1.4 Definition of terms

The following terms used in this thesis are defined here for better understanding in subsequent chapters.

Academic Conflict: It is written with initial capital letters throughout this thesis to denote a situation in the academic context of small group discussion in the classroom whereby group-members generate conflicting views.

Assertion, Collaborative Elaboration, and *Constructive Conflict*: These three terms are italicised throughout this thesis to signify each is a type of group-talk, emerged from the current study. *Assertion* group-talk is mainly characterized by group-members generating diverse views without reasons. *Collaborative Elaboration* group-talk is mainly characterized by group-members generating similar views with reasons. *Constructive Conflict* group-talk is mainly characterized by group-members generating diverse views with reasons.

Constructive Academic Conflict: This term is typed with initial capital letters throughout the thesis to highlight a situation in the academic context of small-group class discussion whereby group-members build-up their conflicting ideas and social harmony in the group-talk.

1.5 Organization of Thesis

In order to address the aims of the study, special care is taken to connect the research questions with the theoretical framework and methodological issues related to academic conflict in children's group-talk. These are presented in the Literature Review in Chapter Two. Here, major strands of literature reviewed include research trends in the studies of children's group-talk, quality of group-talk reflecting conflict-handling characteristics, levels of analysis in

investigating children's group-talk, how a system works to maintain homeostasis in functional and dysfunctional states, and related pedagogical issues.

Chapter Three outlines the research paradigm and methodology. It describes the emergence of the research questions; why and how the research paradigm, design and methods are adopted. It also elaborates the research process with special attention given to trustworthiness of the findings and the ethical issues involved.

Results and analysis are tabled and examined in Chapter Four. The findings include: the Seesaw Working Model; the quality of group-talk of the Hong Kong students involved in the current thesis; relationship between perceptions and practices of Academic Conflict in group-talk; levels of analysis in investigating children's group-talk; teachers' readiness in facilitating and students' readiness in generating Constructive Academic Conflict. Findings of the outlier cases are also sketched.

Chapter Five provides a thorough discussion of the main findings. First, it discusses the knowledge building and the ground rules of the Seesaw Working Model. Second, it discusses implications of the implementation of group-talk with Constructive Academic Conflict. Third, it discusses insights from the current research methodology.

Chapter Six presents the conclusion of the study, summarizing new findings, elaborating insights for theoretical and professional developments, as well as improved student learning and achievement.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Traditionally, education research has supported the study of teacher talk. It is not until the early 1900s, with the advocate of child-centred education that more concern is on children's talk during small-group learning. Research on children's group-talk is still developing. The author is interested to know the significance of children's group-talk, specifically in the Hong Kong context.

The following is what the author is looking for from the literature review. Firstly, to find good quality literature in various disciplines in order to establish an in-depth understanding of children's group-talk. Secondly, to discover how children are viewed as active participants in the creation of learning in group-talk. Thirdly, to find related literature that is empirically sound or less sound, so that a critique on the research methods underlying the literature can be attempted. Fourthly, to examine literature from different cultures to discover if any cultural transferability in related issues will be appropriate. There is no guarantee that research carried out in other cultural contexts is relevant and the author is interested in the specific cultural context of Hong Kong.

In short, the aims of the literature review are to find the literature support, arguments and research gaps on the above issues. The following topics are formulated to achieve these aims:

(i)   Trends in the studies of children's group-talk;

(ii)   Quality of children's group-talk;

(iii)   Quality of children's group-talk reflecting conflict-handling characteristics;

(iv)   Common perceptions of conflict;

(v)   Perceptions and behaviour on conflict in group-talk;

(vi)   Factors affecting perceptions and behaviour on conflict in group-talk;

(vii)   Levels of analysis in investigating children's group-talk;

(viii) Pedagogy and group-talk;

(ix)   Contexts and conflict in group-talk;

(x)   How to balance conflict;

(xi)   Summary of research gaps; and

(xii)   Summary of literature review chapter.

2.2 Trends in the studies of children's group-talk

2.2.1 Group-talk in the West

In small-group independent learning situation, there is a high degree of instructional diversity in that the responsibility shifts from the teacher to the students. There is a high degree of diversity from a qualitative viewpoint when students hear multiple ways of thinking about a problem from their peers. However, student-controlled methods that demand an extensive use of small group work and a strong emphasis on oral language are still not being widely used (Green & Myers, 1990). In this study, student-controlled small-group discussion refers to what Barnes and Todd (1995:2) relate as "to give students more responsibility for controlling the pace and direction of their learning". While most teachers recognize talk and writing as vehicles for learning, it is very difficult to actualise the image of the learner as "a self-directed problem-solver and active participant" when traditionally a teacher talks for nearly ninety-five percent of a lesson (Greene and Myers, 1990:331). It is thus worthwhile to examine the

gradual shift from teacher-controlled classroom talk to student-controlled interactive group-talk.

In the sixties, United States scholars advocated that small group discussion was an appropriate way to give students more responsibility for controlling the direction of their learning (Anderson, 1959; Thelen, 1960). A way to aid in the study of students' learning process while engaged in group-talk was the cheap recorders of the sixties. However, verbatim transcripts of classroom talk produced before 1970 were scarce. Bellack *et al.* (1966), Massialas & Zevin (1967) and Britton (1969) were among the exceptions. These studies attempted to demonstrate how children collaborated in their thoughts and feelings to construct meaning. The studies also revealed how the social context, such as teachers' influence, affected the kinds of talk. The emphasis was on teachers' influence. In the early 1970s, educators in Britain were still unwilling to devote much attention to students' group-talk and "there was an assumption that communication skills were 'caught' rather than 'taught'" (Francis, 1990:306). It might suggest that there was nothing in group-talk that was worth teaching. It was not until the mid1970s, with the detailed transcripts of Barnes and Todd (1977) that study on children's group-talk was finally recognized.

Some important government initiatives might have bolstered the studies on children's group-talk. Britain's Bullock Report (DES, 1975) gave an official statement of the importance of group-talk in learning; and in 1989, spoken language became for the first time compulsory for all students in the United Kingdom's National Curriculum. However, this directive was modified by an official direction to test oral skills. "There were even ministerial statements which implied disapproval of small group teaching methods" (Barnes and Todd, 1995:3). On the other hand, from 1987 to 1993, a National Oracy Project funded by the

British government encouraged group-talk with students of all ages. Numerous teachers noted, recorded and transcribed classroom talk. They shared their interpretations and looked for ways to extend students' talk-contexts. These included methods such as putting students into more diverse roles, minimizing teacher's talk, or facilitating group-talk. Towards the end of the National Oracy Project, oracy was investigated more analytically. Des-Fountain and Howe (1992) identified the types of group-talk that should be valued for learning and Corden (1992) described the effects of teacher's role on group-talk.

In Scotland, in 1981, the Discussion Development Group was set up "to demonstrate the potential of classroom discussion as a mainstream learning process" (Francis, 1990:302). This Discussion Development Group established a resource base and consultancy support system to maximize the gains that were achieved by the staff development programme and to monitor the development of discussion programmes in the Scottish school system. The consultancy included personal, departmental or whole-school innovations. However, in the United Kingdom since the late eighties teachers' accountability has been stressed. Students were "to keep teachers up to the mark" (Warnock, 1988:102). Since then, traditional teacher-directed teaching has been supported. Students' listening and talking seemed threatened to passive purposes.

In the United States in the early nineties, teachers were aware that the development in literacy was closely linked with spoken language. They experimented different formats of talk with children. One format was group-talk (Short and Pierce, 1990; Pierce *et al.* 1993). In Canada, the interactive learning policy placed special emphasis on the value of student talk as a vehicle for learning and there was widespread of research on small-group learning (Brubaker *et al.*1990). In Australia, Reid *et al.* (1989) developed planning of appropriate

stages in group-talk. This stimulated a systematic approach to group learning. Although the interest in small-group teaching was widespread in the eighties, some researchers cautioned the use of results. Boydell (1975) and Galton *et al.* (1980) alerted that most group-talk in Britain was not task-related. Bennett *et al.*'s (1980) studies showed that children mostly shared information without much explanation. It appeared that these children were not given task or encouragement conducive to collaborative talk. Despite these results, teachers in Britain were willing to try small-group teaching methods and small-scale research. Some researchers had addressed group-talk in subjects like English Literature (Wilson, 1976; Dewhirst and Wade, 1984), mathematics (Webb, 1980), and geography (Baldwin, 1976). Others were concerned with specific themes, like Phillips' (1985) set of functional categories of group-talk. In Britain, there were large-scale projects and small-scale research on group learning. At the same time, in the United States (Slavin, 1990; Yager *et al.* 1985) and Israel (Sharan *et al.* 1984; Sharan, 1990) large-scale projects were also conducted on group learning, termed cooperative learning. Johnson *et al.* (1981) found that results of nearly two-thirds of small-group cooperative learning were better than whole-class teaching. Sharan *et al.* (1984) reported that small-group collaborative inquiry produced more effective results than teacher-directed learning. Lazarovity and Karsenty (1990), through pre- and post-test, also found that small group learning in high schools was more effective than whole-class learning. Research on small-group learning in United States or Israel tended to be more concerned on product of learning. There was little transcription of students' group-talk. Hence, their work seemed to shed little light on understanding the process of learning during children's group-talk.

2.2.2 Group-talk in Japan

In the East, it was not until the early 1990s that research on children's group-talk

14

emerged in Japan. Hatano and Inagaki (1992) showed that Japanese six-year-olds shared their ideas about caring animals. These children explained, discussed and sometimes justified their opinions.

2.2.3 Hong Kong policy on students' group-talk

In Hong Kong educational language policy is still mainly on the medium of instruction, stressing much on assessment (product of language). Little is recommended for the process of language.

> *"Hong Kong has no language planning, and that language planning has never been employed by the Hong Kong government to solve language problems."* (Poon 2000:332)

Even government documents admit this fact. Drawing largely on the Working Group's report on language proficiency, the draft Education Commission Report 6 (draft ECR6, 1995) and ECR6 (1996), entitled 'Enhancing Language Proficiency: A Comprehensive Strategy', acknowledges "a lack of a coherent framework for planning and implementing language policy in education" (Education Commission, 1995:41). A long-term, co-ordinated approach considering "the political, economic, social and cultural context of Hong Kong" was pressed for, together with the "combined efforts of policy-makers, educators, parents, employers and society in general" (Education Commission, 1995:41).

Poon (2000) points out the absence of language planning:

> *"...all language-in-education policies in Hong Kong have not been guided by language planning. Hence they have been ad hoc and not well implemented."* (p352)

Language-in-education policy can be seen mainly at the linguistic level: medium of instruction and its correct usage. Policy-makers seem unready to support the quality of children's group-talk in the classroom.

In the case of language policy making, in addition to the input from educators and academics, the Hong Kong government has to consider the views of businessmen who have exerted great pressure for high language standards (Education Commission 1990; Ming Pao Daily 3 Sept 1999; and South China Morning Post 29 February 2000). In 1999, the Federation of Hong Kong Industry and ten Chambers of Commerce founded the Coalition on Education in the Business Sector (Ming Pao Daily 3 September 1999). The English in the Workplace Campaign was launched in February 2000 by the Hong Kong government in response to the business sector's demand for higher standards in English (South China Morning Post February 2000).

Wells and Wells (1984:94) have suggested three explanations for the "impoverished talk between teacher and pupils". These explanations may cast light on the lack of support for group-talk in Hong Kong schools. Firstly, group-talk in Hong Kong schools may be discouraged due to the large numbers of children per classroom, leading to a high percentage of talk being devoted to management matters. Secondly, it may be the "highly structured" (Wells and Wells, 1984:94) curriculum to meet public expectations. Thirdly, it may also be a "less than whole-hearted belief in the value that pupils' talk has for their learning" (Wells and Wells, 1984:94). This final factor can be viewed as being the most serious. It is also the most susceptible to change if teachers are fully convinced and help to monitor group-talk conducive to a holistic learning approach.

On the other hand, in the face of a rapidly changing society, Hong Kong is still in

need of a language policy. Like many other newly independent countries, Hong Kong faces the problem of status planning. This process involves planning the statuses of the regional language 'Cantonese', the national language 'Putonghua', and the colonial language 'English' which is at the same time a language for global communication. How talk can be developed in students for purposes of thought and expression seems not yet considered in the education reports.

2.2.4 Research on primary school students' group-talk in Hong Kong

Research on students' group-talk is conducted when the students are discussing in small-groups. This kind of discussion in small-groups tends to be in small-group cooperative learning setting. In Hong Kong, research on small-group cooperative learning setting is scant. It is even scarce in primary schools. Chan (2000) states:

> "Although Hong Kong teachers are not strangers to small group teaching, few studies have been reported on using co-operative groups, especially in the primary sector." (p. 44)

It was found that small-group co-operative learning was not a popular pedagogy in Hong Kong, due to factors such as:

> "... time constraints, pupils' ability and discipline, teachers' conception of learning and influence of school and parents." (Chan, 2000: ii)

There appears little research on students' group-talk in small group cooperative learning in Hong Kong. Chen's (1990) research may be one of the few about students' talk in Hong Kong. Chen looked at the effect of peer-tutoring in a Hong Kong primary special school. After the peer-tutoring intervention program, results showed that the student-tutors and student-tutees had more verbal interactions. However, there were no transcriptions or analysis of the student-tutors and student-tutees pair-talk.

There also appears little research on students' talk in small-group co-operative learning setting in Hong Kong secondary schools. Lai (1993) conducted research called the "Learning Together Approach" in Hong Kong secondary schools. The experimental group showed more deep approach to learning (such as understanding meaning) than the control group. However, the results showed no relevance to the students' group-talk in the small-group learning. In 1998, C.K.Chan's research seemed connected with local secondary school students' talk during small-group cooperative learning. It focused on the effect of conceptual change on cooperative learning through pair-talk in biology lessons. Findings showed that cooperative learning had a positive effect on students' conceptual change. However, there were no transcriptions or analysis of the secondary school students' pair-talk during the cooperative learning.

In the university level of Hong Kong, Roskams (1998) conducted a research on small-group co-operative learning. This study focused on interaction, but again it had no relevance to verbal group-talk because written interaction was emphasized rather than verbal interaction. It was on university students' comments about their written interaction in networked writing classrooms with a cooperative setting. Roskam's students (1998) rated cooperative learning positively. Another example of Hong Kong university research (Csete *et al.* 1998) evaluated the effectiveness of cooperative learning model on student achievement in interpersonal strategies, decision-making skills, and student attitudes towards the model. Again there was no relevance to students' group-talk in the cooperative learning setting.

In summary, there appears scarce Hong Kong research on close analysis of primary students' actual group-talk during small-group co-operative learning setting. This is the focus of the author's current study.

2.3 Quality of children's group-talk

In the United Kingdom, Barnes and Todd (1977) explain that in group-talk some children act in different ways: some show rivalry that impedes maximum participation; some subdue different views so as not to offend friends; and some miss learning opportunities when instructions are not clearly perceived. How children act in group-talk may affect the quality of their group-talk.

In practice, it is difficult to evaluate quality in group-talk. Westgate and Hughes (1997:126) acknowledge "the questionability of available criteria, and associated forms of analysis, as a basis upon which to discern quality in classroom talk". They refer both to teacher-pupil, as well as pupil-pupil classroom talk. As it will be difficult to illustrate various criteria to decide upon the 'quality' of group-talk attempted by different researchers, it will be useful to borrow Westgate and Hughes' (1997) three questions when judging the quality of classroom talk.

> *"Are there generally recognizable differences between the ... extracts? In which extract do the pupil-participants appear to receive more support for their linguistic and conceptual development?"* (p.126)
>
> *"How much and what kinds of evidence are required for interpretations or qualitative judgements to be valid and convincing, as well as widely applicable?"* (p.128)

Generally, the author will use these three questions as a basis for comparison with the criteria of quality of group-talk offered by some researchers, for example, Bennett & Dunne (1991), and Mercer (1996). As Bennett and Dunne (1991; 1992) and Mercer's (1996) quality of group-talk research is much cited in the literature (Edwards & Wesgate, 1994; Westgate & Hughes, 1997; Hogan *et al.* 1999; Kumpulainen & Wray, 2002) their extracts and criteria will be quoted.

Bennett and Dunne (1991) refer to children's classroom "abstract talk" as:

> *"... no longer connected with the activity of the moment, but concerned with finding an explanation, reconstructing a story or a memory, discussing the order of events or the truth of a tale."* (p.117)

Modes of "abstract talk" include "Primitive Argument, Collaboration, and Genuine Argument" (Bennett and Dunne, 1991:117). Primitive Argument illustrates simple and opposing statements with no obvious justification, representing a move into abstract thought, and is parallel to quarrelling in action. In Collaboration, children's ideas or arguments are logical and reasoned, sometimes with justification through the use of words such as 'since', 'then', or 'because'. In Genuine Argument, demonstration and logical solutions have to be made explicit, sometimes through use of 'because' and 'same' as logical connectors.

Mercer (1996) also discerns three types of group-talk that "are not meant to be descriptive categories into which all observed speech can be neatly and separately coded (as might be done in systematic observation research, c.f. Croll, 1986). They are 'analytic categories'" (Mercer, 1996:369). The group-talk includes disputational talk, cumulative talk and exploratory talk.

> *"Disputational talk ... is characterized by disagreement and individualized decision making ... has some characteristic discourse features, notably short exchanges consisting of assertions and counter-assertions. ...cumulative talk, in which speakers build positively but uncritically on what the other has said...is characterized by repetitions, confirmations and elaborations. ...Exploratory talk occurs when partners engage critically but*

constructively with each other's ideas...may be challenged and counter-challenged, but challenges are justified and alternative hypotheses are offered. Compared with the other two types, in exploratory talk knowledge is made more publicly accountable and reasoning is more visible in the talk. Progress then emerges from the eventual joint agreement reached." (Mercer, 1996: 369)

Mercer (1996:369) identifies disputational, cumulative and exploratory types of group-talk as "analytic categories" of 5-12 year-old children's group-talk from the Spoken Language and New Technology Project conducted in the United Kingdom from 1990 to 1993. These "analytic categories" intend to be "embryonic models of three distinctive social modes of thinking" (Mercer 1996:369), thus helping to understand how actual talk is used when thinking together. Mercer's theoretical arguments (1995) on the social mode of thinking, stipulate that particular ways of talking are embedded in certain social modes of thinking, which are developed in particular kinds of collaborative relationships. The collaborative relationships are, in turn, influenced by the participants' culturally based definitions of the situations.

2.4   Quality   of   children's   group-talk   reflecting   conflict-handling characteristics

2.4.1 Collective Argumentation Talk resembling Mercer's Exploratory Talk

Brown and Renshaw (2000) acknowledge that:

"... the content of Collective Argumentation Talk resembles what Mercer (1995) refers to as 'exploratory talk', that is, talk which foregrounds and facilitates the development of reasoning." (p.55)

Brown (1994) also identifies five principles of interaction that are required to

21

coordinate different views held by students in Collective Argumentation. The first three principles are built on Miller's (1987) generalisability, objectivity and consistency. Brown (1994) adds consensus and recontextualisation. According to Brown (1994) and Miller (1987), generalisability requires that students voice their ideas, so that other group members can sift the relevant from the irrelevant ideas. Objectivity means relevant ideas can be rejected only if that can be denied through reference to past experiences or logical reasoning. If ideas cannot be denied then they must remain part of the discussion regardless whether they support or reject the perspective of the participants. Consistency denotes that ideas that are contradictory to each other or that belong to mutually exclusive points of view must be resolved through group argument. According to Brown (1994), consensus requires all group members to contribute to the co-construction of arguments in support of the solution process and articulate the arguments in their own words. If a group member does not understand, classification should be sought and other group members need to help. Recontextualisation involves students re-presenting the co-constructed argument to the other members of the class for validation. Reporting to class members outside the group challenges students to rephrase their viewpoints in terms familiar to the class, to defend their thinking from criticism, and perhaps to reassess the validity of their thinking.

Brown and Renshaw (2000) explain that Collective Argumentation is informed by Vygotsky's (1987) idea on the centrality of communicative and cultural tools in learning. The changing functional relationship between speaking and thinking illustrates the general developmental process where social tools may transform into internal cognitive tools of thinking. The movement from the social to internal cognitive thinking involves children's active participation in social interaction with peers and adults.

2.4.2 Significance of Mercer's Exploratory Talk in reflecting conflict-handling characteristics

In an overview of contemporary research investigating classroom interaction and learning, Kumpulainen and Wray (2002), have especially named Mercer (1994), Phillips (1990) and Fisher (1993), because they:

"have shown how exploratory and argumentative talk can be more effective in fostering students' critical thinking than procedural or routinised interactions." (p.15)

Furthermore, Kumpulainen and Wray (2002) just singled out Mercer's (1994) Exploratory Talk, highlighting that it:

"includes a constructive and critical engagement with ideas and meanings generated in the ongoing discussion and is characterised by statements with justifications and alternative hypotheses. For them, knowledge is made publicly accountable and reasoning is visible in exploratory discussions." (p.15)

Mercer's (1994, 1995, 1996) Model on Disputational, Cumulative, and Exploratory Talk might throw light on detailed criteria of children's different interaction patterns and the western-based ideas on "constructive" and "critical engagement" (Kumpulainen and Wray 2002:15) in group-talk.

One important point that Kumpulainen and Wray (2002) did not mention about Mercer's Exploratory Talk, but well spelt out by Mercer (1996:369) was "Progress then emerges from the eventual joint agreement reached." Interestingly, Mercer later reiterated this point on eventual joint agreement reached. When referring to a

computer-based activity, with children's language showing characteristics of Exploratory Talk, Mercer (2000) claimed,

"This clear articulation of reasons leads the group to agree on the right answer." (p.158)

It would be meaningful to investigate if group-talk with critical engagement and reasoning visible in exploratory discussion, the result that "Progress then emerges from the eventual joint agreement reached" (Mercer, 1996:369) would still apply to other cultural contexts.

2.4.3 Western and Chinese communication styles

Bennett & Dunne (1991), Mercer (1996) and Brown & Renshaw's (2000) research on children's group-talk were from the West, specifically the United Kingdom. It may be useful to understand the communication styles of the East in order to understand children's group-talk in Hong Kong. Since there seems little research on children's group-talk in both the West and East, findings from adult group-talk research will be referenced. Related to American and Chinese culturally variability on conflict management as shown in their business communication styles, it was found that the United States is an individualistic culture (Hofstede, 1980), and that Americans use a low-context communication style (Ting-Toomey, 1985), and a self-oriented facework (Ting-Toomey *et al.*, 1991). In contrast, China is a collectivist culture (Ho, 1976; Li, 1978), the Chinese use a high-context communication style (Gudykunst and Ting-Toomey, 1988), and facework meaning concern for others (Ting-Toomey *et al.*, 1991).

Low-context and high-context communication mainly differs in four ways (Gudykunst and Ting-Toomey, 1988). Firstly, low-context communication is

explicit and direct whereas high-context communication is implicit. Secondly, low-context communication is sender-oriented whereby the speaker's role is to make the listener understand. In high-context communication, the roles of the speaker and listener are highly interdependent, and the responsibility is shared. Thirdly, in low-context communication, talk is more important than non-verbal information and silence is avoided. In high-context communication, people are more tolerant of silence and non-verbal cues are emphasized. Fourthly, low-context communication emphasizes personal identity over social position. High-context communication adopts a role-oriented style and interaction is thus formal and ritualistic.

2.5 Common perceptions of conflict

"Very little is known about constructive conflict." (Smith *et al.*, 1981: 660). There seems little classroom research on conflicts that may promote students' perspective taking and positive interpersonal relationships. There is:

> *"almost no evidence concerning the relative impact of controversy, concurrence seeking, and individualistic study on achievement, retention, and interpersonal relationships."* (Smith *et al.* 1981: 652)

Johnson and Johnson's (1995) research on creative controversy in the classroom, and Johnson *et al.*'s (1997) study on academic controversy are among the few studies on conflict in the classroom.

Most of the conflict literature is from political sciences, business administration, economics, sociology and psychology. Within each of these disciplines, there appears to be a tendency to treat conflict as a pathological state and seek its causes and treatment. In business, conflict is said to occur when an individual or group

feels negatively affected by another individual or group (Thomas, 1992; Wall & Callister, 1995) due to, for example, a perceived divergence of interests (Deutsch, 1973). In group-work, conflict may be related to differentiate rather than converge, to negative interdependence between work units or to a denial of one's self-image or values (Greenberg & Baron, 1993).

In schools, conflict is rhetorically valued as offering an opportunity to learn. Light and Littleton (1994) explain that Piaget (1962) has sketched the significance of interaction between peers. The peer interaction helps children to decentre, and become sensitive to other's perspectives. Neo-Piagetians believe that through socio-cognitive conflict, a child's understanding may be shifted by talking to another child with different perspectives (Bell *et al.* 1985). However, neo-Piagetians "have not studied the actual talk involved in such conflicts of ideas" (Mercer, 1996:90).

Scholars regard conflict as necessary for true involvement, empowerment and democracy. Through debating their different perspectives, people voice their concerns and create solutions responsive to several points of view (Peterson & Nemeth, 1996; Deutsch, 1994; Eisenhardt, 1989; Schweiger *et al.* 1989; Tjosvold, 1985).

> *"Through discussing opposing positions, persons understand each other's perspective and feelings. Conflict helps them articulate their own values as they learn the values of others."* (Tjosvold & Leung, 1998: 337)

Well-managed conflict also develops individuality so that one feels more fulfilled and capable (Breger, 1974). Conflict is often thought to occur in mixed-motive relationships where persons have both competitive and cooperative interests

(Bacharach and Lawler, 1981). The competitive elements produce the conflict; the cooperative elements create the incentives to bargain to reach an agreement (Deutsch (1973).

Although much attention is paid to conflict, many "have not studied the actual talk involved in such conflicts of ideas." (Mercer, 1996: 90). This scarcity of research on conflict involving actual talk seems to apply to the East and West. It appears more difficult to conduct such study in the East because there is:

> "... a myth that Asians are not prepared to discuss their conflicts openly and constructively, that Asians cannot and do not manage their conflicts, and that smoothing and avoiding conflict are the only viable solutions."
>
> (Tjosvold & Leung, 1998: 338)

2.6 Perceptions and behaviour on conflict in group-talk

Studies show that verbalization, interdependence and conflict are believed to explain positive results of cooperative learning (Cohen, 1994; Doise & Mugny, 1984; Damon & Phelps 1989; King, 1990; Webb, 1991). In order to reconcile conflicting opinions, it appears an effective measure if decision-making is evenly shared among participants through group-talk (Barbieri & Light, 1992; Blaye *et al.* 1991). Concerning perceptions of constructive conflict, Tjosvold (1997) stresses that when people perceive their goals to be positively rather than negatively linked, they are more likely to trust each other, to discuss differences of opinion in an open-minded fashion, and to integrate aspirations into mutual settlement. Interestingly, Tjosvold's research shows the value of this "constructive controversy" (Tjosvold 1997:26) not only for American industry, but also for organizational conflict in Asia with their high level of collectivism, and Northern European with strong egalitarian values. Van de Vliert *et al.* (1997) add that for

conflict to be productive, constructive controversy involving a measure of firm, contentious behaviour appears to be fundamental.

Leung and Tjosvold (1998) further explain the relationship between rational discourse involving conflict and one's behaviour,

"Managing conflict requires a direct expression of feelings, an elaboration of ideas, emphatic understanding of the perspectives of protagonists, creation of alternative solutions, and acceptance of new solutions. Competence at managing conflict therefore depends upon self-awareness, the skills of rational discourse and an ability to put oneself in another's shoes, creativity and a lack of positions, and a willingness to reach integrated solutions." (p.10)

It will be interesting to find out whether the relationship between children's group-talk involving conflicting ideas and children's behaviour in this study is similar to what Leung and Tjosvold (1998) have described in the previous paragraph.

2.7 Factors affecting perception and behaviour on conflict in group-talk

2.7.1 Psychological

Developmental psychologists suggest that positive conflict is beneficial to individual development. Cognitive developmentalists have proposed that interpersonal debate at different stages of development promotes more adequate ways of reasoning (Kohlberg, 1969; Piaget, 1965). The reasoning depends much on the open-mindedness of positive conflict that can facilitate the effects of cognitive and moral dilemma discussions (Tjosvold & Johnson, 1977).

Elaborating on Piaget's (1950, 1965) formulation of children's different

developmental stages, Barnes and Todd (1995) explain that hypothetico-deductive thinking of the formal operational stage may be achieved:

> *"...through internalizing the viewpoints of other people, and that this internalization would take place in the course of dialogues in which different viewpoints would be inter-related through verbal interaction with other people."* (p.136)

Nonetheless, neo-Piagetian research on peer interaction focuses mainly on individual improvement rather than peer joint-learning. On the other hand, though Vygotsky's (1978) theory also emphasizes peer interaction, it is concerned with teaching-and-learning, rather than joint learning. Even though some neo-Vygotskian research emphasizes joint learning, unlike the Piagetians neo-Vygotskians stress cooperation rather than conflict. Bruner (1985) extends the concept of joint learning and suggests how a more competent peer can provide the scaffolding support for one who seems not so competent. However, Fletcher (1985) maintains that explaining ideas to one's peers, whatever their relative ability, is useful because it promotes more organized learning. Mercer (1995:91) again identifies this research gap in the area of actual talk involving conflict of ideas and comments: "We still lack suitable concepts for dealing with this process".

2.7.2 Cultural

Most research on conflict is generalized from the West. The assumption that social behavioural patterns are universal must be challenged, as recent studies show that Chinese society follows patterns that differentiate from those of the West (Hwang, 1987). Some Chinese value orientations found in conflict preferences and conflict-handling styles in inter-cultural business settings will therefore be

reviewed. These include: (i) harmony and collectivism; (ii) conformity, power-distance, hierarchy, and risk-adverse behaviour; (iii) holism-contextualism; (iv) time, as well as (v) face, reciprocity, and guanxi.

(i)Harmony and collectivism

Confucianism emphasizes harmony between man and nature, man and Heaven, and man and man. The Confucian 'Doctrine of the Mean' (Chan, 1963) advocates collectivity, controlling one's emotions, avoiding confusion, competition and conflict, and maintaining inner harmony (Hsu, 1949). Chinese communities (including the People's Republic of China, Hong Kong, Singapore and Taiwan) have often been referred to as 'collectivist' (Bond and Hwang, 1991; Chinese Culture Connection, 1987; Hofstede, 1980; Hsu, 1971; Lai and Lam, 1986; Westwood and Everett, 1987; and Yang, 1981). This is often contrasted with the Anglo-American culture of greater individualism (Hofstede, 1980). Collectivism, having implications for group relationships (Kirkbride *et al.* (1991), suggests that in problem-solving situation, including conflict and resolution, members may address the issue in terms of its importance for the group. There will be efforts "to avoid antagonisms that unsettle the group or that place the individual in confrontation with his/her group (Kirkbride *et al.* 1991:367). Hence, the value orientation of harmony and collectivism seems likely to affect the avoidance of conflict and to seek compromises through harmony and collectivism (Ho, 1979; Wilson, 1974).

(ii) Conformity, power-distance, hierarchy and risk-adverse behaviour

Conformity is related to the following key Confucian values. Firstly, the rules of propriety structure interpersonal relationships into five hierarchical dualities such as prince-minister, father-son, husband-wife, older-younger brother, and senior-younger-friend. Each person has to abide by these prescribed interpersonal

relationships. Secondly, one does not live as a separate entity but is inextricably connected with his context including his family, clan or sovereign. Each person has to conform to prescribed social behaviour. Handed down from the past, are norms that guide behaviour and are difficult to negate. Hofstede (1980) reports that Confucian-heritage societies scored highly on power-distance. Others found similar results (Chinese Culture Connection, 1987; Lai and Lam, 1986; Westwood and Everett, 1987). It is right to have large power distance between individuals, groups and social strata. In addition to this power relationship, there is a further conformity. Together with collectivism, this further conformity leads individuals to perceive the relationship between themselves and other group members as one of the most crucial factors in any conflict situation. Chinese tends to avoid confrontation for fear of disturbing these relationships and their interdependence. Fear of confrontation and acknowledgement of the power relationship are likely to affect the Chinese's risk-adverse behaviour. When disagreement confronts the superior and subordinate, the subordinate tends to accommodate to the superior's wishes (Kirkbride *et al.*, 1991).

(iii) Holism-Contextualism

Chinese thinking is characterized by a holistic perspective and high sensitivity to context (Redding, 1980). Thus, the Chinese try to relate a particular issue to the whole context in which the issue occurs. A reluctance to separate specifics from the totality makes it difficult to identify and treat particular issues in isolation. This holism and contextualism may take the form of placing issues in their historical context. When conflicts arise, there may be the tendency to relate the micro issue to macro contextual or historical events.

(iv) Time

Chinese perceive time as non-linear, repetitive and associated with events; and

Westerners tend to perceive time as sequential, absolute and prompt (Redding, 1980). These different conceptions have implications for conflict-handling styles. The Anglo-American may become confused at the apparent insensitivity of the Chinese to time, procedure, schedule deadline, and the Chinese habit of negotiating several issues at one time (Davidson, 1987; Pye, 1982; Rae, 1982).

(v) Face, Reciprocity and Guanxi

Face has been defined as "the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact. Face is self-delineated in terms of approved social attributes." (Goffman, 1955: 213). Face has universal applicability (Bond and Hwang, 1986; Ho, 1986), but it is frequently attached to the greater collectivism of Chinese culture.

In conflict setting, not giving face to a person is perceived as denying that person's pride and dignity. The Chinese are mindful about implications of such antagonism and will generally suppress their conflicting ideas in respect for the face of others. Face-giving and face-saving behaviour in conflict are indeed valued by Chinese as ways to maintain harmony. In addition, in face-oriented cultures, face suggests an interpersonal frame in which behaviour is compared to social norms rather than to internalized personal standards. Benedict (1947) Hsu (1949) and Wilson (1970) observe that this value is deep-rooted in the culture and is developed and reinforced through child rearing practices based upon group loyalty. Like face, reciprocity is universal (Boissevain, 1974; Yang, 1957), but the Chinese pay special attention to favour and reciprocation. The Chinese believe that reciprocity of actions (favour and hatred, reward and punishment) between man and man, and indeed between man and supernatural being, should be as certain as a cause-and-effect relationship. Therefore, when a Chinese acts, he normally anticipates a return. Favour done for others are often considered as

"social investments" (Yang 1957:291) for which handsome returns are expected. Favour is supposed to be reciprocated by the Chinese and hence they tend to invest in conflict situations by initiating a compromise solution.

Another perception tied to face and reciprocity is guanxi (relationship). If one is effective in interpersonal harmony by giving face, the Chinese will reciprocate by the same deed. A sense of guanxi may evolve and this relationship implies that "we all have face" (Chan, A. C. 1998:85). On the basis of guanxi, one would likely "seek mutually satisfying compromise or accommodation if one works on the anticipation of a continuing relationship with the other party" (Kirkbride et al., 1991: 370).

(vi) Summary of cultural impact on one's perception towards conflict

Confucianism advocates harmony of a group, avoiding competition and conflict. This conflict-avoiding cultural value may affect one's perception towards cognitive conflict. Another Confucian value is conformity. Each person has to conform to prescribed social behaviour, such as students must obey their teachers to preserve classroom disciplinary order, and not to turn cognitive conflict to social conflict, threatening the authoritative control of the teacher.

Chinese thinking on holism-contextualism may also affect one's perception on cognitive conflict. When conflict arises, the Chinese may tend to relate the micro issue to macro contextual issue. For example, in one micro incident of a Social Studies class discussion, if one gives a conflicting viewpoint, then confronted by other group members, he/she may feel offended. The micro-incident may deter him/her from being outspoken in conflicting views in other discussions (macro context).

In conflict-handling styles, Chinese are regarded as negotiating several issues at one time and insensitive to procedure or schedule deadline. It may imply that Chinese value harmony or relationship more than rules. Along the line again to maintain harmony or to sustain guanxi (relationship), face-giving behaviour in conflict is valued by Chinese. Face has been defined as "the positive social value a person effectively claims for himself ..." (Goffman, 1955: 213). Face-giving in a conflict setting means to respect the pride and dignity of another person. The Chinese will rather suppress their conflicting ideas in respect for the face (dignity) of others.

2.8 Levels of analysis in investigating children's group-talk

2.8.1 Mercer's levels of analysis

Mercer (1996) identified the linguistic, cultural and psychological levels of analysis in investigating the quality of children's group-talk.

2.8.2 Linguistic level of analysis

Mercer (1996:369) analysed Disputional Talk, Cumulative Talk, and Exploratory talk through their content, function and sentence structures. Concerning content, Disputational Talk may be analysed as with "individualized decision-making" and "without reasoning"; Cumulative Talk with "similar perspective" and "build positively"; Exploratory Talk with "alternative hypothesis" and "eventual joint agreement reached". Concerning function, Disputational Talk is not necessarily responding to the previous speaker; Cumulative Talk builds positively; and in Exploratory Talk peers' arguments are evaluated, challenges are justified, and alternative hypothesis is offered. Concerning sentence structures, Disputational Talk is with "short exchanges"; Cumulative Talk with "repetition, confirmation and elaboration" and Exploratory Talk with "complex sentences".

2.8.3 Cultural level of analysis

The dynamics of group-talk is complex and do not automatically lead to collaboration. The complex processes seem to link with the socio-cultural, as well as, the immediate context (Lemke, 1990; Edwards & Potter, 1992). Mercer (1996) also confirms the impact of culture on group-talk, but there seems no analysis of actual group-talk in Mercer's (1996) study on the cultural aspect.

2.8.4 Cognitive level of analysis

The diversity in learners' prior knowledge and experience appears to provide a large base of resources for the group's knowledge construction, allowing self-reflection and joint meaning making (Teasley, 1995).

2.8.5 Socio-emotional level of analysis

2.8.5.i Importance of socio-emotional competence

The socio-emotional level in analysing children's group-talk is not defined by Mercer (1995). Grossen (1994) has explained that the dimensions of group-talk are associated with the participants' socio-cognitive and emotional processes, including their interpretations and perceptions of the group goal. Goleman (1998) stresses that emotional intelligence skills, such as self-awareness, self-regulation, motivation to succeed, empathy, and social skills, affect success in the workplace more than cognitive ability and technical expertise combined. Goleman contends that these emotional intelligence-based competencies account for almost 90% of the distinguishing marks of superior leadership. Emotional intelligence has been regarded as a form of social intelligence (Salovey and Mayer, 1990) that involves the ability to understand and access the feelings and emotions of self and others and to use this knowledge in regulating one's thoughts and actions. This seems related to Gardner's (1983) interpersonal intelligence:

> "the ability to understand other people: what motivates them, how they

35

work, and how to work cooperatively with them." (p. 9)

2.8.5.ii Social construction of knowledge

Barnes and Todd's (1977) social construction of knowledge includes the social skills required to control progress through the tasks, manage conflict, modify and use different viewpoints, and to render mutual support. The cognitive skills involve constructing meaning for a given question, creating a problem, setting up hypotheses, applying evidence or recreating experience. The meaning of the ongoing group-talk may not be clear even to the speaker because there are operational contextual meaning of the moment and subsequent reflective meaning.

Mercer's (1995) socio-cultural theory reiterates that meaning of group-talk is co-constructed by all participants and dependent on context. Mercer urges that the theory need to

> *"explain how language is used to create joint knowledge and understanding; explain how people help other people to learn; and take account of the special nature and purpose of formal education."* (p.66)

2.8.6 Pedagogical level of analysis

Mercer (1995) has mentioned about ground rules in children's group-talk but he seems not explicitly defining a pedagogical level of analysis in investigating children's group-talk. Ground rules, group-goal, individual willingness and group interdependence may help effective group-talk. Ground rules for group-talk may help to create common understanding (Mercer, 2000; Mercer, 1995; Forman & Cazden, 1985; Edwards & Mercer, 1987; Rogoff, 1990). Group-members' willingness to speculate, make hypotheses and use valid evidence is equally

beneficial (Fisher, 1996). Hence instructional conditions enhancing joint task-involvement and group interdependence are essential (Cohen, 1994).

2.8.7 Multiple levels of analysis

Kumpulainen and Mutanen (1999) alert us to the importance of multiple levels of analysis when studying interaction phenomena in social learning, because the evolving and dynamic nature of interaction needs to be accounted for.

2.9 Pedagogy and group-talk

Though tasks given to pupils are important to cooperative group-work (Bennett & Dunne, 1992), Barnes and Todd (1995) think that there is still insufficient research on task instructions. Slavin's (1983) work is concerned with the importance of task instruction, yet it was directed to narrow pre-determined experiences, for example, the capital of Canada is ...; a combination of calcium and chlorine would be written: ca cl/ Ca Cl/ CaCl/ CaCl.

Bennett and Dunne (1992:72) illustrated some task instructions in group-talk. For example, "Which choice ... of a card, a cup of tea in bed, or a bunch of flower ... would be the best way to surprise Mrs. Cook on her birthday?" The children were asked to give reason for their choice. The children cooperated by discussing each alternative, listening and replying to each other, justifying their responses and reaching a consensus in less than three minutes.

Task instruction on subjects, like Mathematics, denoting fixed answers, appears liable for closed-ended instructions. However, if "the students are being asked to analyze the processes behind mathematical facts," and discuss "application of these same processes to other areas of mathematics," (Davidson and Shearn, 1990:311) the instruction then becomes open-ended. Group-members made

"conjectures, construct examples and counter-examples, and prove theorems" (Davidson and Shearn, 1990:311).

Besides task instruction, post-discussion group-report is important. It promotes greater elaboration from the children (Bennett and Dunne, 1992) and develops students' "self-evaluating skills" (Barnes and Todd, 1995:6). Brown and Renshaw reiterate this when they explain the pedagogy associated with Collective Argumentation. Teachers assign management of the problem-solving process, facilitate cooperation through conjectures and refutations, model argument, provide strategies for dealing with the interpersonal issues, and implement peer evaluation (Renshaw & Brown, 1997). Teachers may extend students' diversity through using key word format: "represent", "compare", "explain", "justify", "agree" and "validate" (Brown and Renshaw, 2000:53).

2.10 Contexts and conflict in group-talk

"When a child makes or fails to make a particular kind of utterance, consider characteristics of the situation as well as of the child." (Cazden, 1971: 84)

So, students' conflict management may depend upon their culture, the socio-economic development of the society, the school milieu, the class atmosphere, the group dynamics, or their individual abilities. "Managing conflict is a way to know and appreciate people and their situation." (Tjosvold & Leung, 1998:335)

To promote positive conflict in business, innovative managers try to create open organisations with:

"... strong corporate cultures and visions, using multi-skilled work groups and multiple-perspective project teams with a flatter organizational structure, and striving for an ethical business with a social conscience."

(Tjosvold, 1991:xiv)

To promote positive conflict in schools, teachers stimulate students' multi-perspectives through intellectual conflict in cooperative learning contexts (Johnson *et al.*, 1997). In both cases, cognitive conflict is stimulated through multi-perspective project teams and intellectual conflict, and affective conflict is alerted through social conscience and cooperative learning in business and schools respectively.

2.11 How to balance conflict

In both business and schools, group-talk suggests contexts associated with constructive or dysfunctional conflict. Constructive conflict connotes how the disruptive effects of the conflict may be minimized and the positive effects of conflicts maintained. In order to find out how constructive conflict may be maintained, the author tried to discover how homeostasis works in the human body. Insights may be drawn from how homeostasis helps the human body to maintain internal harmony during adverse situations.

Homeostasis denotes how equilibrium is maintained in living organisms. In order to cope with the disruptive influences of a changing world, human beings have created homeostasis for maintaining vital balance.

"Homeostasis refers to the self-regulation which serves to maintain constancy of the inner environment of living things." (Messecar, 1984:2)

39

"HOMEO means the same and STASIS means standing still suggesting preserving a steady state in the internal environment." (Films for the Humanities and Sciences, 1992 at counter 3 minutes 48 seconds)

"Movement, process, action, harmony, balance, adaptation" dominate the Homeostatic-Dynamic Model (Powles, 1992:198). In the Homeostatic-Dynamic Model, a human being is viewed as an intricate machine, whose running order can assume many forms, some adaptive, some maladaptive. The human machine has to operate as "an open system" (von Bertalanffy, 1995:141), interdependent with other systems, especially with other humans, for nurture, energy, sources, waste disposal, personal satisfaction, or reproduction of the species.

"Under certain conditions, open systems approach a time-independent state, the so-called steady state. ... The steady state shows remarkable regulatory characteristics ... " (von Bertalanffy, 1995:142)

Both homeostasis and "open system" (von Bertalanffy, 1995:141) emphasize self-regulation. Perhaps the greatest contribution to understanding homeostasis, the internal regulation of the human body, was made by Cannon (1932). He coined the term homeostasis and his work paved the way for later studies of the hormonal and neural control of several body functions. Body temperature, water balance, blood glucose, and respiratory gas concentration are all under the control of homeostatic mechanisms. As there are the body's internal checks and balances, other physiological states (such as body weight) or psychological states (such as fight-flight) are also self-regulated. Cannon portrayed the homeostatic shift under stress into fight-flight, a preparation for emergency self-preservation. He showed experimentally how various body responses (cardiovascular, respiratory, muscular, or metabolic) could be generated through the situation of intact sympathetic-adrenal pathways, or could be prevented from responding by injury.

To sum up, the human body works to maintain a steady state in an inner, fluid *milieu interieur* in response to an outer, gaseous *milieu exterieur* (Cannon, 1932).

The mechanisms are coordinated by the central and peripheral-endocrine axis. Cannon (1932) clarified the then new construct of two divisions of the peripheral nervous system. The somatic nerves cope with the external environment, and the autonomic system copes with the *milieu interieur*. Cannon (1932) claimed that homeostasis is a better term than equilibrium. Homeostasis means the dynamic, non-ceasing regulation and balancing in the body in order to maintain steady states and to respond to stress or changing conditions. Equilibrium, however, has a rather limited, linear connotation. Cannon (1932) also referred to the human organism, as an open system while equilibrium is more applicable to a closed system.

Engel (1962) added another homeostatic shift, the conservation-withdrawal, resuming passivity and disengagement and abandoning active adaptation. Through the work of Selye (1980; 1982), Ratner (1967), Foulds and Bedford (1975) and others, a kind of ladder of homeostatic modes emerged. Powles (1992:195) depicted the five steps of this ladder as "psychiatric normality, fight-flight, conservation-withdrawal, disintegration, and death". On the whole, homeostasis demonstrates how the human body can maintain a steady state under adverse situations. The author would like to see if homeostasis (a steady state) also occurs in children's group-talk under the adverse situation of Academic Conflict.

2.12 Summary of research gaps

With a concern to investigate the quality of children's group-talk and subsequently to unfold Constructive Academic Conflict in children's group-talk in Hong Kong primary school contexts, some possible research gaps seemed to emerge from the literature review. Research gaps are in the following areas: (1) quality of children's group-talk; (2) research methodology on quality of children's group-talk; (3) actual group-talk with conflicts of ideas; (4) student-controlled

group-talk; (5) process-dominant and product-emergent group-talk in Hong Kong schools; and (6) pedagogy on group-talk. Relevant information on these research gaps will be reviewed in the sections that follow. The author provides this information as a rationale for why this study is more than overdue.

2.12.1 Quality of children's group-talk

Traditionally, students' group-talk has been regarded as disruptive and subversive. It was until the 1960s that group work in British primary schools was encouraged as part of a progressive philosophy of education. Surprisingly, "little was known about the quality of most of this group work until the 1980s" (Mercer, 1995:91) when the British "ORACLE Research" (Galton *et al.*, 1980:115) was published. In 2002, Kumpulainen and Wray still acknowledge:

> "... *we are still remarkably ignorant about the dynamics and process of peer group interaction and learning.* " (p. 15)

2.12.2 Research methodology on quality of children's group-talk

Concerning the methodological issues in investigating the 'quality' in classroom talk, Westgate and Hughes (1997) point out:

> "*that many of the methodological problems of identifying qualitative differences between classroom speech-events, as well as their implications for learning, still remain unresolved.* " (p.126)

2.12.3 Actual group-talk with conflicts of ideas

Concerning children's conflict, Piaget (1962) has sketched the significance of interaction between peers. Conflict helped children to decenter, and become sensitive to other's perspectives (Light and Littleton, 1994). Neo-Piagetians go

further to develop the concept of socio-cognitive conflict. Socio-cognitive conflict is related to how a child may shift his/her understanding by communicating with another child who has different perspectives (Bell *et al.* 1985). However, the neo-Piagetians "have not studied the actual talk involved in such conflicts of ideas" (Mercer, 1996:90).

2.12.4 Student-controlled group-talk

Student-controlled methods that demand an extensive use of small group work and a strong emphasis on oral language are still not being widely used in the United States (Green and Myers, 1990). Student-controlled methods suggest what Barnes and Todd (1995) describe as students having control over the pace and direction of their own learning.

2.12.5 Process-dominant and product-emergent group-talk in Hong Kong

In Hong Kong, Poon (2000) points out the absence of systematic government support:

> "... all language-in-education policies in Hong Kong have not been guided by language planning. Hence they have been ad hoc and not well implemented." (p.352)

Language-in-education policy appears to be mainly at the linguistic level, that is, emphasizing the medium of instruction and its correct usage. Process-dominant and product-emergent group-talk in Hong Kong seems not to be common.

2.12.6 Pedagogy on group-talk

Referring to the relationship between task instruction and students' group-work, Galton and Williamson (1992:6) reckon "such instructions must be embedded

within class norms that encourage cooperation". Barnes and Todd (1995) think that there is still insufficient research on this issue.

2.13 Summary of Literature Review Chapter

The literature review examines studies concerned with the quality of children's group-talk. In the Western world, it was not until the 1970s that children's group-talk attracted the attention of educators. In Hong Kong, such attention still seems to be minimal. Investigations of children's group-talk disclose children's process of learning, mainly through co-construction of knowledge and interdependence. Emphasis on the process of learning is still embryonic in Hong Kong, in a sense that the mainstream of education still stresses the product of learning. Bennett and Dunne (1991) and Mercer (1996) highlight the process of group-talk through actual talk analysis. They each suggest three types of group-talk. In summary, these include: (1) Bennett and Dunne's (1991:117) Primitive Argument, Collaboration, and Genuine Argument; and (2) Mercer's (1996) Disputational Talk, Cumulative Talk and Exploratory Talk. During the group-talk, children may generate Academic Conflict through diverse perspectives with or without reasons. Literature from related psychology, business administration, sociology, pedagogy and popular culture was referenced to understand the relation between perception and behaviour towards conflict during children's verbal interaction. In investigating children's group-talk, linguistic, socio-emotional, cultural or pedagogical levels of analysis may be considered. The group-talk also suggests contexts associated with constructive or dysfunctional conflict. Constructive conflict connotes how a general system works. Homeostasis is introduced to denote how internal harmony is maintained in a system to balance conflict. Lastly, research gaps concerning children's group-talk were reviewed, engendering the insights necessary as a rationale for the research methodology to be presented in Chapter Three.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In Chapter Two, the author presented a literature review on children's group-talk involving conflicts of ideas. The author highlighted the point that few studies have been conducted on close analysis of students' actual talk in group-work. The study presented in the subsequent chapters of this thesis is a response to addressing this shortcoming.

The substantive Seesaw Working Model emerged from the present thesis is concerned with the possible conditions that may generate Constructive Academic Conflict in children's group-talk. Close analysis of children's actual group-talk was one of the methods used to investigate these conditions. With the objective of ascertaining the conditions of students generating Constructive Academic Conflict in group-talk, the specific research questions, in fact, were not hypothesized at the commencement of the study. Rather, they emerged during the data collection and analysis phases.

The author began with an overarching research question:

"What is the quality of children's group-talk?"

The current chapter outlines the methodology, including data collection and analysis in detail. It is presented under six main headings:

(1) common research methodology on group-talk;

(2) emergence of the research questions;

(3) why and how the research paradigm, design and methods are adopted;

(4) research process including the setting, pilot-study, data accessibility, participants, data sources, and analysis;

(5) ways to enhance trustworthiness of the findings; and

(6) ethical considerations.

3.2 Literature review on methodology in investigating group-talk

3.2.1 Unresolved methodological issues

When relating to the methodological issues in investigating the 'quality' in classroom talk, Westgate and Hughes (1997) admit:

> "... many of the methodological problems of identifying qualitative differences between classroom speech-events, as well as their implications for learning, still remain unresolved." (p. 126)

These methodological problems include:

> "... the questionability of available criteria, and associated form of analysis, as a basis upon which to discern quality in classroom talk."
>
> (Westgate and Hughes, 1997:126)

Being aware of the methodological problems, the author tried to look up literature for insights on methodological issues for this thesis. The following reviews the common paradigms and methods used in group-talk studies.

3.2.2 Paradigms and group-talk

Paradigms are "systems of inquiry with particular underlying ontological, epistemological and axiological assumptions" (Hoshmaand & Martin, 1995:12).

The empirical and ethno-methodological paradigms are most influential in the study of students' group-talk.

3.2.2.i Empirical paradigm

The empirical paradigm encompasses philosophical approaches like positivism. Objectivity is strictly observed and interaction between the researcher and the subject is kept to a minimum (Guba & Lincoln, 1989). Constant testing of the hypothesis for high reliability and generalizability is highly observed.

3.2.2.ii Ethno-methodological paradigm

Approaches like hermeneutics, ethnography, phenomenology, symbolic interactionism, or grounded theory belong to this paradigm (Creswell, 1998). To ethno-methodological researchers, reality is comprised of multiple meaningful patterns dependent on the context and persons studied. Rather than "studying people", the "insiders point of view" (Spradley, 1979:3) is advocated. Hence, non-structured interview and participant observation are popular.

3.2.3 Common methodological approaches

Common methodological approaches in investigating children's group-talk may include experiment, systematic observation, predetermined codes, and discourse analysis. An explanation of each type is next presented.

3.2.3.i Experiment

Boxtel *et al.*'s (2000) research in investigating children's group-talk is an example of experiment. The positivist paradigm was adopted. Significance of the methodology was that in-depth moment-to-moment observation of the dyad process was available through the videotape interaction. Inter-rater reliability was stressed. In discussing limitations of the research, Boxtel *et al.* (2000) admit that the coding of the protocols:

"... does not give a description of the dynamics of the discourse, such as the way students constructed a reasoning or resolve a conflict. It fails to give insight in meaningful sequences. " (p.168)

3.2.3.ii Systematic observation and predetermined codes

The research methods of Peterson and Swing's (1985) observational study involved a pre-test of mathematical concepts, videotaping of whole-class teaching and of two groups' interacting, audio-taping of two groups' interacting, and interviewing individuals of the two videotaped groups. The methodological significance might be that the audio and videotaping of whole-class teaching and group-talk allowed for intensive validity checking, and providing rich data of children's group-talk. The possible methodological limitations might be that systematic observation with predetermined codes was used. This method has been heavily criticized with their assumptions of predetermined codes (Shotter, 1990; Karasavvidis *et al.*, 1998). Other drawbacks might be the data analysis process was not stated in the correlation. There were no group-talk transcripts to illustrate and analyse how the children used different types of explanations. Even Peterson and Swing (1985) acknowledged the need for future studies:

"... to disentangle further the complex dynamic relation of students' cognition to their explaining behaviour during group-talk. Such research is needed to clarify the processes that lead to effective cooperative learning in small groups. " (p. 311)

3.2.3.iii Discourse Analysis

Bennett and Dunne's study (1991) was conducted as a quasi-experiment with the first variant setting as control and the latter two as experimental groups. Children's talk in group-work was audio-taped. Observations were also made on

the frequency and type of student demands on teachers. Teachers' accounts were audio-recorded, concentrating on changes in classroom organization, teacher activity; perceptions of difficulties or successes; and evaluation of children's work.

Significance of Bennett and Dunne's (1991) research methods might be that both quantitative and qualitative methods were employed. Frequency counts were taken during observations, as well as rich description from taped children's talk, observations on the type of children's talk, and teachers' reflections. The frequency counts enabled clear comparison of student demands on teacher in the three grouping variants. The descriptive taped children's talk evidenced the relationship between quality of talk and (a) task demand (b) curriculum area, and (c) group type.

All the transcripts in Bennett and Dunne's (1991:128) study were "first read in order to distinguish major trends before deciding on the most appropriate category system". The results with emergent categories were more likely to yield validity to the research questions as they were generated from the children instead of the investigator. Observations of the type of student demands on teacher might provide contextual evidence on children's audio-taped recordings. Teachers' evaluation of children group-talk might cross-validate the investigator's categorization of the group-talk. At the start of Bennett and Dunne's (1991) study, ecological validity on the quasi-experiment was maximized through teacher's choice. Most importantly, the appropriate integration of the quantitative and qualitative methods might allow valid findings for the research questions. It would be better if Bennett and Dunne could illustrate the intensive data analysis methods used in their 1991 research in order to differentiate their discourse analysis methodology from any other research methodology.

3.3 Emergence of the Research Questions

For easy reference, the emergence of the research questions of this thesis during the

research process is outlined in Figure 3.1 and will be explained subsequently.

Fig. 3.1: Emergence of the Research Questions during the Research Process

Literature review

↓

1st-stage research question & 1st set of method (1st-stage research question for the pilot study: What is the quality of children's group-talk?)

↓

Pilot study in School A

↓

Choice of paradigm, design & 2nd set of methods

↓

2nd-Stage Research Question & 2nd Set of Methods (2nd-Stage Research Question: Research Question (1) To what extent do Bennett & Dunne (1991) and Mercer's (1996) three types of group-talk account for the processes engaged in by Hong Kong primary five students during group-talk?

↓

Data Collection & Analysis in Schools B, C, D & E

↓

3rd-Stage Research Questions & 2nd Set of Methods (3rd-Stage Research Questions: Research Question (2a) What do students perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed students classroom behaviour and analysis of students' group-talk in classroom? (2b) What do teachers perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom? Research Question (3) What is the quality of Hong Kong children's group-talk in relation to the linguistic, psychological and cultural levels defined by Mercer? Research Question (4a) How much do students have the socio-cognitive competence in handling academic conflict? (4b) How much do teachers facilitate students socio-cognitive competence in handling academic conflict?

↓

Data Collection & Analysis in Schools F, G, & H

↓

Constant Comparison & Inductive Analysis of all Data

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Emergence of a Working Model grounded in Data & Analysis

In Figure 3.1 School A, School B, School C, School D, School E, School F, School G, and School H stand for the eight primary schools that the current study conducted the research. To keep the schools anonymous, the schools are named by alphabets. Relating again to Figure 3.1, the emergence of the research questions of this thesis during the research process is elaborated below.

Referring back to the literature review in Chapter Two and Bennett & Dunne's (1991) study on children's group-talk, the author was interested in the modes of children's group-talk. Thus, the research question for the pilot study was simply, "What is the quality of children's group-talk?" Bernard (2000:74) asserts that a researcher cannot design research until a research question is chosen, and "research questions depend crucially on theory." The theory may be generated from literature and based on a phenomenon that needs fuller explanation. The types of explanation and the wording of the research question that fit best may suggest the appropriate relevant paradigm. The current first-stage research question was indeed generated from Bennett and Dunne's (1991) theories and a response to insufficient actual group-talk disclosed in literature. The choice of a paradigm, with reference to whether it fitted the explanation for the theoretical gap will be discussed in 3.4.

To refine the first-stage research question and to supplement it with Mercer's (1996) quality of children's group-talk, the second-stage research question emerged. It was Research Question (1) To what extent do Bennett & Dunne (1991) and Mercer's (1996) three types of group-talk account for the processes engaged in by Hong Kong primary five students during group-talk?

After data collection and analysis in School B, and School C, the author found two elements not described in Bennett and Dunne (1991) and Mercer's (1996) research. First, it was children's social skills and emotion expressions. It seemed to be related to the children's ways of handling Academic Conflict in group-talk. Second, it was

the task instruction that appeared related to the generation of the different modes of group-talk. These two elements recurred in the data analysis in School D and School E. The second-stage research question might limit these important findings on modes of group-talk only. It would be more appropriate for the emergence of the third-stage research questions:

Research Question (2a) What do students perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed students' classroom behaviour and analysis of students' group-talk in classroom? (2b) What do teachers perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom?

Research Question (3) What is the quality of Hong Kong children's group-talk in relation to the linguistic, psychological and cultural levels defined by Mercer?

Research Question (4a) How much do students have the socio-cognitive competence in handling academic conflict? (4b) How much do teachers facilitate students' socio-cognitive competence in handling academic conflict?

The latter part of the research process, involving the research methods, data collection, and data analysis, is explained in 3.4 and 3.5.

3.4 Research Paradigm, Design and Methods

In choosing the methodology, the author was aware that there was "the absence of any single conceptual framework or … meta-language, agreed ways of talking about classroom talk." There was still no "methodological consensus" on classroom discourse (Edwards and Westgate, 1994:56). The present study therefore attempts to use the interpretivist paradigm, the pattern-matching design and dominantly, qualitative methods (with frequency counts from quantitative methods), in the hope of drawing insights on ways of talking about classroom talk (or students' group-talk).

For easy reference, the paradigm, design and methods employed in the present study are outlined in Table 3.1.

Table 3.1: Paradigm, Design and Methods adopted in the current study

Paradigm (philosophy underlying research approach)	INTERPRETIVIST (believes the philosophy that truth is not absolute but is decided by human judgment)
Design (how causal attribution is handled)	PATTERN-MATCHING (to find recurring, inferential clusters that may emerge as conceptual patterns)
Methods (how data collection occurs and what form the data takes)	QUALITATIVE FORM (dominantly) ● Lesson observation ● Group-talk observation ● Taped group-talk content ● Student interview ● Teacher interview ● Teachers' critique ● Researcher's journal ● Documentary evidence QUANTITATIVE FORM ● Frequency counts

3.4.1 Paradigm

Before explaining the philosophy directing the present study, it is essential to understand what the word "method" denotes in a methodology chapter. Bernard (2000:8) offers three perspectives. At the general level, method means "epistemology, or the study of how we know things." At a more general level, method means strategic choices, like whether to conduct observation or experiment. They are "strategic methods, which means that they comprise lots of methods at once." At the specific level, method means "technique – whether to do face to face interview or to use the telephone".

Regarding epistemology, one needs to decide upon the paradigm, that is, the philosophy underlying the research approach. The broad paradigms are positivism and interpretivism. One may prefer:

"... the assumptions of the scientific method, often called positivism in the social sciences, or favour the competing method, often called humanism or interpretivism." (Bernard 2000:8)

House (1994:16) conceived positivism versus interpretivism as:

"dichotomies of objectivity versus subjectivity, fixed versus emergent categories, outsider versus insider perspective, facts versus values, explanation versus understanding, and simple versus multiple realities."
(p.16)

Interpretivism can be traced to Protagoras' (485-410B.C.) dictum that man is the measure of all things, which implies that truth is not absolute but is decided by human judgement (Classen, 1989). Schiller (1969 [1903]) reconfirms that since the method and contents of science are the products of human thought, reality and the truth cannot be out there as positivists assume, but must be constructed by human beings. Another argument against positivism was that the methods of the physical sciences, while effective for the study of inanimate objects were ineffective for the study of human beings. Dilthey (1996) explains that there are two kinds of sciences, the human sciences and the natural sciences. In human sciences, human beings live in a web of meanings spun by themselves. To study humans, Dilthey (1996) argues that understanding this web of meanings is indispensable.

Even within the interpretivist paradigm, there are differences in the extent to which one subscribes to certain views of reality. Another echo on the importance of meanings people give to the reality is from phenomenology. Like positivism, phenomenology is a:

"... philosophy of knowledge that emphasizes direct observation of phenomena. Unlike positivists, however, phenomenologists seek to sense reality and to describe it in words, rather than numbers --- words that reflect consciousness and perception." (Bernard, 2000:20)

Veatch (1969) classifies phenomenology as a part of the humanistic paradigm that advocates the common experience of all human beings and their ability to relate to others' feeling. Similar to Dilthey's (1989; 1996) methods for human and natural sciences, phenomenologists argue that the quantitative scientific method used in the natural sciences, effective for the study of physical phenomena, is ineffective for the study of human thought and action (Husserl, 1964 [1907]). Another phenomenologist, Schutz (1962) indicates that the only way to understand social reality is through the meanings people give to that reality. Social reality may mean reality is socially constructed. Berger and Luckman (1967:1) help to define the two key concepts of social reality: "Reality" is "a quality appertaining to the phenomena that we recognize as having a being independent of our own volition", and "Knowledge" is "the certainty that phenomena are real and that they possess specific characteristic". To the interpretivists, human beings by the nature of their thought processes actually create the things that they observe in the process of labelling things.

3.4.1.i Relevance of Interpretivism to the Current Research
Objective reality is to a large degree, socially constructed through language. The

way we label things creates a certain reality. However, most human beings live their lives with the assumption that there is an objective reality, even for anything symbolic such as the status of a person. Within the interpretivist paradigm, there are certain agreed upon realities. Even though we know those realities are not fixed, they are to the purposes of everyday life. We socially agree to something.

The author is not taking an objective position. Rather, she is using certain methods that are based upon agreed understandings about what is going on in a situation. These understandings are reflected in the literature, the author's professional experience, the children's experience, and the teachers' experience. Although reality has to be interpreted and reality is not a fixed state, by and large, reality is socially constructed. Within that social construction, there is the possibility of a kind of conditional reality --- the reality that we socially agreed upon.

Hence, the author has chosen the interpretivist paradigm to investigate the reality of children's group-talk. The perception of this reality relies much on agreed understandings about what is going on during children's group-talk. As mentioned in the previous paragraph, these understandings are reflected in the literature, the author's professional experience, the children's experience, and the teachers' experience. Thus, this reality has to be interpreted and may be regarded as socially constructed. For these reasons, this study is located in the interpretivist paradigm.

3.4.2 Design

Design refers to how causal attribution is handled (Hedrick, 1994). Using the pattern-matching design, this study aims to find repeatedly observed behaviour, norms, relationships, or recurring inferential clusters from different data sources that may emerge as conceptual patterns, and exhibit explanatory power. Pattern-matching design is "using several data sources" (Miles and Huberman,

1994:267). The patterns may be on "themes, causes/explanations, relationships among people, and more theoretical constructs" (Miles and Huberman, 1994:70).

3.4.3 Method

Method refers to how data collection occurs and what form the data takes (Hedrick, 1994). The main difference is whether the data are in a quantitative or qualitative form. Generally, quantitative methods greatly depend upon mathematical paradigms. Qualitative methods tend to broaden the information base by adding more perspectives or accumulating more details, with less attention to inconsistencies in data collection procedures (Hedrick, 1994). The type and rationale of each method adopted in the present study will be described as follows:

3.4.3.i Qualitative Methods

(3.4.3.i A) Whole-class teaching observation; Group-talk observation

During the teacher's whole-class teaching, a structured one-minute observational interval running record method was taken. When the teacher stopped whole-class teaching and conducted small-group discussions, the author then randomly chose one group of students' discussion for observation. A running record method was also used for the group-talk observation (Siu, 2000b). A structured one-minute observational interval running record method means the author wrote down what she observed at the start of each minute.

Observational rating was not employed. The author did not intend to quantify according to pre-conceived categories. The observation method was not designed to assume what the situation was all about. Simpson and Tuson (1995:12) support observation without pre-conceived ideas when the research questions, as those in the present study, were "directed towards the understanding of human

57

interactions."

Probably relationships between the teacher and children could be complex, with personal meanings or other unique styles of behaviour. Hence, terse descriptions of the teachers' and children's behaviour, including verbal discourse, were audio-recorded. "Such responsiveness to fine detail can only be sustained in the short, intensive observation strategy." (Simpson and Tuson, 1995:41). Although the observation of one group could not cross-validate the audio-recordings of all other groups in a class, a representative idea of what was really happening might be gleaned. At least, the data was from watching what one group was really doing. It was unlike responses from interviews or questionnaires that were notorious for differences between what respondents said they had done or would do, and what they actually did and would do. Voluminous research showed that about a third to a half of everything people reported about their own behaviour was not true (Bernard et al., 1984; Johnson et al., 1996; Hadaway et al., 1993, 1998). Some of the difference between what they did was "the result of out-and-out lying" (Bernard, 2000:83). Direct observation of both the teachers' and children's behaviour permitted "a lack of artificiality which is all too rare with other techniques" (Robson, 1993:191).

(3.4.3.i.B) Taped group-talk content

Conversational content was obtained from the audio-recordings of children's group-talk. The results with emergent categories were more likely to yield credibility to finding the quality of children's group-talk, as they were generated from the children instead of from the investigator's questionnaire.

(3.4.3.i.C) Student Interview; Teacher Interview

Interviews were conducted and audio-taped to supplement observation. The

author went to the students and the teachers to find out their experiences behind what the author had observed. The author was not simply assuming that she understood what was going on by observing it. The structured observation was then a starting point, not strictly speaking a complete set of data. Classroom observation alone probably could not explain why some children displayed certain mode of group-talk:

"When a child makes or fails to make a particular kind of utterance, consider characteristics of the situation as well as of the child." (Cazden, 1971:84)

Classroom observation may only provide evidence of the situation. It is necessary to note the history of classroom discourse, its possible outcomes, and above all to be sensitive to the thoughts and intentions that guide its participants. Understanding children and teachers' perceptions towards Academic Conflict through interview was a way to be sensitive to participants' thoughts, getting the insiders' perspectives. In a sense, the author was relying heavily on the children and teachers' interpretations through the interviews. It might explain the reason the author chose the interpretivist paradigm.

(3.4.3.i.D) Teacher's critique

Teacher's critique helped to confirm the trustworthiness of findings. It served as member checking on the author's interpretations of the lesson observation and children's talk. Firstly, each teacher evaluated his/her own lessons orally and compared with the author's lesson evaluations immediately after the two lesson observations. Secondly, teachers orally commented on the written school-based research report, generally one month after the data collection.

(3.4.3.i.E) Researcher's journal

During the research process, the researcher's reflections were recorded in a notebook. Entries were dated. It supplemented the thick description of data.

(3.4.3.i.F) *Documentary evidence*

Some teaching notes, completed students' worksheets and projects were documented for cross-validation with other data sources. Task instructions not well heard from the audio-tapes could be validated with the teaching notes and children's worksheets.

3.4.3.ii Quantitative Method

(3.4.3.ii.A) Frequency counts

Frequency counts were employed to give a general picture about the popular use of issues, including (1) counts of the sessions using the prominent types of group-talk out of the twenty-nine sessions, (2) counts of teachers using post-discussion students' evaluation, and (3) counts of students who disliked disagreements in group-talk.

(3.4.3.ii.B) Quantitative statistical methods not used for the types of group-talk

The author did not subject the research findings to statistical analysis of the types of group-talk. Firstly, though it would be interesting to know the percentage of different types of group-talk, marking the exact beginning and ending of each type might be ambiguous. Secondly, even though statistics could be attained, it would not serve the purpose of comparing with the findings from other research studies, as they were not on the same comparable grounds.

This provides another good reason for locating the present thesis within the interpretivist paradigm because the author was not using an approach that enabled

her to compare what was aimed at with what had been done. The author was generating a unique study, grounded in the reality she was engaging with.

3.5 Research Process

Referring to Figure 3.1 on 'Emergence of the Research Questions during the Research Process', the research process of the current study is elaborated as follows:

3.5.1 Setting

The study took place in twenty-two Primary Five classes in eight Hong Kong elementary schools. Children averaged eleven years old are generally in Primary Five in Hong Kong. Group discussions in children's General Studies lessons were tape-recorded and one group was randomly selected for observation. Observational field notes were also taken on whole class teaching. The possible conditions that might generate Constructive Academic Conflict in children's group-talk were explored, as exploration pursued in a naturally occurring setting (Bogdan & Bilden, 1992; Goetz & LeCompte, 1984; Lincoln & Guba, 1985; Russel & Korthagen, 1995; Schwandt, 1994). It means the author was not having any pre-conceived expectation about the group-talk condition.

In most schools, there were three thirty-five minute General Studies lessons in a week. In Hong Kong, General Studies has existed since 1998 as an integration of Social Studies, Health Education and Science. It was optional whether small group discussions were conducted. If discussions were included they usually took about ten minutes in a lesson. The author chose General Studies as it seemed more likely to promote students' open-ended discussion than most other subjects in the Hong Kong elementary curriculum.

3.5.2 Pilot-Study

As shown in Figure 3.1, the research question for the pilot-study was "What is the quality of children's group-talk?" Data was collected from four Primary Five classes in one randomly chosen government-subsidized school. Each class consisted of thirty to thirty-five students. The research method employed was two different sessions of lesson observation for each class and taped group-talk. Two sets of group-talk from each class for each session were transcribed.

Three types of group-talk emerged. They involved firstly, simple statements without reasons; secondly, complex sentences with evidence or suggestions; and thirdly, complex sentences with diversified perspectives, reasons or self-generated questions (Siu, 2000a). The third type seemed to be related to teachers' open-ended task instructions. Findings of the pilot-study prompted the research question for the main study. A second set of methods, as described in Section 3.4.3, was designed for the main study of this thesis to supplement the methods used in the Pilot. These included lesson observation, taped group-talk content, student interview, teacher interview, teacher's critique, researcher's journal, documentary evidence, and frequency counts.

3.5.3 Data Accessibility

Schools were selected by chance rather than by choice. Phone contacts were randomly made to local primary school-heads. Research could only be conducted in schools where lesson observations and taped children's group-talk were permitted. Teachers seemed reluctant about lesson observations, making data collection difficult.

3.5.4 Participants

The participants were twenty-two classes of Primary Five students and twenty-two

General Studies subject teachers. The mixed classes comprised generally 50% girls and 50% boys. There were a total of 770 students. They were average eleven-year-olds. They were from one government school, five aided schools and two private schools. These are the

> "... three main types of schools in Hong Kong --- government schools which are wholly operated by the government; aided schools which are fully aided by the Government but run by voluntary bodies; and private schools, some of which receive financial assistance from the Government."
> (http://www.gov.hk/ed, 15 January 2000)

Students in government and aided schools receive free education. Students in private schools pay monthly school fees. All the group-talk of the children was transcribed, regardless of the types of schools. The twenty-two teachers involved in the present study were registered teachers. Their minimum professional qualification was Certificate of Teacher Education, awarded after undertaking a two-year full-time non-degree course in the Hong Kong Institute of Education.

3.5.5 Data Sources

The following data were gathered using multi-sources as recommended for triangulated research in teacher education (Lee & Yarger, 1996; Mathison, 1988). These included observation field notes, audio-recordings and transcriptions of children's group-talk, interviews with teachers and students, teaching and learning documents, and researcher's journal. The author now discusses each source.

3.5.5.i Observation Field Notes

The author adopted a non-participant observer role during the study.

(3.5.5.i.A) Whole-class teaching field notes

Class observations consisted 80 pages of field notes the author wrote by hand

during the 29 General Studies class sessions at 8 Primary Schools. During the teacher's whole-class teaching, a structured one-minute observational interval running record method was taken. A structured one-minute observational interval running record method means the author wrote down what she observed at the start of each minute. The author recorded: (a) the theme for that session, (b) teaching methods and resources that might affect students' types of group-talk, and (c) pertinent teacher or students' quotations and (e) other pertinent information.

(3.5.5.i.B) Small-group discussion field notes

Generally, each class was divided into 8 groups. For each class, during the small-group discussion in each lesson, only one group out of the eight groups was randomly selected for observation. Field notes were taken, recording (a) all the talk of the group members, (b) the gender of the group-member talking (c) action of the group members related to the group-talk, such as, pointing to a map denoting a response. Each small group discussion was approximately ten minutes long.

3.5.5.ii Audio-recordings and transcriptions of children's group-talk

Audio-recordings were taken for all groups during children's small-group discussion. The taped group-talk was transcribed and translated from Chinese to English by the author.

3.5.5.iii. Interviews: (A) Students

About eight children in each class were randomly chosen an individual interview, each lasting about five minutes. Appendix I exemplified a sample of semi-structured interviewing questions and responses from 8 children in Class 5A of School H. Appendix II illustrated how the data source of Appendix I was analysed and how conclusions were drawn.

Interviews: (B) Teachers

After conducting two lesson observations for each class, each teacher was interviewed for approximately half an hour. Appendix III is a sample of

semi-structured teacher interview questions and responses from Teacher12 of Class

5C in School D. Appendix IV is a sample of semi-structured teacher interview

questions and responses from Teacher17 of Class 5B in School G. The interviews

served to explain how some teachers' perceived academic conflict in group-talk.

Teachers' perceptions were not meant for frequency counts. Their similar

perceptions were then grouped with teacher's codes quoted and shown in Table 4.8.

5.5.iv Teaching and learning documents

Some teaching notes, completed students' worksheets, and children's projects were

collected as documents.

3.5.5.v Researcher's journal

The author wrote down any reflection related to the current thesis in a notebook,

such as reflection on the research procedures, or conceptualising the data. For

example, on 2 November, 2000 (Coding: J,2/11/00,1), the author wrote:

> *"Through interviewing children, another factor likely to affect children s*
>
> *expressiveness in group-talk was their ability to decode group instructions. Even if*
>
> *the task instructions were open-ended, if children did not understand the*
>
> *instruction, it would probably be difficult for the children to give multidimensional*
>
> *group-talk. "*

3.5.6 Prior data analysis

3.5.6.i Translation

All the data sources were in Chinese (Cantonese dialect). Documents were read and

translated. Tapes were listened to, translated and transcribed sentence by sentence

from Chinese to English by the author.

3.5.6.ii Back translation

Bernard (2000:246) recommended 'back translation' when translating questionnaires from one's own native language to the language of another culture. The steps of 'back translation' Bernard (2000:247) suggested are as follows:

1. *"Write any questionnaire in your native language."*

2. *"Have the questionnaire translated by a bilingual person who is a native speaker of the language you are working in."*

3. *"Ask another bilingual person, who is a native speaker of your language, to translate the questionnaire back into that language."*

4. *"This back translation should be almost identical to the original questionnaire you wrote."*

5. *"If it isn't, then something was lost in one of the two translations. You'd better find out which one it was and correct the problem."*

In order that questionnaires in the native language could be almost identical with those in the language of another culture, Axinn *et al.*'s (1991) study also used the back translation method. They translated their original English questionnaires into Nepalese. Using the back translation method, they had to cross check the meaning of each Nepalese question against the original language several times until they were satisfied that the questions in Nepalese were sensible.

Some of the steps in back translation used by Axinn *et al.* (1991) and Bernard (2000) could also be used in this study. Since one of the aims of this thesis was to investigate the quality of children's group-talk, it was important to keep the English transcripts in this thesis almost identical to the group-talk originally spoken in Chinese. For this reason the author conducted 'back translation' (Bernard 2000:246) on 30 pieces of randomly chosen taped group-talk (10% of the total tapes collected), adapting Bernard's steps of 'back translation'. The aim was to cross check the accuracy between the native language and the translated

language. The steps of back translation used in this study, adapting Bernard's back translation, were as follows:

1. The author transcribed the taped group-talk (in Chinese) verbatim in the native language of Chinese.

2. The author translated the Chinese transcript of group-talk into English.

3. The author invited a friend, a bilingual person, to translate the author's English transcript (in step 2) back to the native language of Chinese.

4. The author compared the friend's Chinese transcript (step 3) with the author's Chinese transcript (step 1). The back translation (step 3) should be almost identical to the author's Chinese transcript (step 1).

5. If it wasn't identical, the author found out the errors and corrected the mistakes.

3.5.6.iii Coding the Data Sources

Field notes, group-talk, interviews, documents, and researcher's journals were coded according to data source, date, student, teacher, group or page. Hence, **FN, 18/12/00, T14** means Field Notes, 18 December 2000, Teacher 14. **GT/5AiiGp3 ScB** means Group-talk in Class 5A Day2 group3 in School B, **IT15ScF5B** means Interview Teacher 15, School F Class5B. **Child31SchG5A** means Interview Child Class number 31, School G Class 5A, **T15** is Teacher 15. **DWscC30** is Document Worksheet School C, page 30. **J, 8/11/00,7** is Researcher Journal on 8 Nov 2000, page 7. In a transcript-extract, each group-member is referred to as B (boy) or G (girl) and is numbered in sequence according to his/her first utterance in each complete transcript.

3.5.7 Data Analysis

Interpretivist Paradigm was undertaken and qualitative data analysis was adopted.

3.5.7.i Qualitative data analysis: grounded theory method

The open coding and axial coding data analysis method used in the grounded theory

method for data analysis was employed (Siu, 2001a). The rationale and procedures will be explained below.

(3.5.7.i.A) Rationale for a grounded theory method

Grounded theory method is a "general methodology for developing theory and is grounded in data systematically gathered and analysed" (Strauss and Corbin, 1994:273). In this study, hypotheses and relevant variables for data collection are not predetermined. Since "little close analysis of pupils' talk was disclosed" (Mercer, 1995:92), the lack of research on close analysis of children's group-talk means that there are many properties of group-talk in this study yet to be identified. The inductive approach of the grounded theory method is particularly suited to this task because variables may emerge from the inductive reasoning.

The constant comparison method in data analysis which is basic to grounded theory method (Strauss, 1987) was adopted. Abiding by the grounded theory method, data collection and analysis were undertaken simultaneously (Strauss and Corbin, 1990). Open Coding and Axial Coding were utilized. The author provides elaboration on open and axial coding below.

(3.5.7.i.B) Open Coding

Open coding indicates "Breaking down, examining, comparing, conceptualizing and categorizing data" (Strauss and Corbin, 1990:61). It is the process whereby concepts are reduced from raw data and are identified of their properties and dimensions. In open coding, the data are broken down into concepts:

> *"... to be closely examined and compared for similarities and differences, while constantly asking of the data the following question: "What category or property of a category does this incident indicate?"* (Glaser,1992:39)

Through open coding, assumptions on the phenomena are analyzed, questioned or

explored, which in turn leads to new discoveries (Strauss and Corbin, 1990:62). The use of a coding system was especially crucial for this research on quality of group-talk. The reason for coding verbal transactions is that:

"Each statement, question, oral response, task or written response could be graded for the quality of thought which it evidenced." (Kerry, 1982:84)

The following illustrates how the concept of *Assertion* type of group-talk emerged through open coding in this research. The author coded each group-talk transcript speaker by speaker. Code word/s were typed in the right hand margin of each transcript (Schatzman and Strauss, 1973), as illustrated in Table 3.2 and Table 3.3. Code word/s were the author's comments about what each speaker said. Code word/s to a concept may be modified, added or dropped in the whole data analysis process of the study.

Table 3.2 Example 1 of Open Coding on Group-talk

Instruction: Design a two-day trip for the tourists in Hong Kong.				
			Group-talk (GT/5BiiGp4SchC)	**Commentary or Coding**
Line	160	G1:	*Find a hotel.*	**(Assertion)**
	161	B2:	*Ocean Park.*	**(Assertion, no reason)**
	162	B1:	*Where's a hotel?*	**(Question)**
	163	B2:	*This one in Shatin.*	**(Assertion, no reason)**
	164	G2:	*We've to find somewhere with food.*	**(Disagrees, reason)**
	165 -167	B1:	*Airport Restaurant. On the first day, if they're not at the Airport, where're they?*	**(Assertion)**
	168	B2:	*Ocean park is worth going than the Airport.*	**(Assertion, no reason)**
	169	G1:	*Better Ocean Park first.*	**(Assertion, no reason)**
	170	G2:	*Don't argue.*	**(Classroom order)**

Table 3.3: Example 2 of Open Coding on Group-talk

Instruction: "Do we need to attend school in the future? Will Mr. Lau, the teacher, be jobless? Give reasons if you think he will or won't."				
			Group-talk (GT/5BiGp7SchF)	**(Commentary)**
Line	2440	G1:	*I think we need to attend school in the future, because Mr. Lau won't teach us at home.*	**(reason)**
	2441	G2:	*We'll all use computers.*	**(Disagrees, reason)**
	2442	G1	*I think we won't because not everyone has a computer.*	**(Disagrees, reason)**
	2443	B1:	*I think we'll all have a computer in the future because even now it's very common.*	**(Disagrees, reason)**
	2444	B2:	*Even if each has a computer in the future, we still need the extra-curricular activities provided by the school.*	**(Disagrees, reason)**

The author coded transcript like Table 3.2, breaking down what each speaker said. The author continued coding all other transcripts to find out common characteristics (or properties) of the concept *Assertion*. At the initial stage, the properties in the category of *Assertion* included 'without reasons, generating questions, seeking help'. When comparing Table 3.2 and Table 3.3, sentences in Table 3.2 were short. After coding more transcripts, other properties such as 'short sentences' were added to *Assertion*. Some properties of *Assertion*, such as 'generating questions' and 'seeking help' were dropped during the constant comparison with the concepts of *Cooperative Elaboration* and *Constructive Conflict* because 'generating questions' and 'seeking help' were also found in the other types of group-talk. Then what do 'generating questions' and 'seeking help' indicate? Students' 'generating questions' may help group-members' cognition and students' 'seeking help' may help social unity of the group. So the author's self-questioning stimulated her to explore new concepts of Cognitive Diversity

and Social Unity in students' group-talk.

In summary, the open coding data analysis involved (1) breaking down, (2) comparing, (3) categorizing, and (4) questioning the data in order to generate specific concept.

(3.5.7.i.C) Axial Coding

According to Strauss and Corbin (1990), axial coding is aimed at:

> "--- *specifying a category (phenomenon) in terms of the condition that give rise to it; the context (its specific set of properties) in which it is embedded; the action/interaction strategies by which it is handled, managed, carried out, and the consequences of those strategies.* " (p.97)

In axial coding, relationship between each category and its subcategories were scrutinized. This was achieved through constant re-examining the data collected and analysing new data represented by the categories and subcategories. The procedures of axial coding for data analysis in this thesis were done in any of the four ways: (1) writing theoretical memo, (2) drawing diagram to link concepts, (3) referring to literature, and (4) conducting member checking. Each axial coding procedure is elaborated below. First, writing theoretical memo means writing memo basing on the coding model of Strauss & Corbin (1990). Table 3.4 is an example of theoretical memo.

Table 3.4 Axial Coding (Theoretical memo): Students' high social unity in group-talk

Causal Condition	Phenomenon
Students' small-group discussion	Students' high social unity in group-talk
Properties of students' social unity	*Dimensions of students' social unity*
in various types of group-talk	extent --- total
throughout group-talk	duration--- ongoing
in students' verbal exchanges	intensity--- high
harmony in group-talk	potential for consequences --- high

Context for Students' high social unity in group-talk

Under conditions where students' social unity in group-talk is intense and ongoing, and where the potential for consequences in group-talk is high, then:

Action/interaction strategies for students' social unity in group-talk show

students verbalize their perception of social unity in interview with the author;

students justify their social skills when disagreements arise in group-talk;

students executes their social unity through humour, disagreement skills, etc.;

students actualize their social unity through self-regulating and moving the development of the group-talk;

students support the group's social unity through peer acceptance.

Intervening conditions

Various views from literature review on students' social unity in group-talk

Consequences (for group-talk)

Students' awareness of the harmony in the group-talk

Students' open attitude towards disagreements in group-talk

Students' interest and interdependence in group-talk

Students' willingness to develop the group-talk

Second, axial coding through integrative diagrams helped visual representation of analytic thinking. They helped conveying conceptual linkages (Strauss and Corbin, 1990). Figure 4.1 used in Chapter Four is introduced here to explain how the Seesaw Working Model applied axial coding through integrative diagram.

Figure 4.1   The Seesaw Working Model: one optimal position &
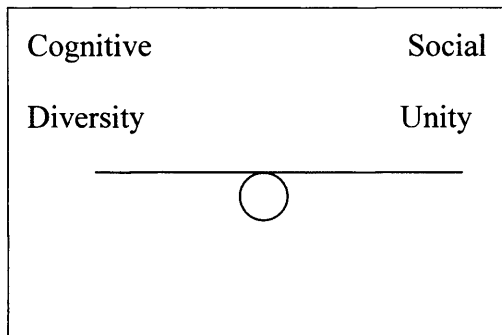
two non-optimal positions

Optimal Position:

The Homeostatic Seesaw Position

(Internal harmony attained between Cognitive Diversity and Social Unity)
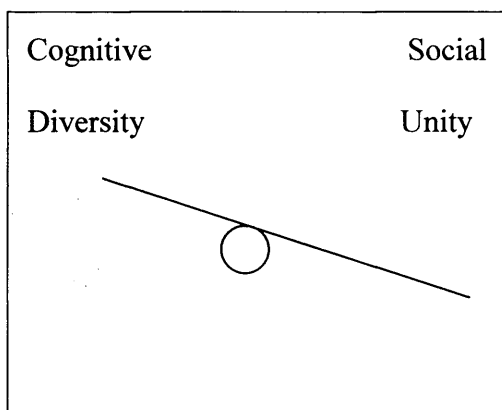
Non-optimal Position I:

The High Cognitive Diversity and Low Social Unity Seesaw Position

(High Cognitive Diversity emphasized at the expense of low Social Unity)
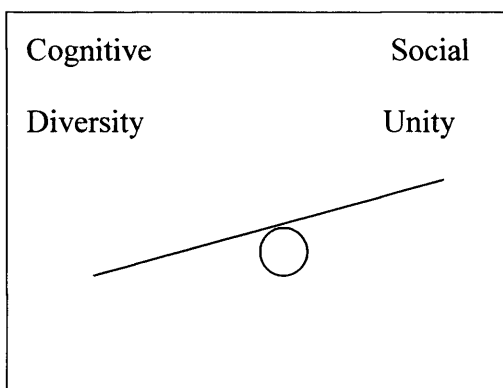
Non-optimal Position II:

The High Social Unity and Low Cognitive Diversity Seesaw Position (High Social Unity emphasized at the expense of low Cognitive Diversity)

In fact, the emergence of the Seesaw Working Model in this thesis used axial coding through a combination of integrative diagram, theoretical memo and literature support. The steps in the emergence of the Seesaw Working Model were as follows:

Step 1: A phenomenon for axial coding emerged after synthesis of the findings of the four research questions. It was 'optimal learning in students' group-talk'.

Step 2: Later, the author realized that it would be more effective if three phenomena were portrayed at the same time. Three theoretical memos were used for the three phenomena, namely, one optimal learning condition and two non-optimal learning conditions in group-talk.

Step 3: One theoretical memo was insufficient to convey three phenomena and their relationships. So, an analogy was explored to synthesize the three phenomena. The seesaw analogy was discovered because different seesaw positions could connote children's optimal and non-optimal learning conditions.

Step 4: It was necessary to seek the support of literature to supplement the diagram. Just the diagram of a balanced seesaw position might wrongly convey stationary, static condition. The concept of homeostasis, sought from literature, supplemented the diagram. Homeostasis suggests balance, as well as self-regulation and movement. The caption "Homeostatic Seesaw Position" supplemented the drawing to portray the self-regulated movement in a balanced position.

Step 5: The analogy of three seesaw positions was drawn with the appropriate captions.

Axial coding through using theoretical memos, integrative diagram and literature helped the emergence of the Seesaw Working Model. The captions of a theoretical memo (such as, causal condition, properties, context, action, or consequences) guided the author to trace back to evidence for the optimal and non-optimal seesaw positions. In this way, the emergence of the Seesaw Working Model, through axial coding could be seen grounded in data and analysis from the current findings.

The third way used in this thesis for axial coding was to identify categories through the support of literature (Strauss and Corbin, 1990). In the emergence of the Seesaw Working Model, integrative diagram was supported by literature in conveying the Homeostatic Seesaw Position. The concept of homeostasis was discovered in literature. Homeostasis, connoting self-regulation and movement, alerts that the drawing of a stationery balanced seesaw position actually still connotes self-regulatory movement. Another example for the need of literature support in axial coding was as follows. For the phenomenon on exploring the processes engaged in by children in their group-talk (as stated in Research Question One: To what extent do Bennett & Dunne (1991) and Mercer's (1996) three types of group-talk account for the processes engaged in by Hong Kong students during group-talk?) Bennett and Dunne (1991) and Mercer's (1996) quality of children's group-talk were consulted. These literatures helped the "theoretical sensitivity" or "the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that which isn't" (Strauss and Corbin, 1990:42). In the process of axial coding, the author analysed Bennett and Dunne (1991) and Mercer's (1996) work and found they seemed to concern mostly on children's linguistic processes. The current findings of children's 'seesaw process and socio-emotional processes' in group-talk other than the linguistic process were generated in two ways. Firstly, the author scrutinized all the group-talk in this research, identifying processes similar to Bennett and Dunne (1991) and Mercer (1996) as linguistic process. Then the author separated this linguistic process from other processes. Secondly, using one theoretical memo on group-members' high social unity in group-talk as in Table 3.4, children's 'socio-emotional process' emerged. Then synthesizing four theoretical memos, children's 'seesaw process' emerged. The four theoretical memos were on (1) high social unity, (2) high cognitive diversity, (3) low social unity, and (4) low cognitive diversity.

The fourth way used in this thesis for axial coding was member checking. Emergent categories were presented to the teachers to check if the interpretations were plausible. In this study, school-based reports were presented to the teachers concerned. Verbal feedback was collected and recorded in the researcher's journal.

(3.5.7.i.D) Selective Coding not utilized

In this study, each class was observed twice. The groupings remained the same in the two lessons. However, in selective coding, the groupings have to remain the same throughout a long time, so that the same groupings can be scrutinized for saturated data. This could not be done for the present study, as teachers might need to change the seats of the students for effective classroom discipline. Therefore, selective coding could not be implemented. As for the current study, the open and axial coding seemed to be sufficient to discover the emergent Seesaw Working Model and emergent findings for the four central research questions to be presented in Chapter Four.

3.6 Trustworthiness of findings

Trustworthiness (Lincoln and Guba, 1985) is concerned with determining the extent we believe the research outcome. Trustworthiness occurs by triangulation or using multiple data sources and multiple methods (Lincoln and Guba, 1985; Mathison, 1988). In this study, besides data and method triangulation, investigator and theory triangulation were also employed to safeguard the trustworthiness of findings. In fact, triangulation is broadly defined as "the multiple employment of sources of data, observers, methods, or theories" (Bednarz, 1983:38; cf. Faules, 1982) in the research of the same phenomenon. Data triangulation involves types and levels. Types include time, space and person; levels include the individual, individuals in interaction, and the collectivity (Denzin, 1970). Method triangulation involves triangulation between methods. Triangulation between methods denotes the use of more than one research method, such as observation, interview, and audio-recording group-members' group-talk. Investigator triangulation denotes multiple observers of the same object (Campbell, 1975; Schwartz and Kaplan, 1981). In this thesis, the author collected and analysed the data. Strictly speaking, there was no investigator triangulation. However in the process of scrutinizing the

truthfulness of the data, a friend helped to 'back translate' 10% of the total sessions of group-talk. In the back translation procedure, the friend may be regarded as helping investigator triangulation because both the author and the friend had been scrutinizing the same object (10% of the total sessions of group-talk in this thesis). Theory triangulation involves the application of several conceptual framework in analysing the same data set. Theory triangulation was highlighted in the Discussion Chapter. The Discussion Chapter in this thesis was generally presented in three parts. Part one summarized related literature. Part two synthesized related findings and Part three discussed the relevant implications. The several related conceptual framework conveyed through the summary of literature in the Discussion Chapter was a sign of theory triangulation in analysing the same data set during the discussion process.

The triangulation strategies used in the present study to confirm the trustworthiness criteria suggested by Guba and Lincoln (1981) for the Interpretivist Paradigm, namely credibility, fittingness, dependability and confirmability are summarized in Table 3.5.

Table 3.5: Criteria & safeguards related to trustworthiness of current findings

Developed from Guba and Lincoln (1981)

Criteria for Trustworthiness of Data	Safeguards employed to ensure Trustworthiness
Credibility (truthfulness of data)	Data Triangulation: ● Extended period of data collection ● Prolonged engagement with participants ● Multiple data collection Method triangulation: ● Triangulation between methods ● Involvement of teachers in critiquing the conceptual relationship & theoretical propositions Investigator triangulation: ● back translation transcript ● peer debriefing
Fittingness (appropriateness of data)	Data triangulation: ● selection of students, teachers & schools representing a range of theoretical orientations
Dependability (consistency of findings)	Data triangulation: ● audit trail Investigator triangulation: ● independent investigator to check the back translation
Confirmability (data & interpretations grounded in events instead of researcher's construction)	Data triangulation: ● audit trail Method triangulation: ● data reduction procedures and final categories ● documentation of methods Investigator triangulation: ● peer debriefing & researcher's journal reflecting intentionally the relationship between theory, research methods and research questions

3.6.1 Credibility

Credibility denotes truthfulness of the data. The extended period of data collection (October 1999 to May 2001) in eight schools and the prolonged engagement of the author with the participants for about a month in each school allowed time for the author to collect context-rich (Denzin, 1989b) descriptions. The author could afford time for collecting the multiple data sources, such as whole-class teaching observation, group-talk observation, taped group-talk, student's interview, teacher's interview, teacher's critique, or documentary evidence. More importantly, anything that puzzled the author in one data source (for example, observation) could be clarified through another data source (for example, interview). In this way the truthfulness of data might better be attained.

Moreover, the teacher's critique of the conceptual relationships and theoretical propositions on the school-based research report, submitted by the author about one month after the data collection in one school, helped to ensure that the findings were considered accurate by the original informants.

Concerning truthfulness of the transcript, since the original group-talk was in Chinese and translated to English by the researcher, 10% of the researcher's English transcripts were "back translated" (Bernard, 2000:247) to Chinese by a friend. The steps of back translation in this thesis were described in Section 3.5.6.i. Back translation was carried out in a way that an abstract of Chinese group-talk was transcribed and translated to English by the author. A friend was invited to translate the author's English transcript to Chinese. The Chinese transcript by the friend was then compared to the original Chinese transcript of the author. Comparison was made to the extent of accuracy. Since the sentences of the children were short. Sentence by sentence translation was more accurate to achieve. Children's short sentences lowered the complexity of translating them to English. Concerning

Research Question One of this thesis on the quality of group-talk, the subtle differentiation on the types of talk lay in children rendering various perspectives and giving reasons. In the translation, Chinese words denoting reasoning, such as 'because' or 'why', have clear equivalence in English. The greatest limitation, however, in the translation of Chinese children's group-talk was in portraying children's humour accurately. Words, embedded in Chinese culture, may have connotation of local humour. The author tried to indicate possible local humour in the commentary column of each transcript.

Throughout the data collection and analysis phases, the author was also engaged in "peer debriefing" (Lincoln and Guba, 1985:308) with colleagues in the Hong Kong Institute of Education. It allowed direct challenge of the findings and interpretations.

3.6.2 Fittingness or Transferability

Strategies that might support the possible transferability of current findings to other contexts include the fully described and detailed analysis of observations, interviews, and group-talk. Moreover, the selection of students, and teachers represented a range of theoretical orientation. Theoretical orientation means in this thesis the participants were students and teachers as those described in literature concerning children's group-talk. The logical presentation of theoretical propositions with relevant illustrations from the data tended to permit adequate comparisons with other samples or contexts.

3.6.3 Dependability

Dependability refers to consistency of findings (Guba and Lincoln, 1981). "Audit trail", (Lincoln & Guba, 1985:319) the key component, denotes that data is accessible for checking. Through consistent coding and data storage methods in

computer files, the researcher was able to ensure that all data was readily retrievable.

Field notes, group-talk, interviews, documents, and journals were coded according

to data source, date, student, teacher, and group. Conceptual labels and categories

were generated and bold typed in the commentary column, separated from the data.

Code notes were easily retrievable for sorting and cross-referencing. Besides

helping the author to analyze the data efficiently, the systematic coding also helped

the emergence of theory building. Concepts (for example, academic conflict),

categories (for example, humour, disagreement skills, reasons, peer evaluation),

sub-categories (for example, Social Unity; Cognitive Diversity), and principal

category (for example, Constructive Academic Conflict) could be traced back to the

data.

3.6.4 Confirmability

Confirmability signifies the "extent to which the data and interpretations of the

study are grounded in events rather than the inquirer's personal constructions"

(Lincoln and Guba, 1985:324), with emphasis on the replicability of the study by

others (LeComte and Goethz, 1982). In this study, the audit trail (3.6.3) was the

chief strategy to ensure confirmability. Others who wished to replicate the study

could follow the actual sequence of how data was collected, processed, and

displayed for the research outcome. Data reduction procedures and final categories

were well documented. In addition, peer debriefing and author's journal reflecting

intentionally the relationship between research methods, research questions and

theory demonstrated that the author was aware about "personal assumptions, values

and biases, affective states ... and how they may have come into play during the

study" (Miles and Huberman, 1994:278).

3.6.5 Utilization

Besides Guba and Lincoln's (1981) criteria of trustworthiness of findings, another criterion, utilization, is essential for educational research. Utilization is the practical value of the study. Utilization was attempted by post-lesson reflective sharing with individual teacher and a school-based research report to each school so that the findings could be physically and intellectually accessible to practitioners. The value of the school-based research to the school may be reflected from the letters of the principals to the author. For example, the principal in School H wrote,

"The discussion on 'the value of diverse opinion' in your paper and what was observed in the studied children's talk have made an impact on teachers' perspective. We are convinced that only by facilitating genuine argument could children get the chance to polish their 'elaboration' and 'justification' skills. The process of justification and elaboration is the process of 'co-construction of knowledge'."

In another example of utilization or practical value, the principal in School G commented that the research paper had stimulated professional practice,

"After the research, teachers realized what students need most and they could modify their teaching methods accordingly, for example, allowing more group discussions during the lessons."

3.7 Ethical Considerations

3.7.1 Attending to Ethical Principles

The "Ethical Principles for Conducting Research with Human Participants" (The British Psychological Society, 1996:7) were referenced and abided throughout the current research. The reasons for choosing the ethical principles of the British

Psychological Society were that (1) the current study concerned investigation on the educational psychology of optimal and non-optimal learning; and (2) human participants involved participants of all nations, be they Chinese or British. The ethical principles include eleven sections, namely, 1 introduction, 2 general principle, 3 consent, 4 deception, 5 debriefing, 6 withdrawal from the investigation, 7 confidentiality, 8 protection of participants, 9 observational research, 10 giving advice, and 11 colleagues. Key points of each section will be quoted and related to how ethical considerations were taken in this study.

1. Introduction to ethical principles

"... Good psychological research is possible only if there is mutual respect and confidence between investigators and participants. ..." (p. 7)

The author was aware of the mutual respect and confidence between investigator and participants. One of the indications of showing respect to the teachers' autonomy was that the author did not use selective coding in the grounded theory method of inductive analysis. Just open coding and axial coding were used. The reason was that in selective coding, the groupings of the students had to remain the same throughout a long time, so that the same grouping could be scrutinized for saturated data. The author respected the teachers' autonomy and control over their own class. As teachers might need to change the seats of the students for effective classroom discipline, therefore selective coding was not used. Mutual respect and confidence with the teachers and students was mainly pursued through the author's genuine attitude and non-interference with the participants' work.

2. General ethical principles

"... investigation should be considered from the standpoint of all
participants; foreseeable threats to their psychological well-being,
health, value or dignity should be eliminated. ..." (p.7)

Before data collection, the principals, teachers and students were informed that the author was a lecturer from the Hong Kong Institute of Education, doing research on children's group-talk. The author's name card and a letter from the author's Institute certifying the author's lecturer status and the aim of the research were issued to the principal and each teacher. This may help to eliminate the psychological threat to the participants that they are under scrutiny of assessment that may threaten the teachers' job security or the students' continuing studies.

3. Consent

"... the investigator should inform all participants of the objectives of
the investigation, ... of all aspects of the research ..." (p.8).

Before data collection, the author explained to the principal, teachers and students about the aims, research methods, timetable and follow-up of the study. After consent was gained from the participants, a letter was issued to the school reiterating the points explained. A letter of consent from the school was then sent to the author, via the author's Department Head in the Hong Kong Institute of Education.

4. Deception

"... Intentional deception of the participants over the purpose and general
nature of the investigation should be avoided whenever possible ..." (p. 9)

All data collection was carried out as specified in the author's letter requesting the school's consent. A school-based report was issued to the school one month after the data collection. It was an ethical consideration that there was no withholding of information or misleading of participants.

5. Debriefing

> *"... when the data have been collected, the investigator should provide the participants with any necessary information to complete their understanding of the nature of the research. ..."* (p.9)

The author invited the teachers to critique the post-lesson evaluation and the school-based report. The author also reminded the teachers to tell the students about the results of the group-talk as presented in the school-based report.

6. Withdrawal from the investigation

> *"... the investigator must attempt to ensure that participants (including children) know of their right to withdraw ..."* (p.9)

In the outlier cases, even if the children were not discussing, the author did not interfere. One group-member read while the others kept silent (see Outlier Case in Section 4.7). Children were ensured of their right to withdraw from discussing in the group-talk.

7. Confidentiality

> *"Subject to the requirement of legislation, including the Data Protection Act, information obtained about a participant during an investigation*

is confidential unless otherwise agreed in advance ... " (p.9-10)

The participants were informed that their identity would remain confidential. Furthermore, the coding system helped to ensure the anonymity of the students and teachers.

8. Protection of participants

"Investigators have a primary responsibility to protect participants from physical and mental harm during the investigation ... " (p.10)

Data was collected from naturally occurring classroom setting. The participants were not required to perform any act that may possibly cause physical and mental harm. Children's group-talk was audio-taped as what children had naturally done in any classroom discussion. The children appeared comfortable with the discussion, though they were engaged in cognitive conflict.

9. Observational research

"Studies based upon observation must respect the privacy and psychological well-being of the individuals studied ..." (p.10)

There were lesson observation of the teacher and one randomly-chosen group-talk observation of the students. The author was the sole observer, resuming a non-interference role, attempting to minimize infringing the privacy of the participants.

10. Giving advice

> *"... if, in the normal course of psychological research ... a participant solicits advice concerning educational, personality, behavioral or health issues, caution should be exercised ..."* (p.10)

Only some educational advice with rationale and evidence was attempted through post-lesson evaluation and a school-based report. The author has been a teacher educator for twenty years, with training and experience qualified to give advice on post-lesson evaluation. Caution was still exercised. Teachers were invited to critique on the author's advice on post-lesson evaluation and the school-based report to minimize any misinterpretation of the author, and to ensure that the advice was well-grounded.

11. Colleagues

> *"Investigators share responsibility for the ethical treatment of research participants with their collaborators, assistants, students and employees ..."* (p.11)

As this is a doctoral thesis, the author was the sole investigator having contact with the participants. So there was no infringement of this ethical principle.

3.7.2 Summary

Examples were shown how ethical considerations of the current research might be closely attending to the eleven "Ethical Principles for Conducting Research with Human Participants" laid down by the British Psychological Society (1996).

3.8 Methodological Limitations

In the current study, data was collected dominantly through the qualitative method of lesson observation, taped group-talk content, student interview, teacher interview, teacher's critique, researcher's journal, and documentary evidence, as well as the quantitative method of frequency counts. The author would like to acknowledge that in some methods, there may be limitations. In the taped group-talk content, though the author had replayed the tape several times to ensure the valid content, there may be at times difficult to distinguish the gender of the child speaking or who was exactly speaking.

In the interviews with the children or teachers, there might be the possibility that the interviewees were influenced by their perception of the interviewer, giving responses that might meet the expectations of the interviewer.

In the data analysis, there might also be experimenter bias due to the prior professional experience of the author.

3.9 Summary of Methodology Chapter

In this chapter five aspects on the methodology of this thesis were considered. The first described the emergence of the research questions. The second explained why interpretivism was adopted. The third described the research process, highlighting a grounded theory method adopted in the data analysis. Open coding and axial coding were undertaken incorporating the constant comparative method and inductive data analysis techniques. The fourth reviewed how trustworthiness was attempted. The fifth related the ethical considerations. Lastly, some methodological limitations are discussed. The safeguards attempted in the methodology will support the trustworthiness of the findings that are presented next in Chapter Four.

CHAPTER FOUR

RESULTS and ANALYSIS

4.1 Introduction

Insights from the literature review and the current research methodology prompted

formation of the following research questions for this study on children's group-talk:

1. To what extent do Bennett & Dunne (1991) and Mercer's (1996) quality of group-

   talk account for the processes engaged in by Hong Kong primary school students

   during group-talk?

2a. What do students perceive to be factors affecting Academic Conflict in

   group-talk and how do these perceptions relate to observed students' classroom

   behaviour and analysis of students' group-talk in classroom?

2b. What do teachers perceive to be factors affecting Academic Conflict in

   group-talk and how do these perceptions relate to observed teachers' classroom

   behaviour and analysis of students' group-talk in classroom?

3. What is the quality of the students' group-talk in relation to the linguistic,

   psychological and cultural levels defined by Mercer (1995)?

4a. How much do students have the socio-cognitive competence in handling

   Academic Conflict?

4b. How much do teachers facilitate students' socio-cognitive competence in

   handling Academic Conflict?

This chapter presents the results and analysis arising from these four research

questions, together with A Seesaw Working Model that emerged from these results.

The outlier case is exemplified and this is followed by a summary of the Results and

Analysis Chapter.

4.2 Findings of Research Question 1: To what extent do Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk account for the processes engaged in by Hong Kong primary school students during group-talk?

4.2.1 Introduction

Bennett and Dunne (1991) and Mercer's (1995) quality of group-talk appeared to account for the linguistic and cognitive processes engaged in by students of the current study during group-talk. Besides these linguistic and cognitive processes, the 'seesaw' and 'socio-emotional processes' also emerged. A new set of 'linguistic, cognitive, seesaw, and socio-emotional processes engaged in by students during group-talk' was identified and will be analysed in the sections that follow.

4.2.2 Linguistic Process

This Linguistic Process Section will firstly compare the new findings of group-talk from the current study with Bennett & Dunne (1991), and Mercer's (1996) group-talk; and secondly it will analyse how Bennett & Dunne (1991), and Mercer's (1996) group-talk account for the linguistic process.

4.2.2.i New findings of group-talk: Assertion, Cooperative Elaboration, Constructive Conflict

New findings on quality of group-talk emerged from the current study. These new findings prompted the identification of three new categories for quality of group-talk: As*sertion, Cooperative Elaboration* and *Constructive Conflict* (Siu, 2001a). Table 4.1 summarizes the difference between new findings and Bennett & Dunne (1991) and Mercer's (1996) findings on group-talk. Each new type of group-talk will then be analysed with illustrations.

Table 4.1 Quality of Group-talk identified in the current study and compared to the findings of Bennett & Dunne (1991) and Mercer (1996)

Group-talk	Characteristic	Properties
Assertion	Diverse perspectives; No reasoning	● Diverse perspectives (not necessarily disagreement or argument or dispute) ** Individualized decision-making ** No constructive conflicting ideas ** Short exchanges * No explicit reasoning
Cooperative Elaboration	Similar perspectives; Reasoning	● Supplement to construct common knowledge ● Not necessarily using 'since', 'then , or 'because' ** Similar perspectives ** No constructive conflicting opinion ** With repetition, confirmation or elaboration * With reasoning
Constructive Conflict	Diverse perspectives; Reasoning	● Diverse perspectives ● Not necessarily using 'because' or 'same' ● Open conclusion (Not necessarily eventual joint agreement) ** Peers' arguments evaluated, challenges justified, alternative hypothesis offered ** With reasoning ** Openness to listen to others and prepared to have views challenged * Logical solutions

● New findings;** Similar to Mercer (1996);* Similar to Bennett & Dunne(1991)

4.2.2.i.A --- *Assertion*

Table 4.2 Comparison of *Assertion* with Primitive Argument and Disputational Talk

Bennett and Dunne (1991:117)	Mercer (1996:369)	Current Findings
*Primitive Argument	**** Disputational Talk**	● *Assertion* (Diverse perspectives; No reasoning)
"Simple & opposing statements";	"Disagreement"; "Individualized decision-making";	● Diverse perspectives (not necessarily disagreement or argument or dispute;
"No explicit reasoning or justification";	"Few attempts to pool resources, or to offer constructive criticism of suggestions";	** Individualized decision-making (not necessarily responding to previous speaker);
"A move into abstract thought but parallel to quarrelling in action".	"Short exchanges of assertions & counter-assertions".	** No constructive conflicting ideas; ** Short exchanges; * No explicit reasoning.

● New findings; ** Similar to Mercer (1996:369);

* Similar to Bennett & Dunne (1991:117)

Assertion was the new finding of the current study. *Assertion was* a mode of group-talk, denoting children putting forth their own ideas, giving diverse perspectives without relating to the former speaker or giving reason. *Assertion* highlighted diverse perspectives without reason, not necessarily disagreement or argument or dispute, whereas Bennett & Dunne (1991:117) highlighted argument in "Primitive Argument" and Mercer (1996:369) highlighted dispute in "Disputational Talk".

In the following illustration, children suggested Ocean Park, Gold Coast, Lei Yu Mun, or flea market, giving diverse perspectives but without reasons. It was similar to Mercer's (1996) short individualized decision-making without constructive criticism and similar to Bennett & Dunne's (1991) without reasoning.

Illustration of *Assertion* Instruction: Design a two-day trip for the tourists in Hong Kong.

Group-talk (GT/5DiiGp7ScC)			**(Commentary)**
Line 1180	*G2:*	*To Ocean Park*	
1181	*G1:*	*Next to gold coast*	*(Diverse perspective; no reason)*
1182	*B2:*	*To Lei Yu Mun*	*(Diverse perspective; no reason)*
1183		*Lei Yu Mun*	
1184	*G1:*	*Where?*	*(Self-generated question)*
1185	*G2:*	*When?*	*(Self-generated question)*
1186	*B1:*	*Last ...*	
1187	*B2:*	*Lei Yu Mun*	*(Assertion)*
1188	*B1:*	*Whatever. Don't know.*	*(No reason)*
1189	*B1:*	*To flea market.*	*(Diverse perspective; no reason)*

4.2.2.i.B — *Cooperative Elaboration*

Table 4.3 Comparison of *Cooperative Elaboration* with Collaboration and

Cumulative Talk

Bennett & Dunne (1991:117)	Mercer (1996:369)	Current Findings
Collaboration "Children discuss logical or reasoned ideas or arguments, sometimes through using 'since', 'then', or 'because'".	**Cumulative talk** "Speakers build positively but uncritically on what the other has said"; "characterized by repetition confirmation and elaboration".	**Cooperative Elaboration** (Similar perspectives; with reasoning) ● Extend or supplement (construct common knowledge) ● Not necessarily using 'since , 'then', or 'because' ** Similar perspectives (build positively but uncritically ** With repetition, confirmation or elaboration * With reasoning

● New findings; ** Similar to Mercer (1996:369);

* Similar to Bennett and Dunne (1991:117)

The new finding *Cooperative Elaboration* was a mode of group-talk, indicating that the speaker shared the same perspective as the former speaker, adding elaboration or reason. The elaboration showed cooperation. *Cooperative Elaboration* was a combination of Bennett & Dunne's (1991:117) "Collaboration" and Mercer's (1996:369) "Cummulative Talk", adding 'same perspective' to Bennett & Dunne (1991), and adding 'with reason' to Mercer (1996).

In the following illustration, B2 (Line1405-1406) shared the same perspective as G2, providing reason and elaborating G2's statement (Line1402-1404). B2's building up on G2's statement may be viewed as a kind of cooperation. Similarly, G2 (Line1412-1413) shared the same perspective as B1 (Line1409-1410), providing reason and cooperatively elaborating B1's statement.

Illustration on *Cooperative Elaboration*:

Instruction: Share an incident illustrating the picture cue card (fainting).

Group-talk (GT/ScD5Ai)   **(Commentary)**

Line 1402-1404 G2: *Let the injured person sit down. The head* **(Assertion)**

                           should slightly bend down. The purpose...

1405-1406 B2: *There is only one purpose. It's to make him* **(Cooperative**

             comfortable.   **Elaboration)**

1407   B1: *Bye-bye*   **(Fun)**

1408   G2: *Bye-bye*   **(Fun)**

1409-1410 B1: *If the injured person faints, lay him down,* **(Assertion)**

             lift up his legs.

1411   G1: *The purpose is*   **(Assertion)**

1412-1413 G2: *So the blood from the legs can flow back to* **(Cooperative**

             the brain.   **Elaboration)**

4.2.2.i.C — *Constructive Conflict*

**Table 4.4 Comparison of *Constructive Conflict* with Genuine Argument
and Exploratory Talk**

Bennett & Dunne (1991:117)	Mercer (1996:369)	Current Findings

Genuine Argument
 	
"Explicit logical solutions";
 	
"Use of 'because & 'same' as logical connectors".
	Exploratory Talk
	
	"Occurs when partners engage critically but constructively with each other's ideas … may be challenged and counter-challenged, but challenges are justified and alternative hypotheses are offered. Knowledge is made publicly accountable and reasoning is visible. Progress then emerges from the eventual joint agreement reached."
		● *Constructive conflict*
		   (Diverse perspectives; reason)
		● Diverse perspectives
		● Not necessarily using 'because' or 'same'
		● Open conclusion
		   Not necessarily eventual joint agreement.
		** Peers' arguments evaluated, challenges justified, alternative hypothesis offered
		** With reasoning
		** Openness to listen to others and prepared to have views challenged
		* Logical solutions

● New findings; ** Similar to Mercer (1996:369);

* Similar to Bennett & Dunne (1991:117)

The new finding *Constructive Conflict* was a mode of group-talk, signifying diverse

perspectives with reasons. 'Conflict' implied diverse perspectives. Although there

were disagreements, children were open to listen to others and 'constructive' to

build conflicting views with reasons. Although *Constructive Conflict* suggested children were 'genuine' in their 'argument', Bennett & Dunne's (1991:117) term "Genuine Argument" was not used here because the latter did not connote 'construction'--- the building up process. Mercer's (1996:369) term "Exploratory talk" was not used because "exploratory" seemed more concerned with 'exploring --- finding out something' than 'constructive --- building up.'

Illustration of *Constructive Conflict*

Instruction: "Do we need to attend school in the future?

Will Mr. Lau, the teacher, be jobless? Give reasons if you think he will or won't."

Group-talk (GT/ScF5Bi)   **(Commentary)**

Line12   G1:   I think we need to attend school

             in the future, because Mr. Lau

             won't teach us at home.

  13   G2:   We'll all use computers.   **(Diverse perspective, reason)**

  14   G1:   I think we won't because not   **(Diverse perspective, reason)**

             everyone has a computer.

  15   B1:   I think we'll all have a computer in the   **(Diverse perspective, reason)**

             future because even now it's very common.

  16   B2:   Even if each has a computer in the   **(Diverse perspective, reason)**

             future, we still need the extra-curricular

             activities provided by the school.

There were five diverse perspectives presented from G1(Line12), G2(Line13),G1(Line14), B1(Line15) and B2 (Line16) and they all provided reasons for the conflicting ideas. It was similar to Mercer's (1996:369) "Exploratory Talk" in that "challenges are justified and alternatives are offered". Another property of Mercer's (1996:369) "Exploratory Talk", "openness to listen to others and prepared to have views challenged", was also evident. The children

were respectful to the former speaker, even when disagreeing with the idea. The process of engaging critically and constructively with each other's ideas was striking. G2, G1, B1 and B2 (Line13-16) built on each other's idea while projecting their own conflicting view with reason.

Constructive Conflict was similar to Bennett & Dunne's (1991:117) "Genuine Argument" as both demonstrated "logical solutions". The illustration showed that children were logical with reasons. *Constructive Conflict* was different from Bennett & Dunne's (1991:117) "Genuine Argument with because and since as logical connectors". As the current findings were Chinese translations, the Chinese logic was not necessarily marked by 'because or since'. As long as the exchanges conveyed diverse perspectives with justification, even without specific logical connectors, the discourse would be considered to be *Constructive Conflict*.

The greatest difference from Mercer (1996) was that progress did not necessarily emerge from eventual joint agreement reached. The new finding was open conclusion. It was as children in the interview mentioned, "We recorded different views" (Child18ScF5B); or "We wrote all the points" (Child19ScE5H). Mercer's (1996:369) "eventual joint agreement reached" seemed to suggest consensus and conclusiveness. It appeared similar to some children's responses in the interviews, "We voted for the best answer in the conclusion" (Child10ScB5A), or "If there's disagreement, we won't write it down" (Child20ScE5H). In the current findings, open conclusion suggested that all disagreements or conflicting views would be reported, without any consensus or joint agreement reached.

In both Mercer's (1996) Exploratory Talk and in the current study, the group-talk was constructive. It was the open conclusion in *Constructive Conflict* that marked the openness to conflicting ideas. There was no implication of "eventual joint

agreement reached" (Mercer, 1996:369) or consensus in the conflict. That was why the word Conflict was used in *Constructive Conflict*. If "eventual joint agreement" (Mercer, 1996:369) was expected, there might be a suppression of different conclusions, an advocate of quick compromise, or an absence of disagreements.

4.2.2.ii Group-talk accounting for the linguistic process

The linguistic process, involving the content, function and sentence structure of *Assertion, Cooperative Elaboration,* and *Constructive Conflict* is summarized below in Table 4.5; their linguistic process is then related to those of Bennett & Dunne (1991) and Mercer's (1996) group-talk.

Table 4.5 Linguistic process in *Assertion, Cooperative Elaboration* **and**

Constructive Conflict

Group-talk	Content	Function	Sentence structure
Assertion	1.Diverse perspectives 2. No reasoning	Children assert their individualized decisions without reason and they are not necessarily responding to the previous speaker.	1. Short exchanges 2.Simple statements without constructive conflicting ideas
Cooperative Elaboration	1.Similar perspectives 2. No constructive conflicting opinion 3.With reasoning	Group members cooperatively supplement their peers' views with reasons.	1.Complex sentences with repetition, confirmation or elaboration. 2.Not necessarily using 'since', 'then', or 'because'
Constructive Conflict	1.Diverse perspectives 2.With reasoning 3. Logical solutions 4. Openness to listen to others and prepared to have views challenged 5. Open conclusion	'Constructive' because peers' arguments are evaluated, challenges are justified, and alternative hypotheses are offered 'Conflict' because they are arguments or conflicting views.	1.Complex sentences with reasons in diverse perspectives. 2.Not necessarily using 'because' or 'same'.

4.2.2.iii How much do Bennett & Dunne (1991) and Mercer's (1996) group-talk

   account for the linguistic process?

Bennett & Dunne (1991) and Mercer's (1996) group-talk partly accounted for the

linguistic process of *Assertion, Cooperative Elaboration,* and *Constructive Conflict.*

Concerning content, *Assertion* involved diverse perspectives without reasoning.

'Diverse perspectives' was similar to Mercer's (1996:369) "individualized

decision-making" and 'without reasoning' was similar to Bennett & Dunne's

(1991:117) "no explicit reasoning". What was not accounted for was that *Assertion*

was with diverse perspectives and not necessarily with argument in Bennett &

Dunne's Primitive Argument or dispute in Mercer's Disputational Talk.

Cooperative Elaboration involved similar perspective with reasoning. 'Similar

perspective' was similar to Mercer's (1996:369) "build positively but uncritically".

'With reasoning' was similar to Bennett & Dunne's (1991:117) "logical and

reasoned". Bennett & Dunne did not account for 'cooperation' and Mercer did not

account for 'reasoning' in *Cooperative Elaboration. Constructive Conflict* involved

diverse perspectives with reasoning. 'Diverse perspectives' was similar to Mercer's

(1996:369) "alternative hypothesis". 'Reasoning' was similar to Bennett & Dunne's

(1991:117) "logical solution". What was not accounted for was the 'Open

Conclusion' in *Constructive Conflict* which suggested that the group's diverging

conflicting views might be retained, and not necessarily with "eventual joint

agreement reached" as in Mercer's (1996:369) Exploratory Talk.

Concerning function, *Assertion* was similar to Mercer's (1996:369) "individualized

decision-making" not necessarily responding to the previous speaker. *Cooperative*

Elaboration whereby children co-constructed common knowledge was similar to

Mercer's (1996:369) "build positively". In *Constructive Conflict,* 'constructive'

was similar to Mercer's (1996:369) "peers' arguments were evaluated, challenges

were justified, and alternative hypothesis was offered", and 'conflict' was similar to

Mercer's (1996:369) "ideas may be challenged and counter-challenged".

Concerning sentence structures, *Assertion's* 'short exchanges' was similar to Bennett & Dunne's (1991:117) "simple statements" and Mercer's (1996:369) "short exchanges". *Cooperative Elaboration's* 'complex sentences with repetition, confirmation or reasons' was similar to Mercer's (1996:369) "repetition, confirmation and elaboration". *Constructive Conflict* was similar to Mercer's (1996:369) "complex sentences" but not necessarily with Bennett & Dunne's (1991:117) "using because and same as logical connectors".

On the whole, Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk appeared to account mostly for the function and sentence structures. However, they seemed to account partially for the content of the linguistic process of *Assertion, Cooperative Elaboration* and *Constructive Conflict*.

4.2.3 Cognitive Process

Current findings on the quality of group-talk included the identification of the processes of *Assertion, Cooperative Elaboration* and *Constructive Conflict*. *Assertion* indicates diverse perspectives without reasons, *Cooperative Elaboration* indicates same perspectives with reasons and *Constructive Conflict* indicates diverse perspectives with reasons. All three types of group-talk seemed to infer the cognitive process of thinking. In *Assertion*, diverse perspectives without reason might infer the thinking process of brainstorming. In *Cooperative Elaboration* providing 'reason' for the same perspective was likely to involve thinking. In *Constructive Conflict* providing 'reason' for the diverse perspectives was also likely to involve thinking. Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk seemed to account mostly for the cognitive process of *Assertion, Cooperative Elaboration* and *Constructive Conflict* because the

properties in their group-talk also imply such thinking processes.

4.2.4 Seesaw Process

Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk did not appear to account for the Seesaw Process of the group-talk revealed in the current study. Three Seesaw Processes emerged from the current findings (see 4.6.3). These included (i) Homeostatic Seesaw Process, (ii) High Cognitive Diversity and Low Social Unity Seesaw Process and (iii) High Social Unity and Low Cognitive Diversity Seesaw Process. These Seesaw Processes might be generated in *Assertion, Cooperative Elaboration* or *Constructive Conflict*. Current findings evidenced different emphasis on Social Unity and Cognitive Diversity in group-talk. Findings of research question four suggested Social Unity as including students' maximum participation, group interdependence, humour, disagreement skills or conformity to classroom disciplinary rules; and Cognitive Diversity as including students' reasoning, conflicting views, or open conclusion. Suppose Social Unity was emphasized and Cognitive Diversity was played down (or vice versa), it was like the upward and downward position of a seesaw. For example, in "High Social Unity and Low Cognitive Diversity Seesaw Process", the group-talk might show interdependence (high Social Unity), but no reasoning (low Cognitive Diversity) (see 4.6.6). In "High Cognitive Diversity and Low Social Unity Seesaw Process" the group-talk might show conflicting views (high Cognitive Diversity) but no peer acceptance (Low Social Unity) (see 4.6.5). In "Homeostatic Seesaw Process", there might appear to be equilibrium between Social Unity and Cognitive Diversity (see 4.6.4). For example, there might be conflicting views (high Cognitive Diversity) and humour (high Social Unity). As well as equilibrium, Homeostasis connoted self-regulation and movement in attaining internal harmony of a system (Cannon, 1932). In the Homeostatic Seesaw Process, equal emphasis was given to Social Unity and Cognitive

Diversity that might be in a two-way movement, displaying self-regulation. For example, students' self-regulated conflicting views (high Cognitive Diversity) might stimulate group members' maximum participation (high Social Unity). The maximum participation (high Social Unity) might further move group members' initiation or self-regulated generation of conflicting views (high Cognitive Diversity).

Bennett & Dunne (1991) and Mercer's (1996)) quality of group-talk seemed not accounting the concept of self-regulation and movement in order to maintain equilibrium as in Homeostasis; or the self-regulation and movement in order to enhance the fun a seesaw brings in the Seesaw Process of group-talk.

4.2.5 Socio-emotional Process

Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk also seemed not to account for the socio-emotional process found in the current study. Socio-emotional process appeared to involve students' maximum participation, group interdependence, humour, disagreement skills or conformity to classroom disciplinary rules (see 4.5.3). Most group-talk evidenced the active participation of each group-member. Most children showed interdependence within the group to achieve the group-goal. Some students brought humour, but did not jeopardize classroom discipline. Some even displayed disagreement skills. Most children tended to show positive socio-emotional feelings, lubricating academic conflict in group-talk. Most children also expressed in the interviews that they liked group-talk because it was fun.

4.2.6 Summary

Bennett & Dunne (1991) and Mercer (1996) seem to account mostly for the 'Linguistic' and 'Cognitive' processes, but they do not acknowledge the 'Seesaw' and 'Socio-emotional' processes identified in student group-talk through this

inquiry.

4.3 Findings of Research Question 2

4.3.1 Findings of Question 2a: What do students perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed students' classroom behaviour and analysis of students' group-talk in classroom?

Through interviews, students revealed how they perceived disagreements (academic conflict) in group-talk. Sample responses and their relevant categorization are presented in Table 4.6. Students' perception might be checked against their classroom behaviour and group-talk analysis included in Table 4.7. From the interviews, 75 % of the children (108 out of 144 children interviewed) gave negative comments on disagreements in group-talk. They mostly preferred 'peer social acceptance' to conflicting views. However, through group-talk analysis, most children demonstrated conflicting views in *Assertion* or *Constructive Conflict*. Again from interviews, children claimed that they would settle disagreements in group-talk through the process of 'majority wins'. However, through analysis of all group-talk, 'majority wins' seemed difficult to identify. There appeared to be incongruence of what students 'perceived' (interview responses) and 'did' (group-talk analysis) related to their academic conflict in group-talk. Referring to the following Tables, the codes Ch13ScG5A means the child, class number 13, in School G and in Class 5A; and T6 means Teacher 6.

Table 4.6 Students' perception on factors affecting academic conflict in group-talk

FACTORS	SAMPLE RESPONSES
Reasoning	"Through discussion, we'll think more of the reasons (Ch31ScG5C). "When there's disagreement, we'll think carefully of the different views, & choose the most appropriate one" (Ch31ScG5A). "No reasons are given in the disagreements" (Ch13ScE5H).
Conflicting views versus concurrence-seeking	**conflicting views** "Arguments are good. We can learn from others' opinion (Ch31ScH5A). "If everyone's idea is the same, it's just as one person talking only. It's meaningless" (Ch13ScG5D). "It's poor discussion. Each of us objects other's idea (Ch1ScH5A). **concurrence-seeking** "We talked until we get consensus" (Ch9ScG5D). "A good discussion is without arguments" (Ch18ScH5F). "A good discussion is when we almost all agree" (Ch26ScH5A). "When 2 disagree, other members may judge, or the 2 views can be combined" (Ch31ScG5C).
Concern for Social Acceptance	"It's good discussion when we respect each other" (Ch13ScE5H). "It's not good to have arguments. We'll not play with each other during recess" (Ch22ScF5B). "Disagreement will hurt friendship" (Ch5ScH5A). "Objecting others is not good" (Ch15ScB5A).
Majority wins	"We settle disagreement by votes" (Ch11ScB5A). "We assess the minority's view too" (Ch11ScB5A).
Open versus close conclusion	Open Conclusion "Wrote all the points" (Ch19ScE5H). "Record different views" (Ch18ScF5B). Close Conclusion "If there's disagreement, we won't write it down" (Ch20ScE5H). "We vote for the best answer in the conclusion" (Ch10ScB5A).

Table 4.7 How students' perception on factors affecting academic conflict in group-talk relate to observed students' classroom behaviour & analysis of students' group-talk in classroom

Factors	Classroom behaviour	Analysis of students' group-talk
Reasoning	No prominent observable behaviour.	Some children's perception was not directly reflected in their group-talk. Ch31ScG5C mentioned that through discussion, the group would think more of the reasons. But in the group-talk, reasons were not expressed. However, though Ch13SchE5H perceived that in disagreements, no reasons were given, their groups generated *Constructive Conflict* as were required of them from the task instruction.
Conflicting views versus concurrence Seeking	No prominent observable behaviour.	In group-talk, children showed conflicting views in *Assertion* (without reasons) & *Constructive Conflict* (with reasons). In *Cooperative Elaboration*, they agreed to the former speaker, & supplemented by giving reasons. It appeared that children were able to demonstrate conflicting views and were not adhering to concurrence-seeking. It was only heard from one group-talk, "Do you all agree?" When members said agreed, then the group continued.
Concern for social acceptance	Lesson observation generally reflected that children respected each other.	(i) Children mostly showed their interdependence through co-construction of knowledge in *Assertion, Cooperative Elaboration,* or *Constructive Conflict.* (ii) In some cases, children exhibited humour or disagreement skills lubricating social relationships. (iii) In rare cases, children showed their incompetent social skills by asking group members to shut up, or calling peers "silly pigs" (GT/5DiGp8ScG).
Majority wins	No prominent observable behaviour.	The majority wins seemed more a value perceived by most children, revealed through interviews, but could not be explicitly observed or heard in children's group-talk
Open versus close conclusion	"If all group members agree, put the card on the picture & complete the worksheet." (T.10). No other teachers instructed on conclusion	Children tended to record all the different points in *Assertion, Elaboration* or *Constructive Conflict.* Only when the task instruction required definite answers, then the children gave close conclusion.

4.3.2 Findings of Research Question 2b:What do teachers perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom?

Through interviews, teachers revealed how they perceived students' Academic Conflict in group-talk. Sample responses and their relevant categorization are presented in Table 4.8. Teachers' perception might be checked against teachers' classroom behaviour and analysis of students' group-talk (Table 4.9).

Teachers and students' perceptions of factors affecting students' Academic Conflict in group-talk were quite similar. However, students did not mention teachers' 'task instruction' factor and teachers' did not mention students' 'concern for social acceptance' factor. The 'task instruction' factor appeared relevant to students' generation of Academic Conflict. Although the verbal feedback given by Teachers 5, 14, 16 & 21 in class seemed to refute students' Academic Conflict, students' group-talk in their class was still with Academic Conflict if the task instruction was open-ended.

Through interviews, Teachers 5, 14, 16 & 21 claimed their support for students' disagreements, but in class they seemed to refute students' disagreements. There might be incongruence between teachers' perception (interview response) and what they actually did (classroom behaviour).

Table 4.8:Teachers' perception on factors affecting academic conflict in group-talk

FACTORS	SAMPLE RESPONSES
Task instruction	Improve instruction (T.9) Students are interested, so they'll be willing to think and discuss (T15).
Reasoning	Children had the chance to express their own idea (T.9); Record all points and reasons (T. 8, 22); Children do not give reasons. They just argue and say others are wrong (T.12);Ask children to give reasons instead of arguing (T.20); I didn t see children have different views (T.22)
Conflicting views versus concurrence-seeking	**Conflicting views** Accept all different points (T.20);Good to voice opinions freely (T.8) Others point out mistakes (T.10); Explore thinking (T.12); Children express their different opinions as in debates. It helped creativity (T.10) **Concurrence-seeking** If students argue, ask them to look for the correct answer (T.21). If there are conflicting views, the group-leader will decide which to record (T13). The intelligent opinions of the smart ones would settle the disagreements. (T6, T17).
Majority wins	Cast votes (T.6). Majority wins (T.6, 8, 13, 15) Little chance of majority wins. Children's ideas are similar (T.20)
Open versus Close conclusion	**Open conclusion** Record all different opinions (T.6, T.12, T.14, T15, T20, T.21, T.22) If there's disagreement, record all points & reasons (T.8, 22). **Close conclusion** Students discuss until they reach agreement (T. 9). Conclusion is a compromise (T.22). If there're two opinions, it's not possible to record all (T. 9) Argument is very strong disagreement. One may forbid another from recording it and each stands firm on his/her own idea. They will argue loudly (T.13)

Table 4.9: How teachers' perception on factors affecting academic conflict in group-talk relate to observed teachers' classroom behaviour & analysis of students' group-talk in classroom

Factors Teachers' perception	Observed teachers' classroom behaviour	Analysis of students' group-talk in classroom
Task Instruction	Open-ended instructions Closed-ended instructions	Most *Constructive Conflict* was from open-ended and *Assertion* from closed-ended instructions.
Reasoning	T. 8,15,17 & 22 reminded children to give reasons for their opinions.	T8's written task-instruction was closed-ended. She supplemented it by telling children to supply reasons, making the instruction open-ended. Group-talk under T8, 15, 17 &22 were *Constructive Conflict*.
Conflict views versus concurrenc e-seeking	(i)T. 8, 10, 11, 12, 15, 17, 20 & 22 reminded children to give different views. (ii)T. 5, 14, 16 & 21 forbade children to argue, e.g. T14 to whole class "Good that you're all discussing softly, though there're some arguments." (iii) T.5, T6, T13, T17 asked group leader to decide group's conflicting views.	(i)Group-talk under T8, 11, 12, 15,17 exhibited *Constructive Conflict*. (ii) One section of T5's group-talk generated *Constructive Conflict*, though the teacher asked the children not to argue in class. All the groups under T14 exhibited some kind of *Constructive Conflict*. It seemed related to task instructions. Students of T16 & T21's group-talk were all *Assertion*. It seemed related to task instructions. It was likely that task instructions affected children's generation of *Assertion* or *Constructive Conflict* more than teacher's verbal comment forbidding children to argue.
Majority wins	All teachers did not explicitly ask students to cast votes. From the observed group-talk, children did not show any gestures of casting votes.	Majority wins seemed not well projected in students' group-talk
Open versus close conclusion	"If all group members agree, put the card on the picture & fill the form." (T.10). No other teachers instructed on 'conclusion'.	Children tended to record all the different points in *Assertion, Cooperative Elaboration* or *Constructive Conflict*. Children mostly gave close conclusion when the task instruction required definite answers.

110

4.4 Findings of Research Question 3, "What is the quality of Hong Kong children's group-talk in relation to the linguistic, psychological and cultural levels of analysis as defined by Mercer (1995)?"

4.4.1 Introduction

Mercer (1995) suggests using linguistic, psychological and cultural levels to analyse the quality of children's group-talk. The current results reveal a new set of "linguistic, cultural, cognitive, social, and pedagogical" levels of analysis (Siu, 2002c). 'Social' and 'pedagogical' are the two new levels that might supplement Mercer's (1995) levels of analysis. The social level of analysis in this study refers to whether a pleasant experience for all group members could be achieved through students' social competence such as humour, concern for group-goal, or openness to cognitive diversity. The pedagogical level of analysis in this study refers to how teachers might back up students in the student-controlled group-talk learning process. On the psychological level of analyzing children's group-talk, Mercer (1995) stressed the cognitive aspect of children's co-construction of knowledge, but seemed not clarifying the social level. Moreover, Mercer (1995) appeared not exemplifying the different levels with actual group-talk. Hence, the present findings attempt to offer (a) a new set of "linguistic, cultural, cognitive, social, and pedagogical" levels of analyzing children's group-talk, with new findings on the social and pedagogical levels, and (b) evidence from actual group-talk.

4.4.2 Linguistic Level

Linguistic level of analysis refers to the content, function and sentence structures of the speech acts of students' group-talk (Mercer, 1995). Findings of research question one (Table 4.5) apply to this linguistic level of analysis (See 4.2.2). In review, research question one is "To what extent do Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk account for the processes engaged in by Hong Kong primary school students during group-talk?"

For content, *Assertion* denotes diverse perspectives without reasoning; *Cooperative Elaboration* denotes same perspective with reasoning; and *Constructive Conflict* denotes diverse perspectives with reasoning, allowing open conclusion. For function, in *Assertion* children assert their individualized decisions; in *Cooperative Elaboration* group members cooperatively supplement their peers' views with reasons. In *Constructive Conflict* peers' arguments are evaluated, challenges are justified, and alternative hypothesis are offered, so it embeds *Constructive*; and there are arguments or conflicting views, so it embeds *Conflict*. For sentence structures, *Assertion* is with short exchanges because they are without reasons; *Cooperative Elaboration* and *Constructive Conflict* are complex sentences because they are with reasons.

4.4.3 Cultural Level

Current findings showed that culture seemed to have some impact on children's perception of Academic Conflict in group-talk (Siu, 2002b). The majority of children's responses did not support Academic Conflict (Siu, 2002a). Reasons for this lack of support appeared to be influenced by culture, such as group-goal or peer relationship. However reasons for the minority of children's responses supporting Academic Conflict could also be traced back to cultural influence, again related to group-goal or peer relationship. The difference seemed to depend on how children interpret what is best for the group and the role of peers in the group.

Results from children's interviews on their perception of Academic Conflict in group-talk might be categorized as (i) order versus diversity, (ii) group goal, (iii) peer relationship, and (iv) teacher-student relationship. These categories of children's group-talk will now be analysed in relation to Chinese culture, specifically Hong Kong's culture. In the following section, interviews with the

112

children are quoted as evidence for the analysis. Meanings of the codes used for these interviews are as follows: Child18SchE5F means the child, class number 18, is in School E and is in Class 5 F.

I means interviewer. The interviewer is the author.

B means the interviewee is a boy.

G means the interviewee is a girl.

4.4.3.i Order versus diversity

Many children who refuted Academic Conflict perceived arguments as confusion and a waste of time. They preferred order or strict discipline. This finding seemed to suggest what Murphy (1987) observed as an influence of Confucianism,

> *"Hong Kong students display almost unquestioning acceptance of the knowledge of the teacher or lecturer. ... Coupled with this is an emphasis on strictness of discipline and proper behaviour, rather than an expression of opinion, independence, self-mastery, creativity and all-rounded personal development."* (p.34)

Most children preferred order and discipline to conflicting views. To Child18SchE5F, confusion denotes everyone's idea is different.

I: *"Tell me one example in this year's General Studies discussion that you think is good."*

B: *"No arguments."*

I: *"Quote one example of a poor discussion."*

B: *"There was confusion."*

I: *"What do you mean by confusion?"*

B: *"Everyone's idea is different."*

Child21SchG5H echoed the same preference.

I: "What's the disadvantage of having argument?"

G: "It can be noisy and affect the whole class."

Children rather preferred order to conflicting ideas, although they were aware that the conflicting views were good. Child6SchC5C was precise, *"...some of them were shouting loudly, and criticized other's suggestion, even though they were good."*

Children disliked Academic Conflict and equated it with a poor discussion when members argued. As Child16SchC5C put it,

I: "How's a poor group discussion?"

G: "Members quarrel."

Child5SchC5A, also thought that a poor discussion is one with different views.

I: "Can you think of a good group discussion in General Studies?"

B: "I can't remember."

I: "What about the poorest one?"

B: "This time."

I: "Why?"

B: "Because we have different views."

I: "Why do you think so?"

B: "Because we quarrelled."

Besides a yearning for order, children disliked Academic Conflict because they regarded it as a waste of time. Child4SchE5F was frank,

I: Tell me one example in this year's General Studies discussion that you think it's good.

G: When there were no quarrels.

I: Why were quarrels not desirable?

G: Waste time.

I: Quote one example of a poor discussion.

G: When group members argued.

I: What's your opinion on arguments?

G: I still think that it wastes time.

Children thought it troublesome to have Academic Conflict. To the Interviewer's question, *"How do you settle the disagreement?"*

Child3SchC5A *responded, "It's very troublesome."*

"Why?"

"Mm... We've to choose again."

Children's preference for order rather than conflicting ideas appeared to be influenced by culture. East Asian cultures seem to value discipline.

> *"Discipline is seen as a necessary part and indeed the fundamental part of moral education, because it trains compliance to collective norms. It is not a mere training for obedience as suspected by many observers from the West, not a pragmatic means to keep classroom order."* (Cheng and Wong, 1996:39)

4.4.3.ii Group-goal

How children perceived and would treat Academic Conflict seemed to stem from what they perceived to be the best for the group. Some attained their group goal through conformity while others through diversity. The conformity group would play down disagreements or would prefer single solution for the group-goal. The diversity group would present all the points suggested by each group-member or

would prefer alternative solutions for the group-goal. The following section illustrates children's preference for single solution or alternative solutions to resolve conflicting views.

The common Academic Conflict resolution was 'the majority wins', showing single solution for the group-goal. The following are examples of single solution.

"We vote for the majority." Child9SchC5B

"We usually vote for the majority." Child15SchC5A

"Cast votes." Child14SchD5C

"In the last discussion, one member disagreed with me. So we cast vote and take the opinion of the majority." Child26SchC5C

"We take out the point and opt for the majority." Child16SchC5B

Child22SchC5A explained that it was useless to voice conflicting views because unanimous consensus was expected.

I: Is there any one who disagrees with your view?

G: No.

I: What about if there is?

G: Let it be.

I: Why?

G: Because if others don't agree, it's useless to bring out again.

Consensus was valued.

"*I: Referring to the last two discussions, were there disagreements among the members?*

G: Yes.

I: Give an example please.

G: Last time, we discussed the physical feature of China. Some said the higher the

  colder. Some said the lower the colder. There were some arguments.

I: Eventually what happened?

G: We talked and eventually we came up to some compromise.

I: What kind of compromise?

G: We talked until we reached consensus. " Child9SchG5D

"I: What will you do if there's disagreement?

G: We'll not record it. " Child26SchC5A

"I: What about if you don't agree to it?

G: Then we'll not record it. " Child8SchC5D

"We delete the one that all of us disagree. " Child8SchC5D

"We'll drop the idea we disagree. " Child12SchD5C

"We should get the agreement from all. " Child6SchE5H

Child31SchG5C demonstrated that everybody was involved in the single solution

for the group-goal.

I: Usually when the group members disagree with each other during the

  discussion, how does the group manage it?

B: Think carefully on the different views. Then choose the most appropriate one.

I: Who choose?

B: Everybody.

In most cases alternative solutions were preferred for the group-goal. Most

children mentioned that they would record all the suggestions of the members

when there was Academic Conflict.

Child33SchG5C described how his group would report different ideas when Academic Conflict arose.

I: How did you settle the disagreement?

B: We discussed.

I: Whose idea was reported?

B: Every one's idea.

"We would group all the opinions. Those that were similar were grouped together. Those that were different were reported too. Reasons were given of their preference."
Child4SchG5B

"For example, on 'Will Mr. Lau loss his job', I mentioned something, another member disagreed. We recorded both views." Child18SchF5B

Child28SchF5B, *"All different views will be recorded"*

Children's strong loyalty for the group goal appeared to be much influenced by the Confucian-heritage culture on collectivism (Ho, 1991). It may be that collectivism derives from Confucian notions of order and stability in return for obedience and loyalty to the collectivity. The individual is given security and face (Ho and Chiu, 1994). Children's keenness for maintaining a group goal could be a demonstration of loyalty to the collectivity. Conflicting ideas were streamlined to single solution consensus suggesting order and stability of the group. On the other hand, the individual was given security and face when all alternative solutions were acknowledged. When confronted with Academic Conflict, whether children

expected conformity with single solution or diversity with alternative solutions, they were gearing towards the group-goal of loyalty to the collectivity.

4.4.3.iii Peer relationship

In the interviews, most children disclosed that they would not argue in the group-talk because they did not want to hurt their friends (as expressed by Ch5ScH5A). It was as Cheng (1997:39) observed that Hong Kong students depended heavily on "social relations among students". If students challenged their peers' views in discussion, they might risk alienation from what Cheng (1997:39) observed as "social relations among students."

Suppressing their own conflicting views might be necessary for harmonious relationship, respecting their peer's opinion, or caring for the peers' face. Harmonious group relationship and caring for others' face was much advocated in Confucianism. It might have rooted in "Ren", one of the Five Principles of Confucius teaching. The five Principles are 'Ren', 'Righteousness', 'Rite', 'Intelligence', and 'Trust'. Ren is the highest principle of human action and contains 'compassion', 'perfect virtue', 'love', 'benevolence', 'human heartedness', and 'moral character' (Mei, 1967:152). Ren can be summarized as human heartedness, denoting values such as concern for others, generosity and compassion (Winter, 1995). Research by the Chinese Culture Connection (1987) indicated that Hong Kong rated fourth among twenty-two countries for the value of human heartedness. Compared with America, Chinese valued benevolence highly (Yang, 1986). Ma (1988) even suggests that compassion is enshrined in stages of moral development in Chinese culture. Among the interpretations of Ren, Jin and Cortazzi (1998:109) noted that to achieve Confucian humanitarianism, "avoidance of conflicts" was valued in Chinese communities. These common interpretations of Ren seemed to support the impact of Confucian

humanitarianism on the scarcity of conflict in group-talk.

An interesting response from Child6SchG5A strongly demonstrated the impact of 'human heartedness'. This type of Academic Conflict resolution was just from one child out of the 144 children that the author interviewed. Academic Conflicts were not solved according to the ideas but were solved according to participants taking turns. Concern was for the peer relationship rather than any rationale.

I: What happened when the other three members disagreed?

B: Give them a chance to express their own idea next time.

I: So leave for next time?

B: That is, we'll take turns in being selected for the answer. This time we'll report your idea. Next time we'll report the second member's idea and the third time the third member's idea.

Sentiment was highlighted by Child2SchH5C.

I: Do you think it's good to have disagreement?

G: No, I think it's not a good feeling.

Children thought that Academic Conflict would bring confrontation. As Child33SchG5C acknowledged,

I: Is it good to have different ideas in the group?

B: No. It's easy to have confrontation.

Noticing this tendency towards strong social relationships among students, some teachers in Hong Kong encouraged students to challenge others in discussion, stimulating reflection and cooperation towards higher level thought processes (Biggs, 1996a). The higher level thought processes might be what children perceived as positive in Academic Conflict. In the current research, children who

favoured Academic Conflict expressed that arguments could let them "learn from each other" as Child20SchE5F put it.

Another similar answer was from Child10SchC5D,

"Four of us think of the points. It's better than one."

Stimulation of thinking was recurrent. The Interviewer asked Child6SchC5A,

I: --- Do you think it's good to have disagreement?

G: Yes.

I: Why?

G: We can think.

Another example was from Child27SchG5C,

I: Is it good that the group members have different opinions?

B: Yes.

I: Why is it good?

B: Because suggesting different opinions can make us think and then we can write them down.

Child8SchG5C echoed this appreciation of peer's thinking.

I: Do you think it's good to have disagreement?

G: Yes, because what I think may not be right.

Peer's help for self improvement in Academic Conflict was rephrased by Child28SchF5B.

I: Is it beneficial to have arguments during discussion?

B: Yes.

I: Why?

B: Someone will correct you when you're wrong.

Child33SchG5C exemplified.

I: What do think about disagreement in the group discussion?

G: It's good. When the teacher asked us where we preferred to live, if all group

members had the same answer, then we won't know different responses.

It is interesting to note how Child13SchG5D discovered meaning from the peer's conflicting views.

I: What are some criteria of a good discussion?

B: It'll be a good discussion when there're more disagreement, more different

opinions, and more arguments. If there're no arguments, it'll be dull.

I: Did the teacher encourage the class to have conflicting views?

B: Not much. She said that if we had conflicting views, we had to solve the

problem ourselves.

I: Why do you think that having conflicting views is good?

B: If everyone's idea is the same, it's just as one person talking only. It's

meaningless.

I: Who affects you in this perception?

B: My mother taught me.

A few children indicated that Academic Conflict was good. These children appeared to accept conflicting viewpoints as something necessary for self-improvement. This notion of learning from peers for the sake of one's self may signify an individualistic orientation of learning. It is as De Bary (1983) asserts that the Confucian culture is rich in individualism. He explains that central to the meaning of liberalism in Chinese is the self. For example, bearing the responsibility for oneself is in line with learning for the sake of oneself (Lee, 1996). Learning for the sake of the self is an end in itself rather than a means to an

end (Tu, 1985). It originates from Confucius' dictum in The Analects of Confucius XIV 25 (Waley, 1938).

Respecting peer relationship is a means to an end in Confucian culture. The end is either collectivism or individualism. Children may respect their peers in different ways. They may respect their peers by not voicing conflicting views. These children perceived voicing different ideas as confronting their peers. Rather they preferred to be uncritical or passive towards Academic Conflict. In this way, they thought they might be loyal to the social relationship, a sign of collectivism. On the other hand, another group of children regarded Academic Conflict as a way of respecting their peers. They valued the potential for self-improvement through arguments. This end seems to be individualistic-oriented. Both collectivism and individualism are acceptable in Confucian culture. It depends which end the children choose.

4.4.3.iv Teacher-student relationship

> "Hong Kong students display almost unquestioning acceptance of the knowledge of the teacher or lecturer. This may be explained in terms of an extension or transfer of the Confucian ethic of filial piety." (Murphy, 1987:34)

When confronted with Academic Conflict in their discussion, about 10% of the children in the current study would ask the teacher to resolve the conflict. Children may defer their conflicts to the authoritative figure. The Confucian ethic of filial piety seems to have an impact on children's free flow of conflicting ideas. It may also suggest that there is no ground rule to encourage children's conflicting opinions, or to discourage over-reliance on the teacher for conflict resolution.

Child10SchC5D illustrated how the children relied on the teacher in Academic Conflict.

I: Why was it a poor discussion?

B: Because two classmates have different opinions.

I: Why was it a poor discussion when there was disagreement?

B: They argued which was right or wrong.

I: What's next?

B: We then asked them to stop and asked the teacher to judge.

Child29SchC5D shared the same perception.

G: They have different opinions.

I: How do you settle it?

G: We ask the teacher to decide.

Similarly, Child25SchC5B and Child18SchC5A responded,

I: How do you settle your disagreement?

G: mm ... We ask the teacher.

4.4.3.v Summary

The cultural level of analysing children's group-talk seemed to suggest that culture has some impact on children's perception of either supporting or refuting Academic Conflict.

4.4.4 Cognitive Level

In the cognitive level of analysis, Mercer (1995:1) referred to group-members' construction of knowledge as "sharing knowledge" and "developing understanding" in which "knowledge can be created out of conflict of ideas as much as through the accumulation and combination". Referring to a theory of

how talk is used to guide the construction of knowledge in schools, Mercer acknowledges, "We do not have a satisfactory theory of this process, in my opinion" (Mercer, 1995:84). For any study which aims to build theory on construction of knowledge, Mercer (1995) has suggested three criteria. The first criterion is that the study needs to illustrate how children work with information. The second criterion is context and the third criterion is continuity.

"If a theory is going to explain how talk is used to create knowledge and understanding in the classroom, it must also incorporate two concepts: context and continuity." (Mercer, 1995:68)

The group-talk itself creates its context. What the children say at one time in a conversation creates the foundation for meanings in the group-talk that follows. Similarly, for the concept of continuity, in the process of creating knowledge:

"... the themes must emerge and continue, explanations must be offered, accepted and revisited, and understanding must be consolidated."
(Mercer,1995:68)

From the current study, ample examples that met Mercer's three criteria might be found. The following sections illustrated these examples.

The results showed that no matter whether the type of group-talk was *Assertion, Cooperative Elaboration* or *Constructive Conflict*, the groups showed some signs of construction of knowledge. Findings showed that children shared and developed knowledge through Mercer's (1995) three theory-building criteria for construction of knowledge, namely (1) incorporating context; (2) incorporating continuity; and (3) working with information, meaning selecting from it,

organizing it, and arguing for its relevance. From the current study, a fourth criterion could be added: (4) initiating questions for extension, such as, encouraging peers to elaborate, or requesting peers' help.

4.4.4.i Incorporating Context

In the current study, if the task instructions were open-ended, children would likely incorporate what they had experienced in other contexts to create the foundation of meanings in the group-talk. For example, in the following group-talk, student G2 tried to incorporate her experience in other contexts (watching television) to contribute an idea on information technology (Line 2273) for construction of meaning in the group-talk.

Instruction: List the pros and cons of information technology.

	Group-talk (GT/5BiGp3SchF)	**(Commentary)**
Line 2271 G2:	*I have watched a show on TV.*	**(Assertion)**
2272 B2:	*Oh that's long time ago.*	**(Assertion)**
2273 G2:	*It said that the technology would be advanced and*	**(Assertion)**
	the computer could replace all jobs.	

4.4.4.ii. Incorporating Continuity

For incorporating continuity, "the themes must emerge and continue, explanation must be offered, accepted and revisited, and understanding must be considered" (Mercer, 1995:68). In the current study, *Cooperative Elaboration* and *Constructive Conflict* group-talk would likely incorporate continuity because explanations were offered. *Assertion* group-talk appeared like brainstorming and seemed not likely to incorporate continuity because explanations were not offered. Examples of *Cooperative Elaboration* and *Constructive Conflict* could be found in Section 4.2.2.i.B and Section 4.2.2.i.C.

<u>*4.4.4.iii Working with information*</u>

(4.4.4.iii .A) Selecting from information

Children mostly selected information from their previous knowledge, their peers, and their teachers or from the text. They usually referred to the text to ensure that the right information was selected.

Group-talk (GT/5BiiGp3SchG)	**(Commentary)**
Line78 G3: *Why? Let's go the textbook. On the temperature, it's here- page 17, second paragraph.*	**(Assertion)**

(4.4.4.iii.B) Organizing information and arguing for its relevance

Children were conscious about their task instructions. It was common that children argued whether the content was relevant to task instructions; and whether ideas were correct, logical and convincing. They were more concerned about the relevance of content than presentation.

In the following exchanges, G2 was clear in arguing why B2's argument was irrelevant to the instruction (Line 2597-2598). B1 and G1 then gave relevant views basing on G2's argument. There was cooperation in knowledge building.

Group-talk (GT/5AiGp6SchD)	**(Commentary)**
Line 2591 G1: *What's the behaviour of the driver?*	**(Question)**
2595-2596 B2: *I guess the driver should be scared. He hit a person.*	**(Assertion)**
2597-2598 G2: *How did he behave? Not how he looked. You are wrong.*	**(Question)**
2599-2601 B1: *I think when the driver encountered anything unexpected, he didn't know what to do.*	**(Assertion)**
2602-2603 G1: *I think the driver was good, otherwise he won t listen to the pedestrians.*	**(Assertion)**

127

Children were also found arguing for relevancy.

	Group-talk	**(Commentary)**
	(GT/5AiiGp3SchB)	

Line 2831	B1:	*Space and distance. Doves*	**(Assertion)**
		can deliver the letters.	
		Good memory.	
2832	B1:	*Doves have good memory.*	**(Assertion)**
2833	G1:	*What happen if they*	**(Stimulates peers to rethink)**
		haven't been there?	
2834	B2:	*Train them.*	**(Assertion)**
2835	G2:	*Efficiency?*	**(Stimulates peers to rethink)**
2836	B1:	*They need long training if*	**(Cooperative Elaboration)**
		they travel a long journey.	
2837	G2:	*What's the efficiency?*	**(Stimulates peers to rethink and arguing for relevancy)**
2838	B2:	*After training, the doves*	**(Assertion)**
		know their destination.	
2839	G1:	*But they don't if it's a new*	**(Assertion. Working with information**
		route.	**— arguing for relevancy)**
2840	G2	*What's the efficiency?*	**(arguing for relevancy)**

Sometimes, children argued whether their peers' ideas were logical

	Group-talk (GT/5AiGp7SchD).	**(Commentary)**

Line 304	G2:	*Mildly injured? No, mildly injured won't cause bleed.*	**(Constructive**
		Moreover, itching is not the point, itching won't cause	**Conflict)**
		insufficient blood circulation in the brain.	

They also alerted others to be convincing. It was essential that in knowledge construction, children accounted for the information they held.

	Group-talk (GT/5AiiGp4SchG)	**(Commentary)**
Line 71 B1:	*Taiwan.*	**(Assertion)**
72 B3:	*We need to find the reason. We can't express just like this.*	**(Assertion)**
73 B1:	*Because of the summer monsoon wind, there's more rainfall.*	**(Cooperative Elaboration)**
74 B3:	*Taiwan, because of the summer monsoon wind, there s more rainfall.*	**(Cooperative Elaboration)**

4.4.4.iv Initiating questions for extension

To supplement Mercer's three criteria on knowledge construction, a fourth criterion might be added. It emerged from the current study. Children were found initiating questions for extension of knowledge, such as encouraging peers to elaborate or asking peers' help. The following section is to provide evidence for this fourth criterion.

(4.4.4.iv.A) Encourage peers to elaborate

Through questions children encouraged peers to elaborate, contributing to knowledge construction. **GT/5AiiGp3SchB**

	Group-talk	**(Commentary)**
Line 378 G1	*No operation in the Airport.*	**(Assertion)**
379 G2:	*What else?*	**(Question: requesting peers to elaborate)**
350 B2:	*Traffic is convenient.*	*(Assertion)*
351 G1:	*What else? Can't think of any?*	**(Question: requesting peers to elaborate)**
352 G2:	*Let's think.*	**(Assertion: for group-goal)**

129

<u>(4.4.4.iv.B) Request peers' help</u>

Example 1: <u>**Asking help on penmanship**</u> **(GT/5AiGp4SchB)**

	Group-talk	*(Commentary)*
Line 259	B1: *Furniture, how to write this word?*	**(Question; asking for help)**
260	G2: *I'll show you.*	**(*Assertion*: offering help)**
261	B2: *No, not like this one*	**(*Assertion*: checking)**
262	B1: *You write then.*	**(*Assertion*: asking for help)**

Example 2: <u>**Asking help on explanation**</u> **(GT/5AiGp4SchB)**

	Group-talk	**(Commentary)**
Line 297	G2: *What does industry mean?*	**(Question:**
		requesting help)
298	G1: *No gas, no coal, we've discussed what*	**(Cooperative Elaboration)**
-299	*Hong Kong will be if there is no gas and*	
	coal. Let's discuss on the part of traffic.	

<u>4.4.4.v Summary</u>

On the cognitive level of analysis, current findings supported Mercer's (1995) three criteria on construction of knowledge. These included: (1) incorporating context, (2) incorporating continuity; and (3) working with information). A fourth criterion seemed to emerge, namely, initiating questions for peers' knowledge extension.

4.4.5 Social Level

Findings from the current research may support that conflict can promote interpersonal relation. Some children, having conflicting ideas in *Assertion* or *Constructive Conflict*, could still promote positive social relationship. There seemed to be no relationship between cognitive performance and social competence. Children providing no rationale for *Assertion* and those providing

rationale for *Constructive Conflict* could instil a happy atmosphere in the group. This social level of analysis is a new finding to supplement Mercer's (1995) set of analysis in investigating the quality of children's group-talk.

The social level of analysis was mainly concerned with whether a pleasant experience for group members could be attained through social competence. The following section illustrates this social level such as, (i) humour versus rule abiding, (ii) social harmony versus social disharmony, and (iii) openness to cognitive diversity versus adherence to concurrence-seeking.

4.4.5.i Humour versus rule abiding

"Laughing is a way of dealing with conflicts." (Tjosvold, 1993:55). No matter which types of group-talk the children adopted --- *Assertion, Cooperative Elaboration* or *Constructive Conflict*, some children cracked jokes and laughed as a way to avoid discussing the arguments directly. It is possible that they wanted to diminish the issue. Very often, the children who cracked jokes were reminded by their peers to resume on-task behaviour. Some children showed their humour while others did not and were anxious about rule abiding. The humour may have served to minimize the rigidity of rule abiding, making group-talk fun. It appeared that while engaged in group-talk, children laughed to show they were enjoying the excitement of the talk or arguments and appreciated getting involved.

Children's humour was shown in the following extract. When discussing whether the teacher would lose his job in the future, B2 cracked the joke that the teacher wanted to be Confucius II. Though he was confronted by B1, he tried to respond respectfully, twisting his previous mischievous statement to something acceptable. The humour, indeed, lightened up the group-talk. However he was immediately reminded to be rule abiding by G2.

Line 2340-2341 *G1: Can Mr. Law change his job nature,* **(Question)**

such as writing homepage?

2344 *B2: No.* **(Assertion)**

2345 *B1: No.* **(Assertion)**

2346 *G2: So he will lose his job.* **(Assertion)**

2347-2348 *G1: But if he makes a disc on general* **(Constructive Conflict)**

knowledge ...

2349 *B1: He won't lose his job if he has* **(Constructive Conflict)**

money.

2350 *B2: And he wants to be Confucius II.* **(Assertion)(Humour)**

2351 *B1: How do you know?* **(Question)**

2352-2353 B2: *Are we not talking if he will lose his* **(Question:**

job in teaching? **reminding group-goal)**

2354 *G2: We are out of question now.* **(Assertion:**

reminding group-goal)

Again, laughter was coupled with reminder to be rule abiding.

Group-talk (GT/5DiiGp6SchC) **Commentary**

Line 409-410 *B1: (Laughs) The space museum is like* (Assertion)

pineapple bread. (Group laughs).

411-412 *B2: (Laughs) Hong Kong is at its peak in* (Assertion)

tourism. (Laughs)

413 *G1: Write! Be quick!* (Assertion)

When the group considered whether hunger would cause fainting, B1 brought in humour which lightened up the seriousness of a discussion.

	Group-talk (GT/5AiGp2SchD)	**(Commentary)**

Line 2091 *B2:*   *Ok, what about too hungry?*   **(Question)**

     2092 *G1:*   *It will.*   **(Assertion)**

     2093 *B1:*   *So we'll not go to Macdonald.*   **(Assertion) (Humour)**

The following example of humour also created pleasant experience for group-members.

     Group-talk (GT/5Ai/Gp3/SchB)   **(Commentary)**

Line 25   G2:   *If there's no electricity, everywhere will be* ***(Assertion)***

            dark.

   26-   B1:   *If there's no gas, it'll be dark at night and* ***(Cooperative Elaboration)***

   27   *we can't take a bath.*

   28   B2:   *No hot water when we want to take a bath.* ***(Assertion)***

   29   G2:   *We'll be dirty all over.*   ***(Cooperative Elaboration)***

   30-   B2:   *Not dirty. But if you want to take a bath,* ***(Cooperative Elaboration;***

   31   *you'll be frozen to death.* (Group Laughs). **Humour***)*

Children were laughing at their own and at other group member's suggestions. They laughed at their predicaments and made jokes at the expense of their peers. In a way, they teased their team-mates to get their attention and to raise the climax of the group-talk. In the quoted cases, luckily the teasing did not invoke anger.

4.4.5.ii Social harmony versus social disharmony

Whether the group-talk was *Assertion*, *Elaboration*, or *Constructive Conflict*, most groups demonstrated group dynamics for social harmony, such as concern for group-goal, with emergent group-roles, indicating group interdependence.

Ample examples could be found in the current study. The following illustrates social harmony through attending group-goals and group-roles.

(4.4.5.ii.A) Group goal:

Attention to group-goal was demonstrated when group-members alerted each other to give responses relevant to task instructions. The following was an example.

	Group-talk (GT/5CiGp7SchC)	**(Commentary)**
Line 308	*B1: There're lots of cultural sites.*	**(Assertion)**
309	*B2: Variety of cultural sites.*	**(Assertion)**
310	*B1: Capital.*	**(Assertion)**
311	*G2: That can support industries in Hong Kong.*	**(Cooperative Elaboration)**
312	*B2: No, we should write finance.*	**(Assertion)**
313-314	*B1: Ah, yes! It should be related to "reasons for the blooming of tourism in Hong Kong."*	**(Cooperative Elaboration)**

<u>(4.4.5.ii.B)Emergent group-roles:</u>

In the following extract, Boy2 and Girl2 emerged as leaders, with different roles.

Group members acknowledged their leadership.

Line	Group-talk(GT/5DiiGp8SchC)	Commentary
82-83 B2:	*Ah, yes! It should be related to "reasons for the blooming of tourism in Hong Kong."*	**(Initiates new perspective)**
83-84 *G2:*	*Let's stop talking about food. Let's talk about the tourist site or where to go for shopping.*	**(Leadership: Twist of discourse to be relevant to instruction)**
85 *G2:*	*So where will they go in the morning?*	**(Group-goal: reminds peers the task instruction and the incomplete program in the morning.**
86 B2:	*Why is it like that?*	**(Leadership: seems checking the written answer and spotting some mistakes)**
87 *G2:*	*Let's rub it off.*	**(Group-goal. Leadership shown. Offers solution rather than accusing. Social skill on problem Solving)**
88 *G1:*	*We can rub it?*	**(Acknowledges peer's leadership. Interdependence: asking peer s reassurance)**
89 *B1:*	*Write the peak.*	
90 *G2:*	*The Peak. The word is written wrong.*	**(Leadership: gives precise answer; spots mistakes)**
91 *B2:*	*Use tissue to rub it off. Who has tissue?*	**(Leadership: offers efficient solution to problem)**
92 *G1:*	*What else after going to Ocean Park?*	**(Seems to ask leader's direction)**
93 *B2:*	*Going to Ocean Park again!*	**(Group-goal: angry at the mistake of peers)**
94 *G2:*	*Write between the lines.*	**(Leadership: diverts the unpleasant situation. Offers practical solution)**
95 *G1:*	*They say so. Why do you scold me?*	**(Acknowledges peer's leadership)**
96 *G2:*	*Please rub it off.*	**(Leadership: directs politely)**
97 *B1:*	*It's OK. It's understood.*	**(Pacifying)**
98-99 G2:	*Here's the tissue! You think while I'll rub it off.*	**(Leadership: solves the problem promptly)**

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<u>*4.4.5.iii Openness to cognitive diversity versus adherence to concurrence-seeking*</u>

In *Constructive Conflict*, most children seemed to be open to listening to conflicting views and open to accepting challenges. On this issue of civility, children admitted in their interviews that they thought arguing was impolite. Those children who welcomed arguments perceived Academic Conflict as helping their learning. This positive perception towards Academic Conflict might enable them to be open to cognitive diversity. If being open and cooperative ceased to be a pleasant experience, the children might approach group-talk reluctantly.

<u>*4.4.5.iv Poor social skills*</u>

Although rare, sometimes the children were found accusing someone of making mistakes. They appeared to have poor social skills. However, being accusatory might mean that the children were still egocentric as in the following example

	Group-talk *(GT/5AiGp4SchB)*	**(Commentary)**
Line *461*	G2: *Don't talk of other things. Think seriously.*	*(Assertion)*
462	B1: *Generate electricity.*	*(Assertion)*
463	G1: *Gas can generate electricity. That's all.*	*(Assertion)*
464	B2: *No, it can't.*	*(Assertion)*
465	G1: *It can't. It's generated from coal.*	*(Cooperative Elaboration)*
466	B1: *I let you bear the responsibility of this mistake.*	*(Assertion; **Poor social skill: accusing others upon conflicting ideas**)*

The social level of analysis in the current study appeared to be a new level supplementing Mercer's (1995) levels of analysing children's group-talk. This new level, incorporating humour, social harmony, and openness to cognitive diversity seemed essential to lightening up Academic Conflict, and making group-talk a pleasurable experience.

4.4.6 Pedagogical Level

4.4.6.i Introduction

Another level of children's group-talk analysis that emerged from the current study but not related by Mercer (1995) was the pedagogical level. Table 4.10 summarizes different pedagogical practices that seem to be related to the generation of *Assertion, Cooperative Elaboration* and *Constructive Conflict.* There were also similar pedagogical practices related to generating any type of group-talk (Table 4.11). Moreover, open-ended task instructions appeared to be related to facilitating *Cooperative Elaboration* and *Constructive Conflict* while close-ended instruction appeared to be related to facilitating *Assertion* (Table 4.12). The pedagogical level of analysis seemed to suggest how the teachers might back up students in the student-controlled group-talk learning process.

Table 4.10 Different Pedagogical practices generating Assertion, Cooperative Elaboration & Constructive Conflict

Pedagogy	*Assertion*	*Coop. Elaboration & Constructive Conflict*
Task Instruction	**Closed-ended Task Instructions** Referring to the list of task instructions & their relationship with the quality of children's Talk (Table 4.12), it seemed likely that closed-ended task instructions were related to the generation of Assertions. Schools and classes mostly generating Assertions were: School B 5A Day 2; School C 5A, 5B, 5D; School G 5A, 5C, 5D; School H 5B. (Note: School C 5C had the same task instructions as 5A, B & D, but children mostly generated *Constructive Conflict*)	**Open-ended Task Instructions** Referring to the list of task instructions & their relationship with the quality of children's Talk (Table 4.12), it seemed likely that open-ended task instructions were related to the generation of *Cooperative Elaboration* and *Constructive Conflict*. Schools and classes mostly generating *Cooperative Elaboration* and *Constructive Conflict* were: School B 5A Day 1; School D 5A, 5B, 5C; School E 5F, 5H; School F 5B; School G 5B; School H 5A, 5C.
Teacher's Scaffold on Children's Reasoning	**Children not reminded to give reasons** Teachers other than those listed in the right column were not heard reminding children to give reasons.	**Children reminded to give reasons** From the lesson observation and taped children's group-talk, the following teachers could be heard reminding the class to give reasons in the discussion. School C 5C Teacher 8; School D 5B Teacher 11; School F 5B Teacher 15; School G 5B Teacher 17; School H 5B Teacher 22.

(to be continued)

138

Table 4.10 (Continued) Different Pedagogical practices generating _Assertion_,

Cooperative Elaboration & Constructive Conflict

Pedagogy	Assertion	Coop. Elaboration & Constructive Conflict
Post discussion report	**No Group Report** Classes did not have group reports.	**Group Report** Teacher 8,11,12,14,15,17,18,20 and 22 facilitated Post-discussion group reports. **Group Report & Peer Evaluation** Additional peer evaluation were conducted from: School C 5C Teacher 8; School E 5 School G 5B Teacher 17; School E 5H Teacher 14; & School H Teacher 22.
Practice in group discussion	**Little group-discussion experience** It was the first group-discussion of Class 5B (School H) in General Studies lessons in that academic year. Children mostly generated _Assertions_. ("Unable to cover syllabus, hence little group-discussion" T21.)	**More group-discussion experience** Most children expressed in the interview that they liked group-discussion and it was often conducted in General Studies lessons. It might help them in polishing their justification or disagreement skills, essential in generating _Cooperative Elaboration_ and _Constructive Conflict_.

Table 4.11 Similar pedagogical practices generating *Assertion,*

Cooperative Elaboration **and** *Constructive Conflict*

Pedagogical Practice	Relation with generating *Assertion, Cooperative Elaboration* and *Constructive Conflict*
Clear explanation of task instruction	In all classes teacher explained what were required from the students. So no matter which mode of group-talk the children were generating, their discussions were mostly relevant to the task instructions.
Secure social relationship	Teacher-pupil relationship and peer relationship seemed good. In most groups, all group members participated in giving *Assertion* or *Constructive Conflict*. They appeared secure to voice their diverse perspectives.
Discipline	Teachers supervised them during their discussion. Children were mostly on-task. Children could keep their *Assertions, Cooperative Elaboration* or *Constructive Conflict* on going without too much repetition. Most groups could complete their task through group-talk in the specified short allocation of time.
Resources	Brochures, pictures, case studies, maps, videos & textbooks enabled children to have something to base on for the generation of *Assertions, Cooperative Elaboration* or *Constructive Conflict*.

Table 4.12 Instructions generating *Assertion, Cooperative Elaboration & Constructive Conflict*

Sc	cl	Task Instructions	Ass	Co	CC
B	5a	Day1: What happens if we've no electricity and gas? Why do people grow trees?			8/8 gps
		Day2: What is the difference in time, space & distance on past and present communication?	8/8 gps		
C	5a	Day1: Give reasons for the blooming of tourism in Hong Kong.	8/8 gps		
	5b	Day1: Give reasons for the blooming of tourism in Hong Kong.	8/8 gps		
		Day2: Design a 2-day trip for tourists in Hong Kong.	8/8		
	5c	Day1: Give reasons for the blooming of tourism in Hong Kong.		8/8 gps	
		Day2: Design a 2-day trip for tourists in Hong Kong.		8/8 gps	
	5d	Day1: Give reasons for the blooming of tourism in Hong Kong.	8/8 gps		
		Day2: Design a 2-day trip for tourists in Hong Kong.	8/8		
D	5a	Day1: Share an incident exemplifying the picture cue card(e.g. fainting)		8/8 gps	
	5b	Day1: Referring to the diagram on the Worksheet, discuss (i) how does the driver behave, (ii)how do the passers-by behave, (iii)when no one calls for the ambulance, what will happen?		8/8 gps	
	5c	Day1: Discuss one of the 3 Pictures. Explain the advantages and disadvantages of riot, protest, or sit-in.		8/8 gps	
E	5f	Day1: What are the pros and cons of information technology?		8/8 gps	
	5h	Day1: What are the pros and cons of information technology?		8/8 gps	
F	5b	Day1: Do we need to attend school in future? Will Mr. Lau, the teacher, become jobless? Give reasons if you think he will or won't.		8/8 gps	

(to be continued)

Key: Ass.= *Assertion*; Co= *Cooperative Elaboration*; CC= *Constructive Conflict*
      Sc= School;   Cl= Class

Table 4.12 (Continued) Instructions generating _Assertion, Cooperative Elaboration & Constructive Conflict_

Sc	cl	Task Instructions	Ass	Co	CC
G	5a	Day1: (i) Write the altitude of mountains in the southeast, southwest, northeast & northwest of China. (ii)Where are China's 2 high mountains? Find the evidence and identify the mountains. (iii) Where are China's 2 plains? Find the evidence and identify the plains. (iv) Which are the 3 main rivers of China? In which direction are these rivers flowing? Why?	8/8 gps		
		Day2: (i) Write the average rainfall of southeast, southwest, northeast & northwest of China. (ii)Try to use 'dry', 'damp with heavy rainfall' to describe the climate of southeast, southwest, northeast or northwest of China. Why? (iii)Explain the effect of the summer monsoon on the rainfall of southeast China.	8/8 gps		
	5b	Day1: Where do you prefer to live in China? Why? Referring to Map I & II on the change of climate in 2 regions, what are the difference in temperature in summer & winter? What are the regions in Map I and Map II (e.g. southeast, northwest regions ---), Why?		8/8 gps	
		Day2: How to improve the environment in growing (i) wheat (ii) rye, or (iii) cotton.		8/8 gps	
	5c	Day1: Same as School G 5a Day1	8/8		
		Day2: Same as School G 5a Day2	8/8		
	5d	Day1: Same as School G 5a Day1	8/8		
		Day2: Same as School G 5a Day2	8/8		
H	5a	Day1: Case analysis		8/8 gps	
		Day2: Case analysis		8/8 gps	
	5b	Day1: Male bodily change during adolescence. List 6 perspectives.	8/8 gps		
		Day2: How do animals and wind help flower pollination?	8/8		
	5c	Day1: Case analysis		8/8 gps	
		Day2: Case analysis		8/8 gps	
		Total 232 groups	112g	120gps	
		percentage	48.2	51.8	
		Total 29 sessions	14	15	

Key: Ass.= _Assertion_; Co= _Cooperative Elaboration_; CC= _Constructive Conflict_

Sc= School;   Cl= Class

142

Table 4.12 suggested that all the different groups under the same task instruction appeared to generate the same type of group-talk. For example, all eight groups in Class 5B School F generated *Cooperative Elaboration* or *Constructive Conflict*. No group had generated *Assertions* only. The result was likely related to the open-ended task instruction. It was interesting to find that the group-talk was totally different on Day 1 and Day 2 for Class 5A in School B. On Day 1, all the eight groups generated mostly *Cooperative Elaboration* and *Constructive Conflict* without a single group having *Assertion* only. On Day 2, all the eight groups generated *Assertion*. Task instruction on Day 2 was close-ended whereas on Day 1 it was open-ended. It was likely that open-ended task instruction might generate *Cooperative Elaboration* and *Constructive Conflict* and close-ended instruction might generate *Assertion*.

4.4.6.ii Summary

The pedagogical level of analysis seemed to suggest that some teachers' backup assistance appeared to be helpful for students' *Cooperative Elaboration* and *Constructive Conflict*. Some teachers' backup assistance was likely essential for all types of group-talk.

4.5 Findings of Research Question 4a: How much do students have the socio-cognitive competence in handling Academic Conflict? 4b: How much do teachers facilitate students' socio-cognitive competence in handling Academic Conflict?

4.5.1 Introduction

'A Framework of Social Unity and Cognitive Diversity Towards Constructive Academic Conflict' emerged for the findings of research question four. The framework and the findings for research question four will be elaborated in the following section.

4.5.2 A Framework of Social Unity and Cognitive Diversity Towards Constructive Academic Conflict

Table 4.13 <u>A Framework of Social Unity and Cognitive Diversity Towards Constructive Academic Conflict</u>

<u>**Constructive Academic Conflict**</u>

embedded with

<u>Social Unity</u>	<u>Cognitive Diversity</u>
↓	↓
Enhanced through	Enhanced through
Students' competence and	Students' competence and
Teachers' facilitation	Teachers' facilitation
in	under / in
Students' maximum participation	Teachers' task instruction
Conformity to classroom disciplinary rules	Teachers' scaffold
Students' humour	Students' conflicting views
Students' disagreement skills	Students' reasoning
Students' interdependence	Students' open conclusion
Students' perception of majority wins	Post-discussion peer evaluation
Students' concern for peer social acceptance	

In the new framework, the principal category is Constructive Academic Conflict. 'Academic' signifies that the context is 'academic.' Specifically, it refers to classroom talk. "In classroom talk, language is used to pursue their interest and goals. Speakers in a conversation may not have shared goals, common purposes, or the same understandings of experiences", (Mercer, 1995:67). 'Academic' also suggests understanding educational content and the way knowledge is constructed in school. 'Constructive' implies the enhancement or building up of positive group relationship and the co-construction of knowledge among group members. 'Conflict' denotes that in the classroom group-talk, one group member's perspective, ideas, information, theories, opinions or conclusions are different from the group-member/s.

Research question 4a under study is, "How much do students have the socio-cognitive competence in handling Academic Conflict?" Research question 4b is, "How much do teachers facilitate students' socio-cognitive competence in handling Academic Conflict?" The core category for research question 4a and 4b is Constructive Academic Conflict, selected to encompass the sub-categories of Social Unity and Cognitive Diversity. The concepts under Social Unity and Cognitive Diversity will be stated in the following two paragraphs. Then the core category of Constructive Academic Conflict, the sub-categories of Social Unity and Cognitive Diversity, and the concepts included in Social Unity and Cognitive Diversity will be explained in the following sections.

Social unity, as a sub-category of Constructive Academic Conflict, refers to the social skills in group-talk suggested by Barnes & Todd (1977). It encompasses the ability to control progress through the tasks, manage conflict, modify and use different viewpoints, as well as to render support (Barnes & Todd, 1977). In addition, social unity also implies providing cooperation in giving reasons to the

former speaker in *Cooperative Elaboration* group-talk. The sub-category of Social Unity is explored in relation to the concepts of students' maximum participation, conformity to classroom disciplinary rules, humour, disagreement skills, interdependence, majority wins, and concern for peer social acceptance.

Cognitive Diversity, as a sub-category of Constructive Academic Conflict, suggests the ability to generate conflicting viewpoints with reasons in *Constructive Conflict* group-talk. Cognitive Diversity is investigated in relation to the concepts of teachers' task instructions, teachers' scaffold, students' conflicting views, students' reasoning, students' open conclusion and post-discussion peer evaluation.

4.5.3 Social Unity

4.5.3.i Maximum Participation

Students' maximum participation appeared to be an indispensable social skill that contributed to group solidarity. It was what Barnes and Todd (1977) identified as the social skills that control progress through the tasks. From the interviews, 131 out of 144 children interviewed (90%) expressed that they enjoyed group discussion for reasons such as "It was fun" (Ch28ScF5B) or "It enhanced participation" (Ch9ScH5A). Group discussion enabled students to take initiative. Most teachers (T.9, T.10, T.13, T.14, T.20, T.21, and T.22) found that the children participated actively. Some found that the children liked arguments (T.20) and were willing to voice their opinions (T.22). The transcripts demonstrated that every group member participated. Through maximum participation, children built up the positive social atmosphere so that Academic Conflict was constructive instead of destructive. Academic conflict was constructive in the sense that all group-members contributed to develop the group-talk with conflicting views.

4.5.3.ii Conformity to Classroom Disciplinary Rules

Children noted that the discussion was poor when group members did not contribute, objected to others' ideas, or if the exchanges were too noisy (Child9ScH5A). It was important to maintain classroom discipline so that students could listen to their peers and build up *Cooperative Elaboration* or *Constructive Conflict*. In the group-talk, when it was noisy, or when there was laughter, or when members were saying something irrelevant, there was often certain group member reminding the group to behave well.

Group-talk (GT/5DiGp2SchC)	Commentary
Line 1286 *B2: Haha hehe (laughing).*	**(Laughter)**
1287 *B1: Let's discuss.*	**(Assertion: reminds classroom disciplinary rules)**
1295 *B2: Haha.*	**(Laughter)**
1296 *B1: Hurry up. Write.*	**(Assertion: reminds classroom disciplinary rules)**

The teachers perceived that the children's role during group-talk was to maintain discipline (T21). Some remarked that children behaved well and there was little argument (T22).

Many children who refuted Academic Conflict perceived disagreements as confusion or wasting time. They preferred order. To Child18SchE5F, confusion denotes that everyone's idea is different.

I: Quote one example of a poor discussion.

B: There was confusion.

I: What do you mean by confusion?

B: Everyone's idea is different.

Child21SchG5H echoed the same sentiment.

I: What's the disadvantage of having an argument?

G: It can be noisy and affect the whole class.

Some children preferred order to conflicting ideas, though they were aware that the conflicting viewpoints were useful. According to Child6SchC5C,

"Some of them were shouting loudly, and criticized other's suggestion, even though they were good."

Though children had the competence to maintain discipline and teachers facilitated order well, students and teachers still need to value discipline and order not as means to suppress Academic Conflict.

4.5.3.iii Humour

In the interviews, students and teachers did not identify 'humour' as a factor of a good discussion. Through the social level of analysis in investigating group-talk, it was found that children's humour facilitates group-talk. "Laughing is a way of dealing with conflicts", (Tjosvold, 1993:55). In situations of *Assertion, Cooperative Elaboration* or *Constructive Conflict group-talk*, children cracked jokes and laughed as a way to avoid discussing the arguments directly. It appeared that children laughed to show they were enjoying the excitement of the talk or argument (see 4.4.5.i).

4.5.3.iv Disagreement Skills

Some disagreement skills that were identified included (1) being respectful to the former speaker, though disagreeing with the idea; (2) being open to listen to peer opinion; (3) trying to agree with the former speaker, while offering different perspectives; (4) opposing viewpoints, without making personal attacks; and (5)

facilitating pleasant experience for group-members. The following examples illustrate some of these skills.

Instruction: Do we need to attend school in the future? Will Mr. Lau, the teacher, become jobless? Give reasons if you think he will or won't.

Group-talk (GT/5BiGp2SchF)	(Commentary)
Line *2310* B2: *Why were you irrelevant?*	**(Question)**
2311-12 B1: *Did I? Mr. Lau will not lose his job. He can help educational development.*	**(Constructive Conflict)**
2313-14 B2: *Why don't you say Mr. Lau can duplicate computer programs?*	**(Cooperative Elaboration)**
2315 B1: *Wrong. Mr. Lau will use the original.*	**(Constructive Conflict)**

B2 (2310) and (2313) used *"Why were you...?"* and *"Why don't you...?"* as disagreement strategies to alert the former speaker. He disagreed respectfully while offering different perspectives. Some children used these disagreement skills, but these disagreement strategies were not common in the group-talk. Children also demonstrated some inappropriate responses.

Group-talk (GT/5DiGp8SchG)	(Commentary)
Line 1093 B1: *This is near the mountain.*	*(Assertion)*
1094 B2: *You lie.*	*(Assertion)*
1095 G2: *You bad guy. I won't talk to you.*	*(Assertion)*

Group-talk (GT/5FiGp7SchE)	(Commentary)
Line 537 B1: *Don't bother him.*	*(Assertion)*
G2: *You silly pig.*	*(Assertion)*

Appropriate or inappropriate disagreement skills were not common in the group-talk. It seemed that children were not well equipped with disagreement skills. During classroom observation, the teachers showed no signs of facilitating these skills. Disagreement skills might be helpful when children were faced with Academic Conflict.

4.5.3.v Peer Social Acceptance

Group members' interdependence functioned to achieve group-goals and was common in most group-talk. It helped to foster positive peer relationship. However, children revealed in their interviews that they disliked disagreement in group-talk. *"Disagreements hurt friendship"* (Child5SchH5A). *"It's not good to have arguments. We'll not play with each other during recess"* (Child22SchF5B). Children identified this social acceptance as the factor affecting the lack of Academic Conflict in group-talk. However, no teacher mentioned this factor in the interviews. It might suggest that teachers seemed not to recognize children's need for peer social acceptance in students' Academic Conflict.

4.5.4 Cognitive Diversity

4.5.4.i Teachers' Task Instruction

Open-ended task instructions seemed to be helpful in facilitating *Constructive Conflict* while close-ended instructions were helpful in generating *Assertions*. The following illustrated the importance of open-ended task instructions in generating *Constructive Conflict*. Under Teacher 5's Task Instruction on 'What will happen if we have no electricity or gas', children's group-talk showed *Assertion, Cooperative Elaboration* and *Constructive Conflict* as follows:

	Group-talk (GT/5AiGp1SchB)	**(Commentary)**
Line 25	*B1: It'll be dark during the night.*	*(Assertion)*
26	*G2: If there's no electricity, everywhere will be dark.*	*(Cooperative Elaboration)*
27	*B1: If there's no gas, it'll be dark at night and we can't take a bath.*	*(Constructive Conflict)*
28	*B2: No hot water when we want to take a bath.*	*(Cooperative Elaboration)*
29	*G2: We'll be dirty all over.*	*(Cooperative Elaboration)*
30-	*B2: Not dirty. But if you want to take bath, you ll*	*(Constructive Conflict)*
31	*be frozen to death.*	

However, with the same teacher and the same class under the task instructions on "What is the difference in time, space & distance on past and present communication?" the group-talk was confined to *Assertion* only.

	Group-talk (GT/5AiiGp5ScB)	**(Commentary)**
Line 749	*G1: Present, far away.*	*(Assertion)*
750	*G2: Past, near.*	*(Assertion)*
751	*B3: Yes, present very expensive.*	*(Assertion)*
752	*G1: Present, effective.*	*(Assertion)*
753	*G2: Past, not effective.*	*(Assertion)*
755	*G4: I'll write.*	*(Individual accountability)*
756	*B3: Present, efficient.*	*(Assertion)*
757	*G2: Past, not efficient.*	*(Assertion)*

Open-ended task instruction tended to generate *Assertion, Cooperative Elaboration* and *Constructive Conflict* while close-ended task-instructions tended to produce *Assertion* was true not only for the same class under different instructions. It was true across classes and schools (Table 4.12)

4.5.4.ii Teachers' Scaffolding

Teachers' scaffolding was in some ways helpful in facilitating children's cognitive diversity in order to attain Constructive Academic Conflict. Brochures, pictures, maps, videos, textbooks and case studies enabled children to select, organize and argue independently. Sometimes, teachers referred children to maps or other resources as hints for children to correct or extend their exchanges. However, some groups (for example, School G Class 5 A, C, and D) might over-rely on these resources, giving *Assertion* through giving lists of content-words only, without reasoning.

In some cases, the teachers' questioning served as models for children to question their peers to elicit justification for *Cooperative Elaboration* and *Constructive Conflict*. The following is an example. Children repeated Teacher 10's questions, *"Do you agree?"* *"What's the purpose?"* When children asked their peers "What's the purpose?" it elicited other group members' Cognitive Diversity. Through following Teacher 10's modelling *"What's the purpose?"* children co-constructed their conflicting views for Constructive Academic Conflict.

		Group-talk (GT/5AiGp5SchD)	**(Commentary)**
Line 356	Teacher:	*Do you agree?*	**(Question)**
357	All:	*Agree.*	*(Assertion)*
358- 359	Teacher:	*Write down your opinion, but what's the purpose?*	**(Question)**
360	G1:	*Let the blood flow back to the brain.*	*(Assertion)*
361- 362	B2:	*Second picture, lift up his legs. Again let the blood flow to the brain.*	*(Assertion)*
363	B1:	*What's the purpose?*	**(Question)**
364	B2:	*Let the blood flow to the brain.*	*(Assertion)*
365	G2:	*Do you all agree?*	**(Question)**
366	All:	*Agree.*	*(Assertion)*
367	B2:	*The third one.*	*(Assertion)*
368- 372	G1:	*Open the injured person's collar so he can breathe fresh air easily. Do you agree?*	*(Cooperative Elaboration)*
373	All:	*Agree.*	*(Assertion)*
374- 378	B1:	*Make him breathe easily. Open some of his clothes. Make the blood circulate to his brain, and wake him up soon.*	*(Cooperative Elaboration)*
379	B2:	*The fourth one.*	*(Assertion)*
380- 381	B1:	*Cover him with a blanket. Keep him warm.*	*(Cooperative Elaboration)*
382	B2:	*And the purpose?*	**(Question)**
383- 385	G1:	*The purpose is to keep him warm and this helps the circulation*	*(Cooperative Elaboration)*
386	G2:	*Do you all agree?*	**(Question)**
387	All:	*Agree.*	*(Assertion)*

This type of teacher scaffolding was very rare among all the transcripts. More importantly, most teacher scaffolding that occurred during children's group-talk seemed not to facilitate children's extension of conflicting ideas. At best, teachers facilitated children to justify their answers. Teachers did not offer ways to facilitate conflicting perspectives.

4.5.4.iii Students' Conflicting Views

It was likely that children had the competence to generate *Constructive Conflict* under open-ended instructions, teachers' reminder to give reasons and frequent practices to give post-discussion peer evaluation.

Although from the interviews, most teachers perceived that it was good for children to give rational arguments, in classroom observation only Teachers 8, 10, 11, 12, 15, 17, 20 and 22 reminded children to offer different opinions. It was even surprising to find that Teacher 5, 14, 16 and 21 acknowledged favouring conflicting views in children's group-talk. However, in classroom observation, they forbade children to argue. T.5, T6, T13, T17 even asked one of the group-members to be the group leader. The group-leader was to decide upon the group's conflicting views, without allowing the group a chance to find the conflict resolution. In fact, it is not sufficient to support children's cognitive diversity rhetorically; teachers need to support it both in word and deed.

4.5.4.iv Students' Reasoning

Some children's perception was not directly reflected in their group-talk. Child31ScG5C mentioned that through discussion, the group would think of more reasons. But in their group-talk, reasons were not expressed. However, though Child13ScE5H perceived that in disagreements, no reasons were given; their groups generated *Constructive Conflict* as were required of them from the task instruction. It seemed that most children were competent with giving reasons in *Constructive Conflict* under open-ended task instructions.

154

4.5.4.v Students' Open Conclusion

Children disclosed two ways of handling a conclusion for Academic Conflict. One was through agreed-upon conclusion. _"If there's disagreement, we won't write it down"_ (Child20SchE5H). _"We vote for the best answer in the conclusion"_ (Child10SchB5A). On the other hand, some wrote all the points (Child19SchE5H) or recorded different opinions (Child18SchF5B).

As for the teachers, only Teacher 10 instructed the children regarding agreed-upon conclusion, _"If all group members agree, put the card on the picture and fill the form."_ From the majority of group-talk, there was little indication that teachers or children insisted on agreed-upon conclusions. Children tended to express all the different points they had discussed no matter whether the group-talk was _Assertion, Cooperative Elaboration_ or _Constructive Conflict_. Only when the task instruction required definite answers, then the children gave agreed-upon conclusion. In the process of constructing conflict views for Academic Conflict, it seemed helpful that children retained all conflicting ideas without insisting on consensus in disagreement.

4.5.4.vi Post-discussion Peer Evaluation

Teacher 8, 11, 12, 14, 15, 17, 18, 20 and 22 facilitated group-reports. Children mostly read from their worksheets, role-played, or displayed large worksheets on the wall. In addition to group-reports, Teacher 8, 14 and 22 facilitated short peer evaluation. Through the peer evaluation, some children showed the competence to publicly evaluate their peers with rationale. Classmates could publicly disagree with the rationale. After all, it was not a common practice among the teachers.

4.5.5 Summary

Students and teachers seemed to enhance or facilitate the 'socio' competence in

handling Academic Conflict through social unity in group-talk. It included maximum participation, conformity to classroom disciplinary rules, humour, disagreement skills, interdependence, and concern for peer social acceptance. The students seemed to enhance or the teachers seemed to facilitate the 'cognitive' competence through cognitive diversity. Cognitive diversity included teachers' task instructions, scaffold and students' conflicting views, reasoning, open conclusion and post-discussion peer evaluation.

4.6 The Seesaw Working Model in Children' Group-talk

4.6.1 Introduction

The Seesaw Working Model emerged after synthesis of the literature and after considering the findings of the four research questions. For it to be reliable as a model, The Seesaw Working Model is limited as the current study is still a small-scale research project. For it to be a universal model, it has to be tested more widely.

4.6.2 Reasons for "Seesaw" analogy and "Working Model"

4.6.2.i Seesaw

"Seesaw" connotes play. Children can participate, and have autonomy over the movements of the seesaw. Most importantly, they have fun. From the interviews, 131 out of 144 children interviewed (90%) acknowledged that they liked group-discussion for reasons such as *"It's fun"* (Child28SchF5B), *"Happy"* (Child19SchE5H), *"Can participate"* (Child9SchH5A), *"New and interesting"* (Ch26ScH5A). From observed classroom behaviour and analysis of group-talk, most children seemed to generate Social Unity or Cognitive Diversity on their own, without teachers' interference. It might be compared to children's autonomy over movements of a seesaw.

Social Unity and Cognitive Diversity were identified as sub-categories of the core category Constructive Academic Conflict (4.5.2). Social Unity and Cognitive Diversity might be compared to the two sides of a seesaw. Current findings seemed to show that in some cases when one sub-category was upward, another sub-category might be downward. In other cases, the two sub-categories might be in a homeostatic equilibrium position. The upward and downward movement might be changing quickly and the positions were not stagnant. The movements of the group-talk were compared to the movements of a seesaw.

4.6.2.ii. Working Model

The Seesaw Analogy is a 'Working Model' because it explains how the condition of one side of a seesaw (for example, Social Unity) works, and how the activity of one side may make the condition of the other side (for example, Cognitive Diversity) work. It also suggests how the two sides of the seesaw work to attain equilibrium. In another sense, it is a 'Working Model' because the Model is embryonic. It may eventually progress towards a more mature model.

4.6.3 The Seesaw Working Model

The Seesaw Working Model incorporates three seesaw positions, showing three major conditions emerging from the current study about children's group-talk. These positions include one optimal position and two non-optimal positions in group-talk. The optimal one is "The Homeostatic Seesaw Position". The two non-optimal ones are the "High Cognitive Diversity and Low Social Unity Seesaw Position", and the "High Social Unity and Low Cognitive Diversity Seesaw Position". For a visual representation of these positions, refer to Figure 4.1 on the page that follows.

Figure 4.1   The Seesaw Working Model: one optimal position &
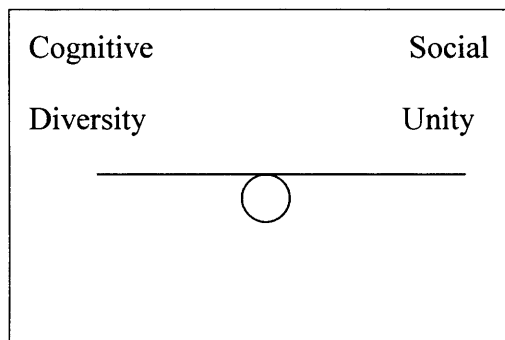
two non-optimal positions
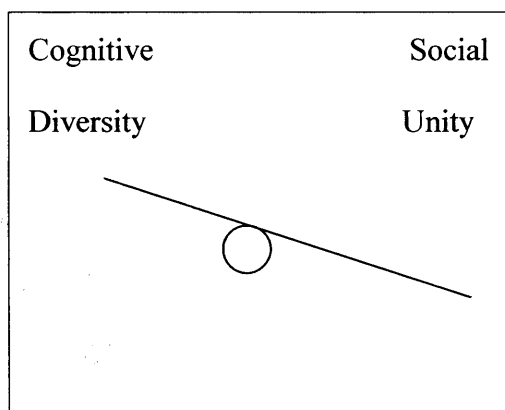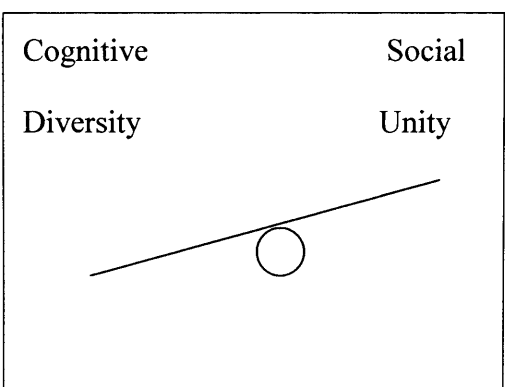
<table>
<tr>
<td>

Cognitive   Social

Diversity   Unity

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Optimal Position:

The Homeostatic Seesaw Position

(Internal harmony attained between

Cognitive Diversity and Social

Unity)

</td>
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<tr>
<td>

Cognitive   Social

Diversity   Unity

</td>
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Non-optimal Position I:

The High Cognitive Diversity and

Low Social Unity Seesaw Position

(High Cognitive Diversity

emphasized at the expense of low

Social Unity)

</td>
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<td>

Cognitive   Social

Diversity   Unity

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Non-optimal Position II:

The High Social Unity and Low

Cognitive Diversity Seesaw

Position (High Social Unity

emphasized at the expense of low

Cognitive Diversity)

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4.6.4 Optimal Position: "The Homeostatic Seesaw Position"

Homeostatic is the adjective for Homeostasis.

> *"Homeostasis refers to the self-regulation which serves to maintain constancy of the inner environment of living things"*, (Messecar, 1984:2).

> *"HOMEO means the same and STASIS means standing still suggesting preserving a steady state in the internal environment"*, (Films for the Humanities and Sciences, 1992 at counter 3 minutes 48 seconds).

"Movement, process, action, harmony, balance, adaptation" dominate the Homeostatic-Dynamic Model which views human being as an intricate machine (Powles, 1992:198) operating as an "open system" (von Bertalanffy, 1995:141).

> *"Under certain conditions, open systems approach a time-independent state, the so-called steady state. ... The steady state shows remarkable regulatory characteristics ..."* (von Bertalanffy, 1995:142).

Both homeostasis and "open system" (von Bertalanffy, 1995:141) emphasize the self-regulatory characteristic. In the current study, homeostatic group-talk suggests the self-regulation and movement in children's group-talk to attain internal harmony (equilibrium) of Cognitive Diversity and Social Unity.

Embedding the meaning of Homeostasis and Seesaw, the following scenarios may illustrate different Homeostatic Seesaw Positions through highlighting:(i) the Homeostasis of self-regulation and movement of Social Unity and Cognitive Diversity (or vice versa) to attain internal harmony in children's group-talk; (ii) the Seesaw self-regulatory up and down movement of the two sides of the Seesaw (Social Unity and Cognitive Diversity); and (iii) the developmental characteristic of the group-talk, with its progress shown through both the Homeostatic and the Seesaw movement.

4.6.4 Scenario 1: Homeostasis of Cognitive Diversity and Social Unity

(such as, 'humour' in Social Unity)

Instruction: Give reasons for the blooming of tourism in Hong Kong.

		Group-talk (GT/5DiGp1ScC)	**(Commentary)**
Line 432	*B1:*	*The first is advanced information technology.*	*(Assertion)*
433	*B2:*	*Convenient transportation.*	*(Assertion)*
434	*G1:*	*Lots of tourist sites.*	*(Assertion)*
435	*B1:*	*Lots of beautiful girls.*	*(Assertion)*
436	*G2:*	*Lots of shopping centres.*	*(Assertion)*
437	*B2:*	*Lots of big hotels, restaurants, and tourist sites.*	*(Assertion)*
438	*B1:*	*And lots of your saliva. Ha! Ha! Ha!*	*(Assertion,* **Humour***)*
439-440	*B2:*	*Advanced information technology so we know what happens in other parts of the world.*	***(Cooperative Elaboration))***
441-443	*G2:*	*Many of us know English so we can communicate with the foreigners, and there may be good connection.*	***(Constructive Conflict)***
444-446	*B1;*	*Our transportation is convenient so we can travel to all parts of the world. Ha! Ha! Ha! We can have sit-in protest.*	***(Constructive Conflict)***
447-451	*B2:*	*We can reach other parts of the world through ships, trains, and planes. There are satellites receptive of overseas information. There are many types of commercial malls, including restaurants, shops, watches, and finance-exchange centres.*	***(Constructive Conflict)***

Lines 432-437 were *Assertions* (Cognitive Diversity, without reasons) which seemed difficult to continue with the same pattern beginning with *"lots of ..."*. B1's humour (Social Unity: humour, Line 438) *"And lots of your saliva. Ha! Ha! Ha!"* instilled laughter. His humorous interjection appeared to twist the rhythm of the discourse beginning with *"Lots of ..."*. It seemed to be a turning point. B2 (Line 439-440) joined in with *Constructive Conflict* which was followed by G2, B1 and B2 again with *Constructive Conflict* (Cognitive Diversity, with reason). B1 (Line 438) seemed to bring about Homeostasis. His humour was self-regulated and appeared to move the pattern of discourse from Cognitive Diversity (Line 432-437), to Social Unity (humour, Line 438), then Cognitive Diversity (Line 439-451). B1's humour seemed to bring internal harmony so that the group-talk was with equilibrium of Cognitive Diversity and Social Unity instead of too much Cognitive Diversity.

There was also the self-regulation and movement of a seesaw. In the group-talk, the group-members self-regulated *Assertion* type of group-talk, or *Constructive Conflict* type of group-talk (demonstrating Cognitive Diversity) or humour in the group-talk (demonstrating Social Unity). The emphasis was on children's self-regulation in the group-talk that was similar to children's self-regulation during their seesaw play. The pattern from Cognitive Diversity to Social Unity then back to Cognitive Diversity seemed to be the rhythmic movement of a seesaw. B1's humour also brought fun to the group-talk, as the fun a seesaw brings.

4.6.4 Scenario 2: Homeostasis of Cognitive Diversity and Social Unity

(such as, 'Concern for Peer Acceptance' in Social Unity)

Instruction: Design a 2-day trip for tourists in Hong Kong.

		Group Talk (GT/5DiiGp8SchC)	Commentary
Line1094	G1:	*The first morning we go to...*	*Assertion*
1095	B1:	*We look for a hotel*	*Assertion*
1096	G2:	*Accommodation.*	*Assertion*
1097	B2:	*Eat first*	*Assertion*
1098	B1:	*Look for accommodation*	*Assertion*
1099-1100	B2:	*You have written over the line. Next we go to...*	*Assertion*
1101	G2:	*Let him say it.*	*Assertion*
1102	G1:	*To the peak, ok?*	**Question**
1103	B1:	*No, no.*	*Assertion*
1104	G1:	*Where to?*	**Question**
1105-1106	B1:	*Look for accommodation then we go to Ocean Park.*	*Assertion*
1107 1108	B2:	*How to write Ocean? What should we write for the second day's schedule?*	**Question**
1109	B1:	*Written all wrong.*	*Assertion*
1110	G2:	*Doesn't matter*	*Assertion*
1111-1112	B2:	*Write here for the next day's schedule.*	*Assertion*
1113-1114	B1:	*After visiting the Ocean Park, it's lunch time.*	*Assertion*
1115	B2:	*Go there in the afternoon, ok?*	*Assertion*

In Line 1094-1098, G1, B1, G2, B2 all generated *Assertions* (Cognition Diversity). In Line 1099, B2 seemed to be critical and that might have deterred B1 from developing his opinion. G2 appeared to be pacifying *"Let him say it"* (line 1101) (Social Unity: showing G2's social skills of considering peer social acceptance). Then B1 offered two opinions (Cognitive Diversity). In Line 1109, B1 criticized. G2 appeared to be pacifying again: *"Doesn't matter"* (Line 1110: Social Unity: considering peer social acceptance, trying to stop B1's criticism in line 1109 from exploding into disruptive quarrels). B2 seemed not to be offended (Line 1111) and B1 continued his view (Cognitive Diversity) followed by B2's polite question (Social Unity: supporting and developing B1's statement).

G2's self-regulated pacifying statements (Social Unity Line 1101 and Line 1110) appeared to be homeostatic. She seemed sensitive that B2's criticism (Line 1099-1100) might deter B1's expression (Line 1098), and B1's criticism (Line 1109) might bring down B2's Peer Social Acceptance (Lines 1107-1108). Her pacifying statements (Social Unity Line 1101 & Line1110) are likely homeostatic encouraging B1 to complete his opinion (Cognitive Diversity Line 1105-1106), and bring back B2 to asking questions politely (peer social acceptance Line 1107-1108) in order that internal harmony of Cognitive Diversity and peer social acceptance might be attained in the group-talk.

Lines 1094-1100 seemed to demonstrate the **up** seesaw movement of Cognitive Diversity (with Assertions), but B2's criticism (Line1109-1110 might play **down** peer social acceptance. G2's *"Let him say it"* saved the group-talk from coming to a halt with quarrels, but boosted **up** B1's (Line 1098, 1105) peer social acceptance (Social Unity). So the discourse was like the up and down self-regulated movement of a seesaw. The homeostatic seesaw movements in the group-talk seemed to have helped internal harmony so that Cognitive Diversity and Social Unity were equally maintained.

4.6.4 Scenario 3: Homeostasis of Cognitive Diversity and Social Unity

(such as, 'Interdependence' in Social Unity)

Instruction: where do you prefer to live in China? Why?

		Group-talk (GT/5BiGp6Sch6)	**(Commentary)**
Line	1359	G2: *Where do you want to live?*	**(Question)**
	1360	B1: *Me? Where? I will live in Northern Plateau.*	**(Assertion)**
	1361	G2: *Why?*	**(Question)**
	1362-1363	B1: *Because it's lowland. I can see the sky.*	**(Assertion)**
	1364	G1: *But the temperature is cold.*	**(Constructive Conflict)**
	1365-1366	B1: *I don't think so. I can keep warm by wearing more clothes and doing more exercise.*	**(Constructive Conflict)**

G2's asking *"why"* helped (Line 1361 Social Unity through interdependence of G2 and B1) self-regulating peer's (B1) response from without reasoning (Line 1360) to with reasoning (Line 1362 & 1365), demonstrating Cognitive Diversity. G2's interjection of *"Why"* (Social Unity: interdependence of G2 and B1) moved the seesaw of the group-talk from Social Unity (interdependence of G2 & B1) to Cognitive Diversity (B1 espousing reasons, G1 generated conflicting view with reason). G2 just asked *"Why"* and did not answer for B1. It reflected the Homeostasis of one entity (G2's *"Why"* showing Social Unity through interdependence of G2 and B1) regulating another entity (B1's Cognitive Diversity through without reasoning to reasoning; and G1 generated conflicting view with reason) to a steady state (harmony of Social Unity and Cognitive Diversity) in children's group-talk.

4.6.4 Scenario 4: Homeostasis of Cognitive Diversity and Social Unity

(such as, "Students' Reasoning" in Cognitive Diversity)

Theme: Road Safety

	Group Talk (GT/5BiGp6Sch4)	(Commentary)
Lines 2612-2615	G1: *Let's write the second question, what's the influence of the pedestrians' behaviour to the injured person? You say first.*	**(Question)**
2616-2617	B1: *If they didn't report the case to the police, he would have died.*	**(Statement with reason)**
2618-2619	B2: *I don't quite agree, can you repeat. I couldn't hear clearly. Repeat please.*	*(Assertion)*
2620-2621	B1: *If they didn't report the case, he would have died already.*	**(Statement with reason)**
2622-2627	G2: *If the passengers didn't get off the bus, the injured person would die of losing blood. Crash caused a big injury. It won't be healed automatically. If no one helped he would die or injured seriously.*	*(Constructive Conflict)*
2628-2629	B2: *May be he won't die. Just got unconscious.*	*(Constructive Conflict)*

B1 (Lines 2616-2617; 2620-2621) and B2 (Lines 2628-2629) gave diverse perspectives, with reasons. G2 (Lines 2622-2627) gave the same perspective, with reasons. The episode was mainly with children's cognitive diversity (diverse perspectives, with reasons). It was balanced with Social Unity (B2's self-regulated disagreement skills in Line 2618 *"I don't quite agree."* and Line 2628 *"May be... "*). The self-regulated disagreement skills appeared to serve the homeostatic function,

moving reasoning from formidable to more acceptable social tone, bringing equilibrium between Cognitive Diversity (reasoning, Lines 2616-2617, 2622-2629) and Social Unity (Disagreement Skills, Line 2618 *"I don't quite agree"* and Line 2628 *"May be…"*). Hence the group-talk would not be dominated with formidable reasoning only, but lubricated and balanced with a touch of social sentiments.

The self-regulated seesaw movement was from upward Cognitive Diversity (Line 2616-2617) to upward Social Unity (disagreement skills in line 2618 lubricating Line 2616-2617) to upward Cognitive Diversity 2620-2627, to upward Social Unity (disagreement skill in line 2628 lubricating lines 2620-2627). The alternate upward movement of Cognitive Diversity or Social Unity might harmonize the group-talk.

In this Scenario, peer social acceptance was essential in maintaining Social Unity. Without peer social acceptance, B1 would not be able to pursue his point (Cognitive Diversity). There were some indications. In G1's *"Let's write"* (Line 2612), the *"Let's"* suggested 'we are doing this together. It is a shared purpose'. In *"You say first"*, G1 was being polite implying 'I am not putting you on the spot. Having suggested we're going to do this together and I am asking you to go first. I am after you.' It was a sort of politeness. In Line 2618, there was some disagreement, but B2 said *"I don't quite agree… I couldn't hear clearly."* It suggested 'I may have misheard you. May be it's my fault. We may have a disagreement here but *"I don't quite agree"* and *"I couldn't hear clearly"*. The key words, such as *"Let's"*, *"I don't quite agree"* or *"May be"* were very subtle cues, performing the function of encouraging the development of the whole group-talk.

The children were showing respect for each other as human beings. The key words used above softened the conflict. So it became not a conflict between people but was a conflict of ideas. It was not implying that one person's idea was more

important than the other's. It was much more. It was seeking peer acceptance (Social Unity) and clarification of ideas (Cognitive Diversity). The key words seemed to be implying 'I want to work with you. I want to reach a point where we can agree'. In Line 2628, B2 still showed that he disagreed, suggesting he was not convinced. But he said, *"May be"* in a polite way. The words *"May be"* still kept the door open for the ideas of others. In this way, the homeostasis (balance) of group-members' seeking peer social acceptance and seeking clarification of ideas encouraged the group-talk to continue and to develop in Cognitive Diversity and Social Unity. The homeostasis of Cognitive Diversity and Social Unity might help to enhance the movement or the developmental element of group-talk.

4.6.4 Scenario 5: Homeostasis of Cognitive Diversity and Social Unity
(such as, "Students' Open Conclusion" in Cognitive Diversity)

Instruction: What happens if we've no electricity and gas?

		Group-talk(GT/5AiGp6SchB)	(Commentary)
Line 499-501	B1:	*What will Hong Kong be like if there's no gas and coal? Discuss from the household, industry and traffic perspectives.*	**Question**
502-503	B2:	*In the household, we can't cook if there's no fire. No coal, no gas, no cooking and no food. How pitiful.*	**Statement with reason**
504	B1:	*What about the traffic?*	**Question**
505	G1:	*All those taking MTR or train to work have to walk.*	*Constructive Conflict*
506	B1:	*What about industry?*	**Question**
507-509	B2:	*If there's no factory generating electricity, Hong Kong has nothing. It'll easily cause accidents in traffic. We can't cook. No electrical appliances. How pitiful.*	*Constructive Conflict*
510-511	G2:	*We need MTR and other transportation when we go to work. So electricity is necessary.*	*Cooperative Elaboration*
512	G1:	*Say again, please.*	**Request**
513	G2:	*If there're no traffic lights, it'll make a mess.*	*Constructive Conflict*
514	B1:	*And cause accidents.*	*Cooperative Elaboration*
515	B2:	*In our daily life, if there's no gas, we can't cook.*	*Constructive Conflict*
516		*Teacher One more minute.*	
517	B2:	*All of us won't have food.*	*Cooperative Elaboration*
518	G1:	*Can you say something on industry?*	**Question**
519-520	G2:	*We can't see anything if there's no electricity in the buildings and firms.*	*Constructive Conflict*
521	G1:	*Don't waste time.*	*Assertion*
522-523	B2:	*We're group 6, the first group that got the job done. Let's stop. Bye-bye.*	*Assertion: Fun*

With "open conclusion", all group members' conflicting views remained the same throughout the group-talk (B2's Lines 502-503; G1's Line505; B2's Lines 507509; G2's Line 510-510; G2's Line513; B2's Line515; G2's Line519). Children did not streamline others' ideas to "eventual agreed conclusion" as in Mercer's (1996:369) Exploratory Talk, insulating them the risk to offend others that might help Social Unity. Children's self-regulatory move to open conclusion seemed to regulate Homeostasis, bringing equilibrium between Cognitive Diversity and Social Unity.

The Seesaw effect of open conclusion was more about enhancing children's pleasant autonomous experience than the movement of a seesaw. Children need not worry that peer social acceptance might be jeopardized through streamlining others to an "eventual agreed conclusion" (Mercer, 1996:369). With open conclusion children might be happy with the Social Unity, insulating them from offending their peers.

4.6.5 Non-optimal Position I:

"High Cognitive Diversity and Low Social Unity Seesaw Position"

4.6.5 Scenario 6: High Cognitive Diversity and Low Social Unity (for example, low peer social acceptance)

Instruction: What are the pros & cons of information technology?

	Group-talk (GT/5HiGp4ScE)	**(Commentary)**
Line 490-492 B1:	*Mass media will affect the public. Information technology helps the mass media to affect the public.*	**(Statements**
493-498 B2:	*Fast and convenient. We can get information from the internet. We know what's happening in our society, and we can communicate with our friends overseas, and know what's happening in the world.*	**(Cooperative Elaboration)**
499 B1:	*You write the advantages.*	**(Request)**
500-502 G1:	*Number 3 is...If the blind man cannot read, they can use a special method for the blind to learn, or listen to the radio.*	**(Constructive Conflict)**
503-506 G2:	*Now we're talking about the advantages and disadvantage of the information technology. Why do you say that nonsense?*	**(Question)**
507-509 G1:	*It's your turn now, what happens to you? You always like to pretend. It's your turn. You laugh at me.*	**(Question)**
510 B1:	*Be serious.*	**(Discipline)**
511-512 G1:	*You play again, but it doesn't matter. You just pretend.*	**(Discipline)**
513 G2:	*As usual, we should be quiet.*	**(Discipline)**
514-515 B2:	*Yes, advantages. What are the advantages?*	**(Question)**
516 G1:	*Fast and convenient.*	*(Assertion)*
517 G2:	*What else?*	**(Question)**
518-519 G1:	*We can know all the news in the world.*	*(Assertion)*

In scenario 6, the group-members were able to give conflicting views (high Cognitive Diversity) but they were not competent in instilling peer social acceptance (low Social Unity). B1 (Lines 490-492) and B2 (Line 493-498) were competent in giving conflicting views with reasons, but they did not show any social skills. There was low Social Unity when G2 and G1 (Line 503-509) were not showing peer social acceptance. Though G1 lacked social skills, she gave conflicting views (Line 518-519) showing high cognitive diversity. So, the group-talk seemed to be in a seesaw position of high Cognitive Diversity and low Social Unity.

For the whole group there was cognitive diversity at the commencement of the group-talk. However, there was no development. There seemed to be no homeostasis. The group members appeared not to show any gestures towards peer social acceptance in lubricating the group-talk for internal harmony. The low Social Unity helped little in the progress of group-talk. Low Social Unity did not encourage cognitive diversity towards the end of the group-talk. G1 (Line 516) just repeated what B2 (Line 493) had said *"Fast and convenient"*. G1 had been put down by G2, (with G2 saying, *"Why do you say that nonsense?"* in Line 503). G1 scolded back (Line 507, and Line 511). G1 just repeated (Line516) and subdued her opinion (Line 500). Nobody picked up her view. Ultimately there was low Cognitive Diversity. There was no further development of the group-talk as a result.

4.6.5 Scenario 7: "High Cognitive Diversity and Low Social Unity Seesaw Position" (such as 'incompetent disagreement skills' in Social Unity)

Theme: China's weather

	Group-talk (GT/5DiiGp3ScG)	(Commentary)
Line 1089	B1: *Because the weather is dry.*	
1090	B2: *Wet*	*(Assertion)*
1091	G1: *How does it relate with land feature? Look at*	(Question)
1092	*the map, crops are planted in south east, north west, Russia, every where in the world.*	
1093	B1: *This is near the mountain.*	*(Assertion)*
1094	B2: *You lie.*	(Scolds)
1095	G2: *You bad guy. I won't talk to you.*	(Scolds)

G1 and B1 (Line 1091 to 1093) were trying to reason (high Cognitive Diversity). B2 (Line 1094) expressed disagreement inappropriately: *"You lie"* (low Social Unity, poor disagreement skills), G2 (Line 1095) also showed poor social skills in expressing disagreement or incompetence in peer social acceptance (low Social Unity). They did not show any social skills to help with group members' peer social acceptance.

4.6.5 Scenario 8 "High Cognitive Diversity and Low Social Unity Seesaw

Position" (Low Peer social acceptance, Incompetent Disagreement skills)

Task instruction: Case study		
	Group-talk(GT/5AiGp2ScG)	**(Commentary)**
Line 552-553 B2:	*Development in mainland will provide a lot of business opportunities.*	*(Assertion)*
554 B1:	*It's good to explore the west.*	*(Assertion)*
555-559 B2:	*He's idiot. Don't talk to him. The mainland is getting wealthier. They should not come any more. Hong Kong, this fat pork, will soon become lean meat. It's tasteless after cooking in the soup. Besides, the development in Mainland like the cyber port in US, can be a gold mine.*	*(Constructive Conflict)*

This scenario showed that B2 could give conflicting views with reasons. However when B1 offered different views, B2 scolded B1 and told others not to speak to B1. Group members could give conflicting views (high Cognitive Diversity). B2 showed lack of social disagreement skills in expressing peer social acceptance (low Social Unity).

B2's *"Don't talk to him"* (Line 555) was a crude dismissal of B1's input. B2 went back to where he was, so there was no further development of the group-talk as a result.

4.6.5 Scenario 9: "High Cognitive Diversity and Low Social Unity Seesaw Position"

Instruction: Do we need to attend school in future? Will Mr. Lau, the teacher, become jobless? Give reasons if you think he will or won't.

		Group-talk(GT/5BiGp5SchF)	**(Commentary)**
Line 2541	B1:	*Why not? I think he will.*	*(Assertion)*
2542-2543	G1:	*No, he will not. We need teachers even when the technology is well advanced.*	*(Constructive Conflict)*
2544-2545	G2:	*There's internet, so he will lose job.*	*(Constructive Conflict)*
2546	B2:	*No, he won't.*	*(Assertion)*
2547	B1:	*Yes he will.*	*(Assertion)*
2548-2549	G2:	*No, because the internet won't point out your mistake. It can't talk.*	*(Constructive Conflict)*
2550-2551	B2:	*Therefore the teacher's supervision is necessary.*	*(Cooperative Elaboration)*
2552-2553	G1:	*I think the teacher will lose his job if there's the internet*	*(Constructive Conflict)*
2554-2555	G2:	*Mr. Law is needed for teaching. Man contributes to the internet.*	*(Constructive Conflict)*
2556-2557	G1:	*We have information technology. So we don't need the teacher.*	*(Constructive Conflict)*
2558-2559	G2:	*Life will be more interesting with information technology. I'm right.*	*(Assertion)*

Scenario 9 demonstrated high Cognitive Diversity (different diverse perspectives with reasons Lines 2542-2543; 2544-2545; 2548-2549; 2552-2553; 2554-2555; 2556-2557), but there was no effort in acknowledging the ideas or feelings of others. Whereas in the Homeostatic Seesaw Position, children respected the feelings of others even when they were presenting conflicting views, and protecting each other from being offended. In Scenario 9, right from the beginning, *"Why not? I think he will"* (Line 2541; *"No, he will not"* (Line 2542) demonstrated a straightforward contradiction. G1 (Line 2542) might as well be saying to B1 (Line 2541), 'You are wrong and that is why I think you are wrong'. G2 came in with an opinion (Line 2544). All the group-members were operating as individuals. What was missing was the subtle cue for social unity. Lines 2550-2551 showed a little bit of cooperation when B2 elaborated G2's idea. There was the potential there for Social Unity but then it broke down. Comparing with the Homeostatic Seesaw Position, not much progress was made in the 'High Cognitive Diversity and low Social Unity Position'. Children just ended up where they began by asserting contrary opinions. No careful attention was paid to the need for social acknowledgement.

4.6.6. Non-optimal Seesaw Position II

"High Social Unity and Low Cognitive Diversity Seesaw Position"

The following three conditions for "high Social Unity and low Cognitive Diversity Seesaw Position" were disclosed through interviews, but could not be clearly identified through analysis of children's group-talk. They are as follows:

(i)   "High Seesaw Position" for Social Unity (such as, conformity to classroom disciplinary rules) and "Low See-Saw Position" for Cognitive Diversity.

(ii) "High Seesaw Position" for Social Unity (such as, students' concern for peer social acceptance) and "Low Seesaw Position" for Cognitive Diversity.

(iii) "High Seesaw Position" for Social Unity (such as, students' perception of majority wins) and "Low See-Saw Position" for Cognitive Diversity.

These conditions could not be easily identified because they were children's perceptions. If students were preoccupied with these Social Unity values, it might deter them from spontaneously generating *Constructive Conflict*. Under these conditions, high Social Unity seemed to downplay Cognitive Diversity. For example, students might conform to classroom disciplinary rules rather than generate conflicting views in group-talk. Students might refrain from conflicting views in group-talk rather than hurt friendship. Students might rather follow the majority wins than to voice the minority conflicting views. Students seemed to value Social Unity more than Cognitive Diversity. Hence, there seemed to be no homeostatic equilibrium between Social Unity and Cognitive Diversity.

In analysing children's group-talk in light of the interviews, the interpretation of high Social Unity downplaying Cognitive Diversity seemed to work. 4.6.5 Scenario 6 is an illustration. G1 (Line 516) repeated B2's idea (Line 493) and subdued her

own idea (Line 500). G1 seemed to suggest, 'If my idea is going to cause so much offensiveness and it is going to fall out and you are going to be rude to me, I am not going to express my idea. I will just adopt the popular idea and follow the most dominant voice of the group.' It was another way of saying, 'I am sacrificing my own thinking (low Cognitive Diversity) in order to establish social harmony (high Social Unity)'.

4.6.7 Summary

The Seesaw Working Model on children's group-talk emerged from the Framework on Constructive Academic Conflict which based on its sub-categories of Cognitive Diversity and Social Unity (4.5.2). The Seesaw Working Model incorporates three Seesaw Positions in children's group-talk. These include the optimal "Homeostatic Seesaw Position", the non-optimal "High Cognitive Diversity and Low Social Unity Seesaw Position" and the non-optimal "High Social Unity and Low Cognitive Diversity Seesaw Position". Where homeostasis occurred, the group-members self-regulated and moved the group-talk, as well as making every effort to maintain equilibrium between Cognitive Diversity and Social Unity. The group-members generated conflicting opinions while respecting others with different views. In the Homeostatic Seesaw Position, development of the group-talk appeared likely, while development of group-talk was unlikely in the other two non-optimal positions.

4.7 Outlier Case

4.7.1 Example outside the norm of group-talk

Outlier case means example outside the norm. The norm here means the norm of group-talk in this study when group-members discussed in their small-group discussion. In the norm, the children at least have to talk. The outlier case in this

study suggests the children were basically not talking. There were two examples of Outlier Case from School H Class 5B Day 1 and Day 2's observed group-talk. They were identified as Outlier because there were no oral exchanges. For example, one group member read some lines from the textbook. Another copied some lines from the textbook. The other two members just kept silent. It was practically not a group discussion. However, children showed signs of group interdependence by pointing where to copy from the textbook.

Example: ObservedGroup-talkGT/5BiGp5SchH

Instruction: List 6 perspectives for male bodily change during adolescence.

Line	Group-talk (GT/5BiGp5ScH)	(Commentary)
	B2: *(Reads Chapter 6, page 26) Male bodily change during adolescence.*	**(Individual accountability)**
99	B1: *(Points to textbook)*	**(Points to textbook)**
100	G2: *(Writes, copying from the textbook)*	**(Interdependence)**
101-103	B2 *(Reads Chapter 6 and G2 writes on her own)*	**(No interdependence: whole group seems not accustomed to group discussion)**
104	G2: *Are you doing the reading aloud now?*	**(Ridicule)**
105	G2 *(Points to certain lines on page 28)*	**(Interdependence)**
106-107	B2 *(Reads page 28)*	**(No interdependence: not doing discussion)**
108	G2 *(Continues writing on her own)*	**(No interdependence)**
109	B1: *It's so noisy! How can we discuss?*	
110-111	G2 *(Continues writing)*	**(No interdependence: no discussion)**
112-113	B1 *points to the textbook: These are the most important two points.*	**(Interdependence)**
114-115	G2 *copies from the textbook.*	**(No interdependence: no discussion)**
116-117	*Three children just looked at G2 copying From the textbook.*	**(Not accustomed to discussion)**
118	*9:40a.m. Group report.*	

4.7.2 Summary

An example of Outlier Case was identified from the observed group-talk. Children copied from the textbook and there were no oral exchanges.

4.8 Summary of Results and Analysis Chapter

The current chapter addresses the four research questions that were developed from the research gaps on the quality of children's group-talk. Research question (1) is 'To what extent do Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk account for the processes engaged in by Hong Kong primary school students during group-talk?' For research question (1), Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk seemed to account mostly for the linguistic and cognitive processes, but they did not seem to account for the seesaw process, and the socio-emotional process identified in student group-talk through this study.

Research question (2a) is 'What do students perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed students' classroom behaviour and analysis of students' group-talk in classroom?' Research question (2b) is 'What do teachers perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom?' For research question (2), students and teachers identified similar factors affecting Academic Conflict in group-talk, namely, reasoning, conflicting views, majority wins, and open conclusion. Interestingly, teachers mentioned "task instruction" not mentioned by students; whereas students mentioned "concern for peer social acceptance" not mentioned by teachers.

Research question (3) is 'What is the quality of the students' group-talk in relation

to the linguistic, psychological and cultural levels defined by Mercer (1995)? For research question (3), a new set of linguistic, cognitive, socio-emotional, cultural and pedagogical levels of analysis in investigating children's group-talk was found.

Research question (4a) is 'How much do students have the socio-cognitive competence in handling Academic Conflict?' Research question (4b) is 'How much do teachers facilitate students' socio-cognitive competence in handling Academic Conflict?' For research question (4), A Framework of Social Unity and Cognitive Diversity towards Constructive Academic Conflict was unfolded.

After synthesizing findings of the four research questions, a Seesaw Working Model emerged, incorporating three Seesaw Positions about children's group-talk. They are the optimal Homeostatic Seesaw Position, the non-optimal High Cognitive Diversity and Low Social Unity Seesaw Position, and the non-optimal High Social Unity and Low Cognitive Diversity Seesaw Position. Finally, the outlier case was identified as deviant from oral exchanges in group-talk.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This discussion chapter examines three issues. Firstly, it draws implications from the Seesaw Working Model. Secondly, it discusses implications of implementing group-talk with Constructive Academic Conflict in Hong Kong schools. Thirdly, it discusses insights from the current research methodology. Generally, discussion of each of these three issues comprises three parts. Part one summarizes relevant literature. Part two synthesizes related findings and Part three draws implications. Following the discussion, a summary of Chapter Five is presented.

5.2 The Seesaw Working Model

5.2.1 Introduction

Literature and current findings related to the Seesaw Working Model are referred to; implications on knowledge-building and ground rules are presented; and finally, the limitations of the Seesaw Working Model are discussed.

5.2.2 Literature Summary

In the Seesaw Working Model, the main subject from related literature is Homeostasis. It concerns one of the three Seesaw Positions in children's group-talk, named 'Homeostatic Seesaw Position'.

> *"Homeostasis refers to the self-regulation which serves to maintain constancy of the inner environment of living things",* (Messecar, 1984:2).

"Movement, process, action, harmony, balance, adaptation" dominate the Homeostatic-Dynamic Model (Powles, 1992:198).

The Seesaw Working Model also relates to children's group-talk therefore, reference to literature about children's group-talk is essential. Piaget (1926, 1959) explained that after children have progressed through the egocentric talk in the pre-operational stage, various types of more developed conversation become apparent. The agreement-disagreement dimension of conversation helps children to decentre and to perceive viewpoints from others' perspectives. However, Piaget seemed more concerned with individual learning than peer learning from conflict.

On the other hand, Vygotsky (1978) was concerned with peer learning through consideration of conflicting views. Less competent group members might learn from more competent peers through teacher's scaffolding to upgrade the less competent one's zone of proximity. Vygotsky's emphasis seems to stress teacher's guidance on children's social construction of knowledge.

Following Vygotsky's advocacy for social construction of knowledge, but focusing more on children's peer learning, Barnes & Todd (1997) highlighted children's co-construction of knowledge through analysing children's actual group-talk. Through also analysing children's actual group-talk, Bennett and Dunne (1991) and Mercer (1996) disclosed how children expressed conflicts through group-talk. Although Bennett and Dunne (1991) and Mercer (1996) focused on peer group-learning, their emphasis appeared more on analytic categories of group-talk.

5.2.3 Related current findings

The Seesaw Working Model emerged from the present study. The Seesaw Working Model portrays three positions in children's group-talk: one optimal position and two non-optimal positions. The optimal one is "the Homeostatic Seesaw Position". The two non-optimal ones are "the High Cognitive Diversity and Low Social Unity Position", and "the High Social Unity and Low Cognitive Diversity Position". The optimal and non-optimal positions reinforce that both cognitive and social elements

in group-talk are equally important. The very process of engaging and articulating one's thoughts and responding to them actually help cognitive and socio-emotional processes which in turn lead to learning.

In the optimal case, Homeostatic Seesaw Position, for optimum positive cognitive development in group-talk, there needs to be a balance of social unity and cognitive diversity. In cognitive diversity, there are different opinions which have to be expressed in ways that pay special attention to the need for social unity. If that does not happen, the learning opportunities are likely to be diminished.

In the non-optimal cases, if the cognitive element is emphasized at the expense of the socio-emotional element, learning is hampered. Similarly, if the socio-emotional element is emphasized at the expense of the cognitive element, impairment occurs and learning is also hampered. In the group-talk, children are having their ideas tested (Cognitive Diversity) and what is related is a potential to lose face (need for Social Unity). For example, in the 'High Social Unity and Low Cognitive Diversity Seesaw Position', if children perceived the threat of not being socially accepted (Social Unity), they might subdue their conflicting views and prefer to appear not as clever (Cognitive Diversity) as the next person.

5.2.4 Implications

5.2.4.i Knowledge Building

The Seesaw Working Model seems to be helpful in viewing students' group-talk differently from previous studies. One of the implications is that the Seesaw Working Model may, in a way, help knowledge building.

Piaget's (1959) model of the development of children's peer conversations helps us to understand the role of conflict in children's talk. Piaget explained that after children have progressed through the egocentric talk in the pre-operational stage, various types of more developed conversation become apparent. The

agreement-disagreement dimension of conversation helps children to decentre and to perceive viewpoints from others' perspectives.

The Seesaw Working Model may help to view children's talk from some different perspectives to Piaget. Piaget seemed more concerned with individual improvement rather than peer joint-learning. In contrast, the Seesaw Working Model highlights peers' within-group self-regulation and movement. Peer joint-learning is crucial. One humorous interjection (Social Unity) may trigger other group-members in generating conflicting views with reasons (Cognitive Diversity). The self-regulation from all group members may prevent the group-talk from falling one-sided in favour of either Social Unity or Cognitive Diversity. With self-regulation and movement in the peer joint-learning, there may not be individual improvement alone as stressed in Piaget's model. There may be improvement of the group members, either in socio-emotional competence or cognitive diversity. The Seesaw Working Model may help to highlight the self-regulation and movement in peer within-group improvement in group-talk.

Vygotsky (1978) also emphasized the importance of group-talk. A more competent peer in the group-talk probably helps another less competent child through teachers' scaffolding children's zone of proximity. Vygotsky differs from Piaget's children's group-talk in that Vygotsky stressed teaching-and-learning and within-group improvement, while Piaget emphasized within-individual improvement. Vygotsky also advocated for children's cooperation, while Piaget highlighted children's conflict.

The Seesaw Working Model may help to view group-talk as being similar and different from Vygotsky's theories. Similar to Vygotsky, the Seesaw Working Model stresses peer joint-learning. What seems different from Vygotsky is that it is not necessarily the more competent one who helps the less competent one. In the Seesaw Working Model, children are not labelled as 'more' or 'less' competent. Even a less competent one can make one humorous interjection or ask 'why' to trigger others to move from Social Unity to Cognitive Diversity or vice versa. It is the self-regulation and/or movement among the peers that enhances the Homeostatic Seesaw Position.

Vygotsky's (1978) social construction of knowledge in children's group-talk might be found in Barnes and Todd's (1977) findings. Both Piaget and Vygotsky did not exemplify children's group-talk through transcripts of actual group-talk. Barnes and Todd (1977) were regarded as pioneers in demonstrating children's social construction of knowledge through actual group-talk. Barnes and Todd, (1995) while revisiting children's co-construction of meaning in group-talk, reiterate that:

> "... meaning is indeterminate and open to change, that it is dependent on context, and that it is spread over exchanges of utterances rather than inhering in any one of the participants." (p.14)

It is likely that the meaning refers to knowledge-construction. Barnes and Todd (1977) also highlight social skills in group-talk which encompasses the ability to control progress through the task, manage conflict, modify and use different viewpoints as well as render support.

Barnes and Todd's (1977) ideas on children's group-talk seemed to have some traces of the Seesaw Working Model that emerged from the current study. Barnes and Todd (1977) inferred both cognitive and social skills, whereas Piaget was more focused on cognitive skills. Like Barnes & Todd, Vygotsky also emphasized children's cognitive and social skills. Although Barnes and Todd, or Vygotsky inferred cognitive and social entities, they did not highlight the movement between these two entities. In contrast, the Seesaw Working Model emphasizes the movement of these two entities.

There was another trace of the Seesaw Working Model found in Barnes and Todd's (1977) ideas about group-talk. Barnes and Todd's claims that meaning is "open to change" (Barnes and Todd, 1977:100) and "spread over exchanges of utterances" (Barnes and Todd, 1995:14) seem to connote the change, exchanges and movement in the Homeostatic Seesaw Position. Barnes and Todd did not strictly demand "change" in the exchanges of utterance. However Homeostasis demands change and "Seesaw" demands change. Barnes and Todd (1977) did not explicitly spell out **what** and **how** the change was in group-talk. The Seesaw

Working Model spells out that the movement or change is from Social Unity to Cognitive Diversity or vice versa. The movement of the optimal position of the Seesaw Working Model involves one triggering others in the group from Social Unity to Cognitive Diversity or vice versa. Most importantly, Barnes and Todd (1977) did not explicitly mention the homeostatic self-regulation between Social Unity and Cognitive Diversity in group-talk.

Bennett and Dunne (1991) and Mercer's (1996) types of group-talk are often cited. Like Barnes and Todd (1977), Bennett & Dunne (1991), and Mercer (1996) exemplified group-talk with actual group-talk. Bennett and Dunne's (1991) abstract mode of group-talk offers the categories of Primitive Argument, Collaboration and Genuine Argument. Bennett and Dunne seemed to suggest the criteria for these modes of group-talk. These were based more on the linguistic (denoting the content, function and sentence structure of group-talk) and the cognitive levels (whether reasoning or diverse viewpoints were involved). It seemed difficult to find traces of the Seesaw Working Model in Bennett and Dunne's (1991) definition of the modes of abstract group-talk. There was no explicit mention of self-regulation in group-talk highlighting Homeostasis or movement.

Like Bennett and Dunne (1991), Mercer (1996) also offered types of group-talk, but with more detailed criteria. The types included Disputational Talk, Cumulative Talk and Exploratory Talk. Bennett and Dunne (1991) seemed to be more concerned with the types of group-talk, without in-depth elaboration on social construction of knowledge. On the other hand, like Barnes and Todd (1977), Mercer (1996) highlighted the social construction of knowledge in group-talk. However, like Bennett and Dunne (1991), Mercer (1996) did not mention the self-regulation of children's interaction (one group-member self-regulating peers from Social Unity to Cognitive Diversity or vice versa) in children's group-talk. Again, like Bennett and Dunne (1991), Mercer (1996) did not explicitly mention the movements of the children's interaction (members triggering others to Social Unity or Cognitive Diversity or vice versa, showing movement or development in the group-talk).

When referring to understanding children's group-talk, different studies have contributed different perspectives. All contributed to knowledge building. The fact that the Seesaw Working Model may help to view children's group-talk from quite a different perspective may, in a way, help knowledge building.

5.2.4.ii. Ground Rules for group-talk if the Homeostatic Seesaw Position of the Seesaw Working Model is to be implemented in the Hong Kong schools

(5.2.4.ii.A) Importance of ground rules

Ground Rules are "implicit norms and expectations that are necessary to take account of and to participate successfully in educational discourse" (Mercer, 1996:363). To Mercer (1996:363), ground rules are important in education because "becoming educated means becoming able to follow the ground rules." Mercer goes on to explain that sometimes ground rules are wrongly perceived as common sense once the ground rules have been acquired and established. As Sheeran and Barnes (1991) claim:

> *"In spite of their importance, these tacit expectations or ground rules are seldom discussed with pupils, because the teachers themselves are largely unaware of them."* (p.2)

In fact, one important and problematic point of classroom learning is learners' appreciation of educational ground rules (Mercer & Edwards, 1981; Edwards & Mercer, 1987; Sheeran & Barnes, 1991).

Classroom research has supported the notion that children's interpretations of the ground rules may differ in important ways from those of their classmates and/or their teachers (Mercer *et al.*, 1988). Sheeran & Barnes (1991) recommend that when providing ground rules, justifications for the requirements need to be explained to the students. The justifications will help students understand why they should follow certain ground rules. There is evidence that when teachers openly discuss the ground rules with the students, it can lead to improved motivation and levels of performance among the students (Brown & Palincsar, 1989; Prentice, 1991; Steel, 1991; Dawes *et al.*, 1992).

<u>**(5.2.4.ii.B) Ground Rules**</u>

The following ground rules may be posted in the classrooms for the enhancement of the Homeostatic Seesaw Position of the Seesaw Working Model

---

<u>***Ground Rules for Homeostatic Seesaw Position of the Seesaw Working Model***</u>

Group members'

SELF-REGULATION

&

MOVEMENT

between Social Unity and Cognitive Diversity in Group-talk

<u>Social Unity</u>	<u>Cognitive Diversity</u>
1.Students' maximum participation	7.Teacher's open task instruction
2.Students' interdependence	8.Teacher's scaffold
3. Students' conformity to classroom	9.Students' conflicting views
	10. Students' reasons
disciplinary rules	11. Students' open conclusion or
4.Students' disagreement skills	eventual agreed conclusion
5.Students' humour	12. Students' post-discussion
6.Students' peer social acceptance	group-report
	13. Students' inter-group peer evaluation

Before the ground rules of the Homeostatic Seesaw Position of the Seesaw Working Model are explained to students, teachers need to be aware of the meaning of Homeostasis, Seesaw Working Model and examples of the various positions of the Seesaw Working Model (4.6).

What is expected from each ground rule and **why** it is expected in relation to the Homeostatic Seesaw Position of the Seesaw working Model is discussed in the following section.

<u>1. Students' maximum participation</u>

Each group member is to initiate (exhibiting self-regulation) contributions to the group discussion to attain the group goal. In so doing, each member can generate

conflicting views and enjoy in the fun of discussion.

2. Students' interdependence

Each group-member is to help others feel encouraged and supported in pursuit of group-goals (for example, help others to be relevant to the task-instruction; help peers to compare, explain, justify or validate the response). In so doing, all members can help each other to learn co-operation and co-construct knowledge.

3. Students' conforming to classroom disciplinary rules

All classroom disciplinary rules need to be observed (for example, speak softly during discussion so that other groups are not disturbed). In so doing, all members are self-disciplined to keep all discussion progressing in an orderly fashion.

4. Students' disagreement skills

Challenge conflicting views politely. Attack the peer's views, not the person. Use disagreement skills, such as "How about....?" "What if...?" "Yes but...." In so doing, there may be constructive conflicting views without hurting the feelings of others.

5. Students' humour

Instil humour appropriately (for example, connecting discussion to a creative, funny simile). With humour, all group members should still be on-task and pursue the group-goal. In so doing, there is joy and creativity in the discussion, as well as discipline, to achieve the group-task.

6. Students' peer social acceptance of others' conflicting views

Whenever there are disagreements, be open to others' views and reasons. Avoid quarrelling or hurting others' feelings. In so doing, each member will be embracing diverse perspectives, open to verbal attacks, and putting oneself in the others' shoes. One can then be cognitively open to different ideas and socio-emotionally competent in being considerate to others' feelings.

7. Teachers' open task instructions

Teachers need to devise open-ended task instructions (for example, commencing with high-ordered question/instruction words, such as, why, how, if, explain, design, compare, evaluate, or validate). In so doing, students may learn to give conflicting views with reasons. Students' creativity may be enhanced without fixation to close-ended, definite answers.

8. Teachers' scaffolding

During children's group-talk, teachers may give children different kinds of positive encouragement, reinforcing how and why the discussion is good. Teachers may also extend children's group-talk through scaffolding (guidance),

such as, "If", "What are others' perspectives and reasons", "Compare" or "Why". In so doing, students may be encouraged to extend the group-talk to wider perspectives.

9. Students' Conflicting Views

Each student may disagree with others' views; and they should present the disagreement clearly and with reasons. In so doing, the group members may understand the conflicting views and their rationales. It may enable students to voice conflicting views with reasons in everyday life outside the classroom. It may also help students avoid just abiding by consensus.

10. Students' reasons

Each is to give reasons for individual viewpoint, no matter if in agreement or disagreement. In so doing, students may be trained to give reasons for their ideas in everyday life outside the classroom. It may help pupils to clarify or validate their views to others.

11. Students' open conclusion or eventual joint agreement conclusion.

Depending on the requirement of task instruction, students may record all conflicting views, contributing to open conclusion. Students may also argue to decide which the best solution is and why it is the best. This may be viewed as eventual joint agreement conclusion. In so doing, students need to decide the relevance of the discussion to the task requirement.

12. Students' post-discussion group-report to whole class

After the time limit for the group-talk, groups may be invited at random to report the open conclusion or the eventual joint agreement to the whole class. The number of group members and the format of reporting will be decided upon by the whole group. In so doing, all other groups may share the viewpoints of the reporting group. The reporting group may also reiterate and clarify the points they have discussed. The group-report may also serve as a basis for inter-group peer evaluation.

13. Students' intra-group or/and inter-group peer evaluation

Students' intra-group peer evaluation can be conducted within one group. All group members evaluate the performance of the group. The format and criteria may be manifold. For example, students may be asked to answer one or two open-ended questions, such as 'Give one point with reasons why this group has been effective during the group-talk'; or 'Give one point with reasons on how this group can be improved'. The criteria may be based on the students' ground rules, for example to what extent and in what ways have students exhibited maximum

participation, interdependence, disagreement skills, humour, conflicting views, or provision of reasons. In so doing, each may be alerted to how well (and why) each has contributed to the group-goal. It may also help students' evaluative skills.

Students' inter-group peer evaluation may be conducted during different group-reports before the whole class. The format and criteria may be similar to the intra-group peer evaluation. The difference is that inter-group evaluation is on all group-reports, while intra-group evaluation is on the performance of one's own group. In so doing, each may be alerted to how well (and why) each group has contributed to the whole group-goal. It may also alert students the importance of cooperation among group members and may help students' comparative and evaluative skills.

5.2.5. Limitations
5.2.5.i Small-scale research only
The Seesaw Working Model emerged from the present study. It is too soon for it to be accepted as a reliable model because the current study is only a small-scale research. It still needs to be further tested at a wider level.

5.2.5.ii No observable evidence for the "High Social Unity and Low Cognitive Diversity Seesaw Position

The Seesaw Working Model explains children's group-talk through three seesaw positions. The 'Homeostatic Seesaw Position' is the optimal case while the 'High Cognitive Diversity and Low Social Unity Seesaw Position' and the 'High Social Unity and Low Cognitive Diversity Seesaw Position' are the two non-optimal cases. There was ample observable evidence from the group-talk supporting the 'Homeostatic Seesaw Position' (for example, Section 4.6.4 Scenario 1 to 5) and the 'High Cognitive Diversity and Low Social Unity Seesaw Position' (for example, Section 4.6.5 Scenario 6 to 9). For the 'High Social Unity and Low Cognitive Diversity Seesaw Position', there appeared limitation that evidence could not be explicitly observable in the group-talk, though evidence was from children's interview. It was not observable in the group-talk because the evidence was from children's interviews, unfolding their perception and values towards high social unity and low cognitive diversity. 75% of the children (108 out of the 144 children interviewed) gave negative comments on disagreements in group-talk. They might rather subdue their conflicting views (low cognitive diversity), so that their friends would play with them at recess (Child22ScF5B) or

they would not hurt their peers' feelings (high social unity) (Child5SCH5A). If they subdued their conflicting views, they would keep quiet when cognitive conflict arose in the group-talk. Children keeping quiet because of these embedded high social unity values, might not be clearly observable in the group-talk.

5.2.5.iii Other possible models exemplifying the role of conflict in learning

The fact that the current research data was only from group-talk in General Studies lessons might also pose limitation on the Seesaw Working Model. There is a tendency that in General Studies lessons, the students are required to discuss open-ended questions. Students' group-talk may be more prone to generating conflicting views. The three different seesaw positions in the Seesaw Working Model may emerge in this special General Studies learning context. It is possible that in other academic subjects, the Seesaw Working Model may not have emerged. Such probability may be in a Mathematics lesson when definite answers are expected, and students may not be engaged in cognitive conflicts.

In some Science lessons, students may be required to do just collaborative experiments, no conflicting views may be expected either. In such cases, as there may not be any cognitive diversity, the three seesaw positions of the Seesaw Working Model may not have emerged. The reason is that in the current finding, the three seesaw positions are built on two entities, namely, Cognitive Diversity and Social Unity. Therefore, other possible models could have been generated in contexts where there may not be cognitive diversity or social unity.

The discussion that the Seesaw Working Model may be limited to certain academic subjects, such as General Studies, seems to have been highlighted by Forman and Cazden (1985). They acknowledged that:

> "...cognitive conflict... can be tested best in context where overt manifestations of conflict are likely. These contexts seem to occur when children have access to a wealth of empirical evidence, when this evidence is capable of suggesting at least two distinct solutions to the problem." (p.339-340)

The academic subject (General Studies) that the children in the current research was engaged in appears to allow children access to a wealth of empirical evidence,

especially when open-ended task instructions were given. What Forman and Cazden (1985) have thrown light on the limitation of the Seesaw Working Model is that models other than the Seesaw Working Model may be prominent when cognitive conflict CANNOT be tested best where overt manifestations of conflict are likely.

Forman's study (1981) evidenced that in group-talk there could be just social unity without cognitive diversity. The children were assigned a chemical reaction task.

"Instead of conflicting points of views, one saw two people attempting to construct and implement a joint experimentation plan to be tested later on in the task." (Forman and Cazden, 1985: 338)

Under this learning context, when the children "interacted at a cooperative level, a great deal of mutual support, encouragement, correction, and guidance was exchanged" (Forman and Cazden, 1985: 338), it might be difficult for the Seesaw Working Model to emerge. The reason is that there is just Social Unity, without Cognitive Diversity in the group-talk.

The author would like to acknowledge that the role of cognitive conflict may not be aimed at, or attained through all learning contexts. Where learning conditions are not pursued for cognitive conflict, then the Seesaw Working Model may not have emerged. Other possible models may be needed to exemplify these cases.

5.2.6 Summary

The Seesaw Working Model may contribute to knowledge building. There may be similarities or contrasts between the Homeostatic Seesaw Position of the Seesaw Working Model and theories of Piaget (1959), Vygotsky (1978), Barnes & Todd (1977), Bennett & Dunne (1991), and Mercer (1996). The Seesaw Working Model is unique regarding self-regulation and movement between entities of social unity and cognitive diversity or vice versa during optimal learning situation. Self-regulation means the group-members are initiative to regulate the balance of social unity and cognitive diversity in group-talk. Movement means

group-members regulated social unity and cognitive diversity in the group-talk so that all group-members can develop the group-talk. Some ground rules are offered for the implementation of the Seesaw Working Model. To round up the discussion on the Seesaw Working Model, its limitations are looked into.

5.3 Implementation of Group-talk with Constructive Academic Conflict

5.3.1 Introduction

If group-talk with Constructive Academic Conflict is to be implemented in Hong Kong, what is to be changed and why change is necessary, needs to be identified first. With reference to the results of the four research questions and related literature, the present study appeared to indicate a need for a change to group-talk with Constructive Academic Conflict from the following three situations:

(i) from avoidance to elicitation of Constructive Academic Conflict in group-talk;

(ii) From teacher-dominant whole class teaching to supplement with 'student-controlled and teacher-backup' small-group interactive learning;

(iii) From product-dominant whole class teaching to the inclusion of 'process-dominant and product-emergent' small-group interactive learning.

These three situations will be discussed in the following sections with reference to five questions from the Toronto Board's Curriculum Implementation Plan on Interactive Learning (Green and Myers, 1990), and with reference to related literature and current findings. The five questions from the Toronto Board's Curriculum Implementation Plan on Interactive Learning (Green and Myers, 1990) will be stated in the following sections.

5.3.2 Literature Summary

If group-talk with Constructive Academic Conflict is to be implemented in Hong Kong schools, questions of "what is to be changed?" and "why is change necessary?" (Green and Myers, 1990) need to be considered with assistance from the following related literature.

5.3.2.i Tendency to avoid conflict

From a cultural perspective, Chinese tended to avoid conflict. Being keen to protect social face, East Asians avoid open and aggressive ways of discussing conflicting ideas (Hwang, 1985; Cocraft and Ting-Toomey, 1994; Leung, 1997). More broadly, East Asians are considered collectivist with a strong emphasis on maintaining relationship and harmony (Boisost and Child, 1996; Triandis *et al.*, 1990). From the socio-emotional perspective, psychologists (for example Erickson, 1969) have alerted us that early adolescents are keen on peer social acceptance.

5.3.2.ii Tendency of less attention on 'student-controlled and teacher-backup' small-group interactive learning

In Canada, Green and Myers (1990) noticed that student-controlled small-group discussions were not widely used. It seemed difficult to accept the student as "a self-directed problem-solver and active participant" when traditionally a teacher talked for nearly ninety-five percent of a lesson (Greene and Myers, 1990: 331). In Britain, in the early 1970s educators were still unwilling to value students' group-talk (Francis, 1990). It was not until the late seventies that Barnes and Todd's (1977) pioneer study on children's group-talk began gaining attention. In Hong Kong, there has been little research on children's group-talk:

> "Although Hong Kong teachers are not strangers to small group
>
> teaching, few studies have been reported on using co-operative groups,
>
> especially in the primary sector." (Chan, 2000: 44)

Furthermore, there is probably less attention on 'student-controlled and teacher-backup' small-group interactive learning. Teachers may be afraid of the subversive and disruptive effect of children's group-talk, and thus refrain from giving students more autonomy in group-talk. It seems to suggest what Murphy (1987) observed as influence of Confucianism:

> "Hong Kong students display almost unquestioning acceptance of the
>
> knowledge of the teacher or lecturer --- Coupled with this is an

195

emphasis on strictness of discipline and proper behaviour, rather than

an expression of opinion, independence, self-mastery, creativity and

all-rounded personal development. " (p.34)

5.3.2.iii Tendency of product-dominant Hong Kong language-in-education policy

In Hong Kong, the language policy is focused mainly on the medium of
instruction, stressing Assessment (product of language). The Hong Kong
government language policies support what it refers to as "high standards in Hong
Kong" (Education Commission, 1990). Poon (2000:352) critiqued, "all
language-in-education policies in Hong Kong have not been guided by language
planning. Hence they have been ad hoc and not well implemented."

5.3.3 Related Findings

5.3.3.i Tendency to avoid conflict

Current findings showed that, in their perception, about 75% of the students (108
out of the 144 children interviewed) tended to avoid Academic Conflict. They
might be affected to highly value friendship by the Confucian-heritage culture or
affected by their social-emotional need for peer social acceptance. In practice,
about half of the students (15 out of 29 sessions) involved in the current study
demonstrated *Constructive Conflict* group-talk through their generation of
conflicting views with reasons. The elicitation of Academic Conflict seemed not
common in the current study.

5.3.3.ii Tendency towards less attention on 'Student-controlled and

teacher-backup' small-group Interactive Learning

In the current study, out of the 22 teachers interviewed, Teachers
6,7,13,14,16,18,19,20, and 22 acknowledged that they could not afford time to
implement small-group learning because they had to meet the demands of
examination-oriented syllabus. Students also disclosed that small-group
discussion was not frequent in General Studies lessons. Generally speaking, out of
the three General Studies lessons held each week, there was an average of less
than one lesson with small-group discussion. On the whole, small-group
interactive learning was not popular in the current study.

5.3.3.iii Tendency towards product-dominant whole-class learning and less 'process-dominant and product-emergent' small-group interactive learning

Teachers in the present study acknowledged that small-group discussion was not frequently implemented. Their comments matched with students' responses that small-group learning was not common in General Studies lessons. Teachers admitted that they could not spare the time for small-group discussion because they had to meet the examination-oriented syllabus. Meeting the examination-oriented syllabi appeared to be demanding more teachers and students to be concerned about product-dominant learning and less concerned about process-dominant small-group learning. Teachers' frequent use of product-dominant learning seemed to be much endorsed by the Hong Kong Government policy "for high language standards in Hong Kong" (Education Commission, 1990).

5.3.4 Implications of the implementation of Group-talk with Constructive Academic Conflict

If group-talk with Constructive Academic Conflict is to be implemented in Hong Kong schools, five aspects based on the five questions guiding the implementation of Interactive Learning in Toronto (Green & Myers, 1990) need to be discussed with reference to the Hong Kong context. Interactive Learning incorporates students' group-talk. For this reason, Green and Myers' (1990) guidelines are referenced. These five questions are: (1) What is to be changed? (2) Why is change necessary? (3) Do people have the information to bring about the change? (4) Do people recognize the change when it occurs? (5) Can they articulate the benefits that have been derived?

5.3.4.i First question: What is to be changed?

Green & Myers' (1990) first question is:

> *"Do people understand what is to be changed? Do parties concerned really know what small group learning is and do they understand how it is different from what might be happening in the classrooms currently?"*
> (p.339)

(5.3.4.i.A) What is to be changed in the Hong Kong school context?

The concerned parties who may need to understand what is to be changed in group-talk may be students, teachers, or policy-makers. From the literature summary and related findings, it appeared that the people concerned in the current study were not aware that change in group-talk was necessary, or what needed to be changed. The literature summary (5.3.2) and related findings (5.3.3) seem to show (1) students' tendency to avoid Academic Conflict; (2) less attention to "student-controlled and teacher-back-up" small-group interactive learning; and (3) less attention to "process-dominant and product-emergent" small-group interactive learning. These three situations suggest "what is to be changed?" to promote Constructive Academic Conflict group-talk in Hong Kong.

So, what needed to be changed in group-talk may be sketched as follows:

(Figure 5.1) Three changes needed in group-talk

(i) From avoidance of Academic Conflict

To elicitation of Constructive Academic Conflict

(ii)From teacher-dominant whole-class learning to the supplement of 'student-controlled & teacher-backup' small-group learning

(iii)From product-dominant whole-class learning to the inclusion of 'process-dominant & product-emergent' small-group learning
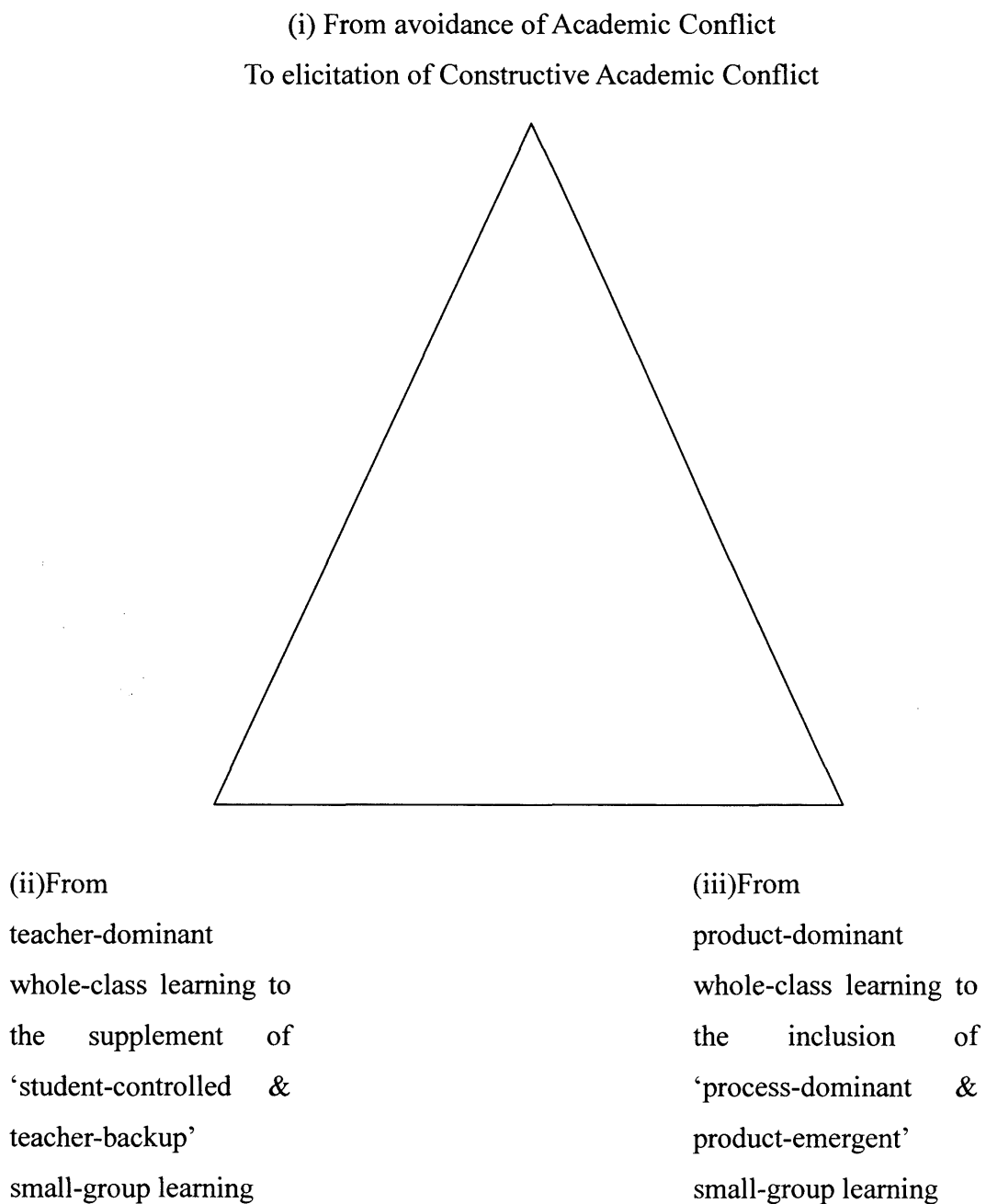
(5.3.4.i.B) What really is small-group learning?

The desired outcomes of the proposed three changes to the Hong Kong school system (Figure 5.1) may be synthesized as 'A Framework on Constructive Academic Conflict in Children's Group-talk' in Figure 5.2. This framework may be viewed as the desired small-group learning. It may help concerned parties to 'know what small-group learning is' (Green & Myers, 1990:339) in order to implement the changes for interactive learning. The framework (Figure 5.2) incorporates three aspects. First of all, there is 'student-controlled and teacher-backup' small-group learning. Then there is 'process-dominant and product-emergent' small-group learning. Finally, these two aspects of small-group learning may help to progress towards Constructive Academic Conflict in children's group-talk. These three aspects are in triangular relationship, with Constructive Academic Conflict at the apex of the triangle. These three aspects are inter-related and are indicated by the arrows in Figure 5.2.

Figure 5.2

A Framework on Constructive Academic Conflict in Children's Group-talk

Constructive Academic Conflict

'Student-controlled   'Process-dominant &

teacher-backup'   product-emergent'

Small-group learning   small-group learning
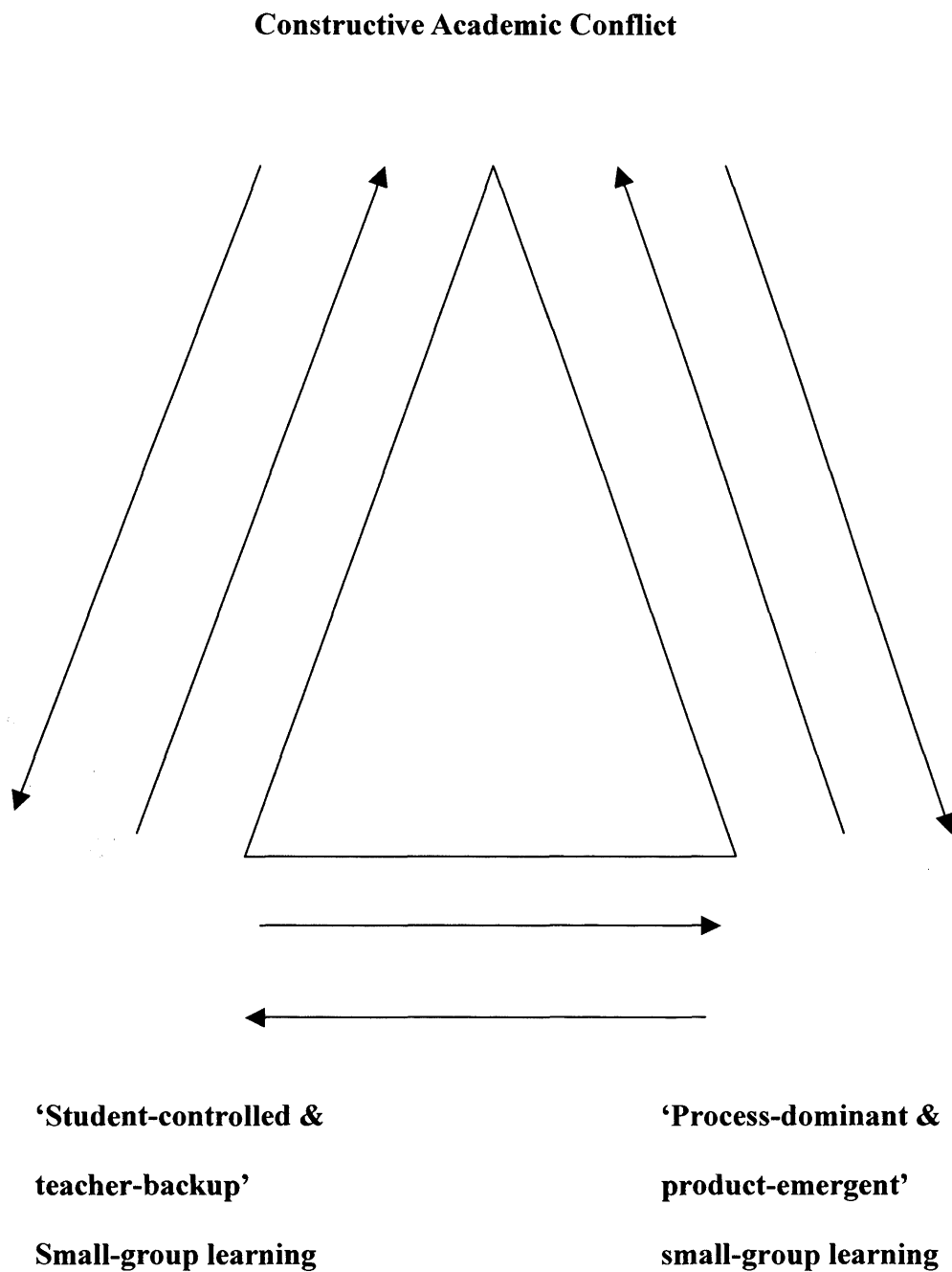
The first quality of the framework, 'student-controlled and teacher-backup' small-group learning means that group-members self-regulate the group-talk under teachers' backup consisting of open-ended task instruction. The group members themselves largely control the pace and direction of the group-talk, without much reliance on teacher control. Generally, under the teachers' backup of open-ended task instructions, the students tend to generate Constructive Conflict group-talk. They are likely to give conflicting views with reasons, promoting Cognitive Diversity in the group-talk. The decision about whether the group-talk is constructive does not depend on students' Cognitive Diversity alone. For the small-group learning to be considered constructive, as in the Homeostatic Seesaw Position in Group-talk (see 4.6.4), the group-members need to self-regulate (student-controlled learning) the group-talk so that internal harmony of Cognitive Diversity and Social Unity can be achieved.

In Figure 5.2, an arrow goes up from 'student-controlled and teacher-backup' small-group learning to 'Constructive Academic Conflict', indicating that students are initiating their group-talk, with teachers' backup, towards the goal of co-constructing Constructive Academic Conflict. Another arrow comes down from 'Constructive Academic Conflict' to 'student-controlled and teacher-backup' small-group learning, indicating that for Academic Conflict in group-talk to be considered Constructive depends very much on students' self-regulation to bring a balance of Cognitive Diversity and Social Unity in their group-talk. In this way, there is co-construction of conflicting views and interdependence of socio-emotional empathy so that conflict will be constructive, instead of deteriorating to dysfunctional cognitive or affective conflict.

An arrow goes from 'student-controlled and teacher-backup' small-group learning to 'process-dominant and product-emergent' small-group learning and another arrow goes from the latter to the former. They indicate that the group-members

202

self-regulate and move the group-talk. The movement or 'process' depends greatly on the group-members' self-regulation. Simultaneously, the group-members' self-regulation produces the movement (process-dominant) of the group-talk. Therefore, these two aspects of small-group learning are inter-related.

The second quality of the framework, 'process-dominant and product-emergent' small-group learning means the process and product of the movement in the group-talk. It refers to the 'linguistic, cognitive, socio-emotional and seesaw' processes and product of children's group-talk that emerged from the results of research question one (see 4.2).

An arrow goes up from 'process-dominant and product-emergent' small-group learning to 'Constructive Academic Conflict', indicating that these processes and product in small-group discussion help children to achieve the goal of 'Constructive Academic Conflict' in their group-talk. Another arrow goes down from 'Constructive Academic Conflict' to 'process-dominant and product-emergent' small-group learning, indicating that if Academic Conflict is to be considered constructive depends much on the movement or process-dominant learning.

If there is no process-dominant learning (that is, no movement in the verbal interaction) between the group-members, the balance of co-construction of conflicting views (Cognitive Diversity) and interdependence of socio-emotional empathy (Social Unity) may not be well projected to bring out the 'Constructive' feature of the Academic Conflict. If there is no movement (no process-dominant learning) between the group-members, then the group-talk will be like the examples in the Outlier Case and conditions in the two non-optimal Seesaw Positions in group-talk. In the Outlier Case, the group-members just pointed to certain lines in the textbook and one member recorded it on the worksheet, highlighting just the

product (answers on the worksheet). There was no movement in group-talk (no process-dominant learning as the outlier case in Section 4.7).

Under conditions in the two non-optimal seesaw positions of group-talk, there is also no movement in the group-talk (no process-dominant learning). The two non-optimal Seesaw positions are the 'High Cognitive Diversity and Low Social Unity Seesaw Position' and the 'High Social Unity and Low Cognitive Diversity Seesaw Position'. The relevant results and analysis of these two non-optimal cases (see 4.6.5 and 4.6.6) showed that there was likely no movement (neither development nor process-dominant learning) if there was no balance between Cognitive Diversity and Social Unity regarding Academic Conflict in group-talk.

So, if change on Constructive Academic Conflict group-talk is to be implemented in Hong Kong schools, parties concerned need to "really know what small group learning is" (Green and Meyers, 1990:339). The essentials of small-group learning may be summarized as 'student-controlled and teacher-backup' and 'process-dominant and product-emergent' small-group learning, progressing towards Constructive Academic Conflict in A Framework on Constructive Academic Conflict. At the same time, the Homeostatic Seesaw Position in the Seesaw Working Model may portray the optimal learning condition in small-group learning because group-members self-regulated Social Unity and Cognitive Diversity so that there is movement (or development) in the group talk.

The third quality of the framework, Constructive Academic Conflict is the goal of 'student-controlled and teacher-backup' and 'process-dominant and product-emergent' small-group learning. It is positioned at the apex of the triangle. It implies that in order for Academic Conflict to be Constructive much depends on the foundation of 'student-controlled and teacher-backup' and 'process-dominant and product-emergent' small-group learning to bring out the balance of Cognitive

Diversity and Social Unity in group-talk.

(5.3.4.i.C) How is the change different from what might be happening in Hong Kong classrooms currently?

The literature summary (5.3.2) and related findings (5.3.3) may help concerned parties understand the three situations that needed to be changed. The three situations included (1) from avoidance of Academic Conflict to elicitation of Constructive Academic Conflict; (ii) from teacher-dominant whole-class learning to supplement of student controlled and teacher-backup small-group learning; (iii) from product-dominant whole-class learning to the inclusion of process-dominant and product-emergent small-group learning. For the three changes to be implemented, the parties concerned may need to know what small group learning is (5.3.4.i.B) and to put it to action.

The problem that appeared to call for the change in group-talk in the current study might be that teachers and students perceptually knew what small-group Interactive Learning was, but teachers seemed much constrained by the government or school policy to emphasize product or examination-oriented syllabi. What seemed to be happening in Hong Kong classrooms was that most teachers seldom encourage group-talk. In the interviews, most teachers acknowledged that they could not afford the time for such learning. In short, although teachers and students knew what group-talk was, such learning was not commonly practised in the Hong Kong classrooms studied.

5.3.4.ii Second question: Why is change necessary?

Green and Myers' (1990:339) second question is:

> *"Do people understand why change is necessary? Are the parties concerned convinced that the change will be beneficial, more importantly, to the students and the ways they learn?"* (p.339)

205

The desired change is to implement the framework, that is, group-talk with Constructive Academic Conflict, based on 'student-controlled and teacher-backup' and 'process-dominant and product-emergent' small-group learning. Such change is beneficial to students for at least three reasons. Firstly, the goal of Constructive Academic Conflict group-talk may enhance more balanced Cognitive Diversity and Social Unity in learning. Secondly, well-managed Academic Conflict practised through 'process-dominant learning' in school may help the empowerment of organization at work in future. Thirdly, 'student-controlled learning' is likely to help independent life-long learning. Each reason will be elaborated below.

Firstly, there appears to be a need for students to forge new understanding on disagreements and create Constructive Academic Conflict through new work forums in group-talk. The new work forums may imply the optimal learning condition during the Homeostatic Seesaw Position in group-talk whereby there is internal harmony between Cognitive Diversity and Social Unity (see 4.6.4). The new work forums in students' group-talk may enable students to be balance in Cognitive Diversity and Social Unity in learning. In learning, not just cognition, product or teacher-led learning is emphasized. As exemplified in the Homeostatic Seesaw Position of group-talk towards Constructive Academic Conflict, both cognition and socio-emotional, process and product, as well as 'student-controlled and teacher-backup learning' are enhanced.

Secondly, the change is beneficial for students to be better prepared to manage cognitive and affective conflict at work in future.

"Well-managed conflict invigorates and empowers teams and

organizations. Without a full airing of different points of views, decision

can be disastrous, common tasks meaningless, and relationship shallow."

(Tjosvold, 1991: xiii)

Some competence in "different points of views" and "relationship" (Tjosvold, 1991:xiii) may be found in the results for Cognitive Diversity and Social Unity respectively for research question four (see 4.5). If Constructive Academic Conflict (with different points of views and relationship) is beneficial to students in the future and if students are prepared (see 4.5), the change then seems worth pursuing.

Thirdly, there is a need for the implementation of the framework, especially with student-controlled small-group Interactive Learning. Students may learn to be sensitive, responsive and flexible to the ever-changing environment (Cheung & Chang, 1996) through autonomy in group-talk. Through group-talk in the current study, some children showed the competence to self-regulate (indicating student-controlled) and move (indicating process-dominant) the group-talk, so that there is a balance of Cognitive Diversity and Social Unity in the group-talk. Students' self regulation and movement in group-talk may support their "responsibility for controlling the pace and direction of their learning" (Barnes and Todd, 1995:2). When students are accustomed to monitoring the pace and direction of their learning, it is likely that they will handle independent learning better. Having the competence to handle independent learning may, in a way, make life-long education a natural follow through process. The self-compliance or self-actualisation that seems to be embedded in independent learning may help to motivate life-long education, or help to make life-long education possible.

"Why is change necessary?" (Green and Myers, 1990:339) may mean different

things to the different parties concerned. In the case of Hong Kong language policy-making, in addition to the input from educators and academics, the government has to consider the views of businessmen who have exerted great pressure for high language standards (Education Commission, 1990; Ming Pao Daily, 3 Sept 1999; South China Morning Post, 29 February 2000). Hong Kong Government documents also admitted that there was "a lack of a coherent framework for planning and implementing language policy in education" (Education Commission, 1995:41). A long-term, coordinated approach considering "the political, economic, social and cultural context of Hong Kong" was pressed for, together with the "combined efforts of policy-makers, educators, parents, employers and society in general" (Education Commission, 1995:41). More research on students' group-talk in Hong Kong may be necessary to prove to businessmen and policy-makers why such a change to Hong Kong educational policy is beneficial in the long run.

5.3.4.iii Third Question: Do people have the information to bring about the change?

Green and Myers' (1990:339) third question on implementation of Interactive Learning is "Do people have the information required to bring about the change?" There appears to be little Hong Kong based research on students' actual group-talk. Results of the four research questions in the current study may provide some information to bring about the change if group-talk with Constructive Academic Conflict is to be implemented in Hong Kong schools. However, teachers need to be aware that the current study is a small-scale research, any current finding needs to be viewed from the light of this fact. The author now reviews each research question in the paragraphs that follow.

Research question one is 'To what extent do Bennett & Dunne (1991) and Mercer's

(1996) quality of group-talk account for the processes engaged in by Hong Kong primary school students during group-talk?' Findings of research question one may serve as signposts to discern the linguistic, cognitive, socio-emotional and seesaw processes as engaged by students through group-talk in the current study (see 4.2). If these processes are facilitated, the subsequent products may emerge. Through these processes, student-controlled small-group learning may also be enhanced.

Research question two is 'What do students perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed students' classroom behaviour and analysis of students' group-talk in classroom?' and 'What do teachers perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom?' Findings of research question two might alert teachers that there could be incongruity between students' perception of Academic Conflict related to their behaviour in the classroom and analysis of their group-talk (see 4.3.1). Teachers may need to understand the underlying perception of students, for example whether students dislike academic conflict. Teachers may need to help students to see the positive effects of academic conflict and help them to minimize perceptual obstacles before the implementation of academic conflict in group-talk is possible.

Research question three is 'What is the quality of the students' group-talk in relation to the linguistic, psychological and cultural levels defined by Mercer (1995)?' Findings from research question three showed a new set of linguistic, cultural, cognitive, socio-emotional and pedagogical levels of analysis in investigating students' group-talk. These levels might help teachers to understand how to move towards Constructive Academic Conflict in students' group-talk. The linguistic level of analysis in investigating children's group-talk may help to

analyse the content and function of group-talk, indicating *Assertion* or *Constructive Conflict* (see 4.4.2). *Assertion* group-talk refers to diverse perspectives, without reasons while *Constructive Conflict* group-talk refers to diverse perspectives, with reasons. The cultural level may stimulate teachers to reflect whether students' generation or avoidance of academic conflict is deep-rooted in cultural norms related to (1) order versus diversity; (2) group-goal; (3) peer relationship; and (4) teacher-student relationship. The cognitive level may help teachers to view how Constructive Academic Conflict may be co-constructed by the group members through 'student-controlled and teacher-backup' and 'process-dominant and product emergent' small-group learning (see 4.4.4). The socio-emotional level may help teachers to discern the importance of students' maximum participation, conformity to classroom disciplinary rules, disagreement skills, humour, or peer social acceptance in encouraging Academic Conflict (see 4.4.5). The pedagogical level might alert teachers to how open-ended task instruction and other relevant pedagogical practices may help students to achieve Constructive Academic Conflict in group-talk (see 4.4.6).

Research question four is 'How much do students have the socio-cognitive competence in handling Academic Conflict?' and 'How much do teachers facilitate students' socio-cognitive competence in handling Academic Conflict?' Findings of research question four may alert teachers about students' sufficient readiness or insufficient readiness concerning when to implement Constructive Academic Conflict group-talk in Hong Kong schools (see 4.5). For example in the current study, most students showed sufficient readiness for Constructive Academic Conflict group-talk through maximum participation and group interdependence. Most students showed insufficient readiness for Constructive Academic Conflict group-talk through humour, disagreement skills, or provision of reasons.

5.3.4.iv Fourth question: Do people recognize the change when it occurs?

Green and Myers' (1990:339) fourth question is "Do people recognize the change when it occurs?" It may be difficult to recognize the change when it occurs because abstract entities may be embedded in these concepts before the product can be recognized. The related current findings may serve as signposts for recognizing these embedded entities. The relevant signposts for change are stated as follows.

The first change needed may be "from avoidance to elicitation of Academic Conflict". Current findings on the linguistic (see 4.2.2) and cognitive (see 4.2.3) process of group-talk may serve as signposts to recognize the change "from avoidance to elicitation of Academic Conflict". The linguistic process showed the content, function and sentence structures of the types of group-talk. *Constructive Conflict* group-talk involves the elicitation of Academic Conflict with reasons. The signpost for the linguistic content of *Constructive Conflict* involves diverse perspectives, with reasoning. The signpost of its linguistic function involves a constructive approach, indicating peers' arguments are evaluated, challenges are justified, and alternative hypotheses are offered. It also involves conflict, indicating it is with peers' conflicting views. The signpost for sentence structure involves the complex sentence structure of giving reasons for conflicting views. The linguistic process involving the content, function and sentence structure of the type of group-talk may also infer cognitive process.

The second change may involve more attention to 'student-controlled and teacher-backup' small-group learning. Current findings on the socio-emotional process (see 4.2.5 and 4.5.3) and Seesaw process (see 4.2.4 and 4.6.3) and of group-talk may serve as signposts to recognize the change 'from teacher-dominant whole-class teaching to supplement with student-controlled and teacher backup small-group learning'. The signposts of the socio-emotional process involve students' maximum

participation, group interdependence, conformity to classroom disciplinary rules, humour, disagreement skills and the concern for peer social acceptance. Current findings showed that these processes demonstrated children's own responsibility and direction in the group-talk, exhibiting 'student-controlled learning'. The Seesaw Process involves the Homeostatic Seesaw Process offering the signposts of group members' self-regulation and movement to attain equilibrium between Social Unity and Cognitive Diversity in the group-talk (see 4.6.3.i). The signposts of self-regulation and movement in the Homeostatic Seesaw Process may be a way of showing students' own responsibility and direction (student-controlled learning) to trigger group-members to move from Social Unity to Cognitive Diversity or vice versa.

The third change needed may be from product-dominant whole-class teaching to whole class teaching augmented with 'process-dominant and product-emergent' small-group learning. The signposts may concern all the students' linguistic, cognitive, socio-emotional, and the seesaw' processes mentioned and the subsequent product emerged for research question one (see 4.2). Research question one is 'To what extent do Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk account for the processes engaged in by Hong Kong primary school students during group-talk?'

5.3.4.v Fifth question: Can they articulate the benefits that have been derived?
Green and Myers' (1990:339) fifth question is, "Can they articulate the benefits that have been derived and can they in fact argue persuasively for the extension of the idea to others?" In Hong Kong, there appears to be little research on children's group-talk. Not many teachers are aware of the benefits of Constructive Academic Conflict or the benefits of 'student-controlled and teacher-backup' and 'process-dominant and product-emergent' small-group learning. There is a need to

introduce to teachers the 'Framework on Constructive Academic Conflict in Children's Group-talk' (See 5.3.4.i.B and Figure 5.2) to encourage them to facilitate small-group learning. In so doing, teachers may be more equipped to articulate the benefits and limitations of implementing group-talk with Constructive Academic Conflict.

5.3.5 Suggestions for Teaching Practice

Basing on the five questions (Greene & Meyers, 1990) just discussed, some suggestions for enhancing teaching practice are offered in the following sections. These include:

1. Suggestions for teaching practice regarding students' insufficient readiness for Constructive Academic Conflict group-talk.

2. Suggestions for information to bring about the change for Constructive Academic Conflict group-talk.

3. Suggestions for people to articulate the benefits.

(5.3.5.i) Suggestions for teaching practice regarding students' insufficient readiness for Constructive Academic Conflict group-talk

Green and Meyers' (1990:339) second question on the implementation of Interactive Learning is "Why is change necessary?" One of the reasons discussed is that Constructive Academic Conflict group-talk may empower students to better manage conflict in the future. If Constructive Academic Conflict group-talk is worth pursuing, more considerations should be given to the following to help students improve their insufficient competence in Constructive Academic Conflict group-talk, found in results of research question four (see 4.5).

(5.3.5.i.A) Suggestions for teaching practice regarding willingness to voice conflicting views with reasons

Through interviews, most students in the present study disclosed that they disliked conflicting views lest the disagreements would hurt friendship. This reluctance towards disagreements might impede the spontaneous flow of Constructive Academic Conflict in 'student-controlled and teacher-backup' small-group learning. It might be useful to adopt the suggestions of Renshaw & Brown (1997) who maintain that teachers may model construction of arguments and strategies for dealing with interpersonal issues that arise during group discussion. It is important that teachers are aware of the reasons for student reluctance towards Constructive Academic Conflict. Teachers may reinforce students whenever students generate conflicting views politely with reasons, thus minimizing dysfunctional conflict and promoting the positive Constructive Academic Conflict.

(5.3.5.i.B) Suggestions for teaching practice regarding the use of humour

Teachers may model humour in their teaching or show appreciation for children's humour. However, humour should be delicately dealt with, otherwise it may jeopardize discipline.

(5.3.5.i.C) Suggestions for teaching practice regarding the use of disagreement skills

How children may be guided to learn the skills to resolve intellectual conflicts constructively has been a relatively ignored issue in teaching (Johnson & Johnson, 1995). In America, teachers have been trained to use Academic Conflicts in the classroom for decades (see Johnson and Johnson, 1979). Other practical guides on academic conflict resolutions include Cooperation in the Classroom (Johnson *et al.*, 1993), Learning Together and Alone (Johnson & Johnson, 1994), and Circles of Learning (Johnson *et al.*, 1993). In Hong Kong, it would be better if more training could be offered on how to use small-group learning and conflict for instructional purposes.

214

(5.3.5.i.D) Suggestions for teaching practice regarding the use of post-discussion inter-group evaluation

Westgate and Hughes (1997:126) acknowledge "the questionability of available criteria, and associated forms of analysis, as a basis upon which to discern quality in classroom talk". Despite the difficulty of criteria and analysis, some teachers in the current study facilitated post-discussion inter-group peer evaluations and few students showed competence in these evaluations. It may develop students' self-evaluation skills, encouraging them to monitor their own performance. This self-monitoring is essential to student-controlled learning as they may know the 'what' 'why' or 'how' of their learning.

(5.3.5.i.E) Suggestions for teaching practice regarding the use of post-discussion intra-group peer evaluation

Not one teacher in the current study facilitated post-discussion intra-group peer evaluation. Teachers may try to suggest some criteria for each group's self-evaluation. It may be an open-ended question format formulated to depict the strengths and suggestions for improvement of own group. The criteria may be based on humour, disagreement skills, conflicting views with reasons, elaboration with reasons, or discipline. Teachers may design criteria with the groups and develop criteria relevant to class-based or group-based competence. Intra-group peer evaluation may, in a way, eventually prepare students with some self-evaluation skills, which may further help them to monitor their own progress, exhibiting their control over their own learning.

5.3.5.ii Suggestions for information to bring about the change for Constructive Academic Conflict group-talk

Green and Meyers' (1990:339) third question on the implementation of Interactive Learning is "Do people have the information required to bring about the change?"

At this time, there seems insufficient information on Hong Kong students' group-talk required to bring about the change. Some suggestions may be considered. The elicitation of Academic Conflict may be designed as an addition to the curriculum in Teacher Education. Educators may refer to the curriculum in overseas research and make relevant modifications to cater for Hong Kong students.

In-service teachers may be encouraged to experiment with, document and write concrete suggestions on students' group-talk implementation. These may be compared to overseas suggestions, as those provided by teachers in Australia (Heywood, 1999) who advise:

> *"Start with small groups, may be pairs, and short times, maybe five minutes ... be content to introduce the process gradually."* (p.295)

5.3.5.iii Suggestions for people to articulate the benefits

For Green and Meyers' (1990:339) fifth question, "Can they articulate the benefits that have been derived and can they in fact argue persuasively for the extension of the idea to others?" some suggestions may be considered. It may be helpful if workshops, similar to those in Britain during the National Oracy Project, could be conducted in Hong Kong.

From 1987 to 1993 a National Oracy Project, funded by the British government, promoted small group-talk with students of all ages. Numerous teachers noted, recorded and transcribed classroom talk. They shared their interpretations and looked for ways to extend students' talk-contexts (for example, putting students into more diverse roles, minimizing teacher's talk, or facilitating small-group talk). Towards the end of the National Oracy Project, oracy was investigated more analytically. Many of the insights drawn can be found in various publications,

notably Norman's edited collection (1992).

The National Oracy Project took six years. This suggests that teachers would need to practise students' group-talk through Constructive Academic Conflict in Hong Kong for a long time before they would be able to articulate persuasively for the extension of the idea to others.

5.3.6 Summary

If Group-talk with Constructive Academic Conflict is to be implemented in Hong Kong schools, concerned parties may need to know what changes are necessary and why changes are needed. Literature and the findings of this study suggest that changes are needed at least in the Hong Kong schools the author studied. There was a tendency to avoid Academic Conflict in group-talk, and to have teacher-dominant and product-dominant whole-class teaching. Concerned parties may need to recognize the changes when they happen. Results of the four research questions may serve as information to bring about the change and to function as signposts to recognize these changes. Some practical suggestions are given if group-talk with Constructive Academic Conflict is to be implemented.

5.4 Insights from the current research methodology

5.4.1 Introduction

There is no "methodological consensus" on classroom discourse and there is "the absence of any single conceptual framework or meta-language, agreed ways of talking about classroom talk" (Edwards and Wesgate, 1994:56). In this section, discussion will be on two insights drawn from the current methodology. The first insight is the inter-relatedness of research paradigm, method, research questions and theory. The second insight is related to the need for careful data analysis in triangulation between methods.

5.4.2 Inter-relatedness of Research Paradigm, Method, Research Questions and Theory

Tucker *et al.* (1981) and Duck & Montgomery (1991) acknowledge that the research question, theory and method are interdependent. The method is the process of viewing systematically the object of inquiry, thus the way to building theory. The author would like to supplement this argument stating that research paradigm, method, research questions and theory are inter-related.

The inter-relatedness of paradigm, methods, research questions and theory was perceived in the following two aspects. In order to access the multiple realities of the interpretivist paradigm, firstly, the methods, research questions and theory emerged during the process of inquiry, instead of being already pre-determined at the commencement of the study. Secondly, all of the methods allowed the findings to emerge instead of items being predetermined as in the case of a positivistic questionnaire. These two aspects may help to head towards how open the study is in accessing the reality of students' classroom group-talk. Each aspect is discussed below.

(5.4.2.i.) Inter-relatedness of Theory and Paradigm

The inter-relatedness of theory and paradigm might exist before the commencement of the study. Literature suggests that "little was known about the quality of most of this group work until the 1980s" (Mercer, 1995:91) when the ORACLE Research (Galton *et al.*, 1980) was implemented in Britain. However, "little close analysis of pupils' talk was disclosed" (Mercer 1995:92). There also seemed little close analysis of pupils' talk in Hong Kong. In general, there appeared to be research gaps and lack of sufficient theories built from close analysis of pupils' talk in the classroom. The lack of sufficient theories prompted the author's interest to investigate the phenomenon of close analysis of pupils' talk in the classroom. The phenomenon to be investigated prompted the examination of human science through the interpretivist paradigm.

However, to access the multiple realities of the phenomenon through interpretivism, no hypothesis prompted by theory was offered. In the current study, the pilot started with the first stage research question, 'What was the quality of children's group-talk?' Different types of children's group-talk emerged. These

characteristics of group-talk were later compared to Bennett and Dunne's (1991) and Mercer's (1996) theories on group-talk. The current emergent result was not predetermined by former theories nor used to prove hypotheses from those theories.

Another example of inter-relatedness of paradigm and theory in the investigation of children's group-talk is the need for theory triangulation in the interpretivist paradigm. For example, to investigate the multiple realities of Constructive Academic Conflict in group-talk, theories from different disciplines were referenced to better understand the linguistic, cognitive, cultural, socio-emotional and pedagogical levels of analysis when investigating group-talk.

(5.4.2.ii) Inter-relatedness of Paradigm and Methods

For the multiple realities in interpretivism, the choice of methods may concern how important views of the participants are collected, analysed and interpreted. Data, method, investigator and theory triangulation were employed. In the process, findings emerged instead of findings being limited by predetermined views. For instance, in the pilot study, data was collected from the taped group-talk only. Out of the four classes, only one class generated *Constructive Conflict* group-talk. This group-talk appeared to be related to the teacher's open-ended task instruction. So in the second set of method, supplemented data was collected through interviewing teachers and students to examine factors affecting Constructive Academic Conflict in group-talk. Hence, in interpretivism, the types of data from different samples involved in supplying data triangulation were not predetermined at the commencement of the study. Supplementary types of data from different samples or methods might emerge as the study proceeded.

An example of children's classroom group-talk, adopting the positivist paradigm, was quoted to discuss whether the methods, prompted by positivism, would be adequate to answer the research question. The study by Smith *et al.* (1981) aimed at investigating children's interaction towards controversial situation. One of the research questions was to find children's cognitive rehearsal during group-talk. The findings indicated that controversy, compared with concurrence and individualistic conditions, fostered more cognitive rehearsal. The method used was frequency counts marked by two observers when subjects (i) presented their opinions, (ii) stated the rationale for their position (iii) and summarized the

opponent's position. Only frequency counts were adopted in summing up the three predetermined types of children's utterances. Students might have other interactions besides the three predetermined types. If other types of interactions were uttered but not counted, these sole quantitative frequency counts may not be valid to portray the reality of children's cognitive rehearsal in group-talk. Hence, the *positivist paradigm*, supporting the exactness of mathematical numbers such as the sole *research method* of frequency counts, may not be sufficient to investigate fully the *research question* on cognitive rehearsal in children's interaction through controversial situation. Methods in the interpretivist paradigm, as those in the current study, may be considered. Field notes and audio-tapes of each group's interaction may enable the author to note all children's interaction, instead of just matching with predetermined limited category of interactions. In the current study, each piece of taped group-talk was coded speaker by speaker. Categories of the group-talk emerged from the whole group-talk. Pattern-matching design was employed for different group-talk content to find recurring, inferential clusters that may emerge as conceptual patterns.

Relying on the taped children's group-talk alone may not promote validity of the findings. Field observation may cross-validate the taped group-talk. Students and teachers were also interviewed, clarifying and elaborating data from the tapes and observations. The semi-structured interview may add more perspectives and details. However, the unstructured part may be liable to inconsistencies in data collection procedures. Interpretivism prompted an open-attitude towards multiple data sources and multiple methods during the process of inquiry. The author may need to see the purpose/s of the emergent research questions in an open and unbiased way, and to be alert how the multiple data are relevant to the emergent research questions. Rich data and intensive inductive data analysis seems to be indispensable for the eventual theory building.

5.4.3 Triangulation between methods for group-talk research

Due to the multiple complex realities in investigating students' classroom group-talk, method triangulation is often employed to cross-validate the findings. In method triangulation there is triangulation between methods. Insights might be drawn from the current study and will be discussed accordingly.

Triangulation between methods denotes the use of more than one research method.

The use of triangulation between methods seemed especially helpful for the findings of research question (2a) and (2b). Research question (2a) is "What do students perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed students' classroom behaviour and analysis of students' group-talk in classroom?" Research Question (2b) is "What do teachers perceive to be factors affecting academic conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom?"

For Research Question (2a), 75% (108 out of the children interviewed) disclosed through 'interviews' that they did not favour conflicting ideas during group discussion because it hurt friendships. However, through analysis of the 'taped group-talk', about half the students involved in the study demonstrated conflicting ideas. Without triangulation between methods through interviews and taped group-talk, the incongruence of what students said and did might not have emerged.

Similarly referring to research question (2b), through 'interviews' all 22 teachers acknowledged that they would accept students' arguments in group-talk. However, through 'lesson observation', Teacher 5, 14, 16 and 21 forbade their students to argue during the small-group discussion. Without triangulation between methods through interviews and lesson observation, the incongruence of what teachers said and did might not have emerged.

Through comparing the findings of research question (2a) and (2b) from 'interviews', 'lesson observation' and 'taped group-talk content' for inconsistencies on students' and teachers' perceptions, observed classroom behaviour and analysis of student group-talk on Academic Conflict, internal validity might be achieved. Campbell (1956:73) has acknowledged the strength of methodological triangulation, "in that several different methodological approaches have been employed to get at the same variable". He relates this methodological triangulation as being similar to criterion-related validity, "taking several of the operations seemingly appropriate to the genus and checking these against each other" (Campbell, 1956:73). With the complexity of classroom contexts,

triangulation between methods might help to discover important and often subtler inter-relationships. It might help to enhance validity of findings and provide broader perspectives with which to understanding the research question.

Despite the widespread advocacy of triangulation for improvement of research validity and reliability, there is warning regarding its limitations. Several studies warn of the confusion caused by methodological triangulation. Triangulation between methods employs two or more approaches to a single problem, such as using quantitative and qualitative approaches. The aim is:

> *"to select the appropriate ... methods that, in combination, will result in complementary data, and thereby reduce the possibility of unsubstantiated findings."* (Olafson, 1991:39-40)

Mutual validation is sought. But, against this methodology, it is argued that the investigator/s cannot prove that the different methods address one and the same issue. McFee (1992) claims that:

> *"... on investigation, there is no pair of fixed points (provided by methods) from which bearings may be taken to a single location. So there cannot be triangulation between methods."* (p.217)

Similarly, Sparkes (1989:139) questions the possibility of mixed research method in different paradigm stance:

> *"... for methodology pluralism, in which methods can be mixed and matched irrespective of paradigmatic stance, become highly questionable since this implies that theoretical perspectives can also be integrated."* (p.139)

The author only partially agrees to this critique. If the methods of 'group observation' and 'taped group-talk content' were employed at the same time for the same group, the two methods might be regarded as different "bearings" to the "single location" (McFee, 1992:217). The "bearings" were 'group-observation' through observing, listening and writing down children's group-talk and 'group-talk content' through listening to the taped group-talk. The "single location" (McFee, 1992:217) was the same children's group-talk. It was essential that triangulation between methods was taken. If children's utterances from the tape were blurred, the data could be checked from the observer's written records. Triangulation between methods seemed crucial in enhancing cross-validation in accessing the reality of students' group-talk.

Nonetheless, to compare data for inconsistencies and themes, McFee (1992:217) is right to warn against the perception of consistency on a "single location". In this study, precautions were taken to guard against the warning. Take the example of post-discussion students' evaluation. It would be inappropriate to compare what the observer observed about Teacher 8's facilitation of post-discussion students' evaluation from 'lesson observation' with her students' response in 'interviews' on how she facilitated post-discussion students' evaluation. What the observer perceived in the lesson observation and the students' referral in the interview regarding post-discussion students' evaluation might not be the same "single location" (McFee, 1992:217). The two methods of observation and interview, though on the focus post-discussion students' evaluation, were not "bearings ... taken to a single location" (McFee, 1992:217) because the observer and the interviewee might present post-discussion students' evaluation differently due to selective perception.

5.4.4 Summary

Insights were drawn for 'the inter-relatedness of research paradigm, method, research questions and theory' and 'triangulation between methods'.

5.5 Summary of Discussion Chapter

The discussion chapter covers three issues. Firstly it describes the Seesaw Working Model, emphasizing self-regulation and movement in students' different seesaw positions in group-talk; highlighting how the Seesaw Working Model contributes to knowledge building; and explaining the subsequent ground rules of the Working Model. Secondly, implications regarding the implementation of group-talk with Constructive Academic Conflict in Hong Kong are stated. Thirdly, the current research methodology is discussed with reference to 'the inter-relatedness of research paradigm, method, research questions, and theory' and 'triangulation between methods'. The author next presents Chapter Six, the Conclusion.

CHAPTER SIX

CONCLUSION

6.1 Introduction

This concluding chapter focuses on the main findings of this inquiry, the limitations of the inquiry, suggestions for future research, and the significance of the inquiry to the author's professional development.

6.2 Summary of Major Findings

The purpose of the present study is to discover the quality of children's group-talk. It aims at developing a Working Model, to unfold what happens during children's spontaneous verbal interaction in their small-group discussion in class. After a synthesis of the literature and results for the research questions, the Seesaw Working Model emerged.

6.2.1 The Seesaw Working Model of Children's Group-talk

6.2.1.i The Seesaw Working Model

The Seesaw Working Model demonstrates three conditions in children's group-talk, emerged from the present study. These conditions were like three seesaw positions. The two sides of the seesaw were compared to the Social Unity and the Cognitive Diversity in children's group-talk as found in research question four. It appeared that when one side of the seesaw was up, the other side was down and sometimes the seesaw moved up and down. The balanced seesaw position was not stagnant, but was compared to homeostasis in the human body.

The Seesaw Working Model incorporates three seesaw positions. They are one optimal position and two non-optimal positions. The optimal position is "The Homeostatic Seesaw Position". The two non-optimal ones are the "High Cognitive

Diversity and Low Social Unity Seesaw Position" and the "High Social Unity and Low Cognitive Diversity Seesaw Position". Their characteristics are summarized as follows.

(i)"Homeostatic Seesaw Position" for Social Unity and Cognitive Diversity

Homeostatic is the adjective of homeostasis. Homeostasis in the human body means the self-regulation and movement of related human organs to attain internal harmony in the body. Seesaw connotes the upward and downward movement of the seesaw and the fun in children's play. The Homeostatic Seesaw Position is the condition when group-members self-regulated and moved Social Unity or Cognitive Diversity, so that internal harmony (or equilibrium) between Social Unity and Cognitive Diversity may be attained in the group-talk. For example, there may be the upward and downward seesaw movement of conflicting views (Cognitive Diversity) and disagreement skills (Social Unity), subsequently attaining equilibrium of Cognitive Diversity and Social Unity.

Conflicting views have to be expressed in a way that pays attention to the need for Social Unity. Where there is homeostasis, great efforts are made to acknowledge and respect the other person (Social Unity) when disagreement (Cognitive Diversity) occurs. Group-members' learning opportunities related to Constructive Academic Conflict may be maximized. The homeostasis through self-regulation and movement of Cognitive Diversity and Social Unity is likely helpful to the development (progress) of students' group-talk.

(ii) "High Cognitive Diversity and Low Social Unity Seesaw Position"

In this position, the group-members are very concerned with giving conflicting views or generating reasons (High Cognitive Diversity), but pay little attention to humour, disagreement skills, group interdependence or concern for the peers'

feelings (Low Social Unity). When the group-talk is in this position, though there are conflicting views, the students are not paying due respect to each other. The learning opportunities towards Constructive Academic Conflict may be diminished and the group-talk may not develop well.

(iii) "High Social Unity and Low Cognitive Diversity Seesaw Position"

This position could not be explicitly identified in the group-talk. Most children disclosed it only through interviews. For example, group-members might be concerned about peer social acceptance (High Social Unity) and refrain from generating conflicting views (Low Cognitive Diversity). When the group-talk is in this position, students would rather not voice any conflicting views lest their peers take offence. The learning opportunities towards Constructive Academic Conflict may be diminished and the group-talk may not develop well.

6.2.1.ii Implications

The Seesaw Working Model offers three contributions. Firstly, it seems likely to contribute to knowledge building, grounded with evidence from close-analysis of children's group-talk. The Seesaw Working Model may add perspectives to the theories of Piaget (1962), Vygotsky (1978), Barnes & Todd (1977), Bennett & Dunne (1991), and Mercer (1996) concerning children's group-talk. The Seesaw Working Model highlights group-members' self-regulation and movement of Cognitive Diversity and Social Unity in order to attain internal harmony or optimal learning in the group-talk. Secondly, concerning social constructivist view of learning, Barnes and Todd (1995) point out that:

> *"... it is still a minority who could give an account of how the learning takes place or describe the influences that shape students' participation."* (p.7)

The evidence from the three seesaw positions may account how optimal and non-optimal learning may take place. The description of the self-regulation and movement in the three seesaw positions may help to clarify the influences that may shape students' participation in social constructivist learning.

Thirdly, children's self-regulation in the Seesaw Working Model may connote student-controlled learning. Children's movement (movement through Cognitive Diversity and Social Unity) in the Seesaw Working Model may connote 'process-dominant' learning. Children's competence in self-regulation and movement in the Seesaw Working Model may support the paradigm shift from teacher-controlled and product-dominant learning to student-controlled and process-dominant learning.

6.2.2 Findings and Implications of the Four Research Questions

The Seesaw Working Model is a synthesis of related literature and the results of the four research questions. If group-talk with Constructive Academic Conflict is to be implemented in Hong Kong schools, results of these four research questions may contribute some information to bring about the change. The author now presents each research question along with the summary of the new findings and their implications.

Research question one is, 'To what extent do Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk account for the processes engaged in by Hong Kong primary school students during group-talk?' Findings of research question one suggest that Bennett & Dunne (1991) and Mercer's (1996) quality of group-talk mainly account for the linguistic and cognitive processes engaged in by Hong Kong primary school students during group-talk. The new findings of research question one is the linguistic, cognitive, socio-emotional and seesaw processes. These

findings may serve as signposts to discern the linguistic, cognitive, socio-emotional and seesaw processes as engaged by Hong Kong primary school students through group-talk. If these processes are facilitated, the subsequent products may emerge. Through these processes, student-controlled small-group learning may likely be enhanced. Other new findings of research question one identify a new set of modes of children's group-talk. They are *Assertion, Cooperative Elaboration* and *Constructive Conflict*. In *Assertion*, group-members give conflicting views without reasons. In *Cooperative Elaboration*, group-members generate similar views with reasons. In *Constructive Conflict*, group-members give conflicting views with reasons.

Research question two is 'What do students perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed students' classroom behaviour and analysis of students' group-talk in classroom?' and 'What do teachers perceive to be factors affecting Academic Conflict in group-talk and how do these perceptions relate to observed teachers' classroom behaviour and analysis of students' group-talk in classroom?' Findings of research question two demonstrated that some teacher and student perception on Academic Conflict appeared to be incongruent with their behaviour and the analysis of students' taped transcribed group-talk. These findings of research question two may alert teachers that there is likely incongruity between student perception on Academic Conflict, their behaviour in the classroom, and analysis of their group-talk. Teachers may need to understand the underlying perception of students, and the reason why students perceptually dislike Academic Conflict. Teachers may need to help students to see the positive effects of Academic Conflict and help them minimize the perceptual obstacle towards Academic Conflict before the implementation of group-talk with Academic Conflict.

Research question three is 'What is the quality of the students' group-talk in relation to the linguistic, psychological and cultural levels defined by Mercer (1995)?' The new finding from research question three was that there were linguistic, cognitive, socio-emotional, cultural and pedagogical levels of analysis in investigating children's group-talk. This finding differs from Mercer's (1995) linguistic, psychological and cultural levels of analysis. The new levels that emerged from the current study may help teachers to understand how to move towards Constructive Academic Conflict in student group-talk.

The linguistic level of analysis in investigating children's group-talk may help teachers to analyse the content and function of group-talk that indicate *Assertion* or *Constructive Conflict*. *Assertion* refers to the mode of group-talk in which children generate diverse perspectives without reason. *Constructive Conflict* refers to the mode of group-talk in which children generate diverse perspectives with reasons. The cultural level may encourage teachers to reflect upon whether Hong Kong students' generation or avoidance of Academic Conflict is deep-rooted in culture. The cognitive level may help teachers to view how Constructive Academic Conflict may be co-constructed by the group members through 'student-controlled and teacher-backup' and 'process-dominant and product emergent' small-group learning. The socio-emotional level may help teachers to discern the importance of students' maximum participation, conformity to classroom disciplinary rules, disagreement skills, humour, or peer social acceptance in lubricating Academic Conflict. The pedagogical level may alert teachers how open-ended task instruction and other relevant pedagogical practices may help students to achieve Constructive Academic in group-talk.

Research question four is, 'How much do students have the socio-cognitive competence in handling Academic Conflict?' and 'How much do teachers facilitate

students' socio-cognitive competence in handling Academic Conflict?' In the results of research question four, students showed Social Unity and Cognitive Diversity in handling Academic Conflict. In Social Unity, students seemed to be more competent in maximum participation, group interdependence, conformity to classroom disciplinary rules, and concern for peer social acceptance. They seemed less competent in humour and disagreement skills.

In cognitive diversity, students commonly adopted open conclusion instead of "eventual joint agreement" (Mercer, 1996:369). Also under children's cognitive diversity, about half of the total number of transcripts showed that children were able to give conflicting views with reasons. Post-discussion peer evaluation was scarce. These findings may alert teachers about students' sufficient readiness and insufficient readiness when Constructive Academic Conflict group-talk is to be implemented in Hong Kong schools.

6.3 Limitations and Future Research

Although the present findings may highlight some research gaps in group-talk, the author is aware of some limitations of the study. These include conceptual, research design and sampling limitations. Future research may be conducted for further development of research methodology and theory building related to group-talk.

6.3.1 Conceptual Limitations and Future Research

6.3.1.i Intra-group and Intra-personal Seesaw Working Model

The Seesaw Working Model explains the intra-group seesaw positions of the group-members. However, intra-personal seesaw positions might happen within individuals. For example, an individual member may have self-regulated and moved the Social Unity and Cognitive Diversity within his/her own self throughout

the process of the group-talk. Different seesaw positions may occur within the individual.

Future research could be conducted on how the Seesaw Working Model works within an individual in the group. Further research could also be conducted on how the intra-personal seesaw positions affects the intra-group seesaw positions in the process and product of students' group-talk.

6.3.1.ii Sub-categories Variables in the Seesaw Working Model

Due to sampling constrains, the present survey just included eight schools in Hong Kong. Very intensive inductive data analysis data analysis was attempted. For the current study, the core category for the group-talk was Constructive Academic Conflict (see 4.5.2) and the sub-categories were Social Unity and Cognitive Diversity. Variables emerged for Social Unity included students' maximum participation, conformity to classroom disciplinary rules, humour, disagreement skills, group interdependence, and concern for peer social acceptance. Variables emerged for Cognitive Diversity included students' conflicting views, reasoning, open conclusion, and post-discussion peer evaluation; as well as teachers' task instructions and scaffolding.

Due to the limitation of there being a single investigator in the current study, the author may have overlooked other important sub-categories or variables. Moreover, due to sampling constrains, other sub-categories or variables may be found if research using larger samples from more schools is conducted.

Future research may be conducted to find out whether other sub-categories other than Social Unity and Cognitive Diversity may emerge. Other variables could include class culture, school culture, family culture, group effectiveness, teachers'

teaching style, students' learning styles, students' affective performance or students' cognitive abilities.

6.3.1.iii Conditions facilitating the Homeostatic Seesaw Positions in Group-talk

In the current study, the Homeostatic Seesaw Positions appeared to be much affected by group member's self-regulation and movement in the fun and up/down movement of group interaction to attain internal harmony of Social Unity and Cognitive Diversity of the group-talk. Group members' role-emergent or the effects of capable partners were not discussed in-depth. Future research could be on the effects of the self-regulation and movement of group members' emergent roles or effects of capable partners in mixed-ability grouping in the Homeostatic Seesaw Positions in group-talk.

6.3.1.iv Group-talk and individual conflicting views originating from western-based ideas

Learning basing on group-talk with group members co-constructing knowledge and generating individual viewpoints seems to be originating from western-based ideas. In the current findings, what 75% of the children (108 out of the 144 children interviewed) said in the interviews (that they would not give conflicting opinions lest they would hurt friendship), seemed not congruent with what they did (children really generated conflicting views in 15 out of the 29 General Studies Sessions). What was disclosed in children's interview might be perception deep-rooted in the Chinese culture. What other cultural factors might have affected children's perceptions on conflict-generating group-talk might still need validation from further extensive studies. More importantly, further large-scale research is needed to investigate if the western-based ideas about group learning and the importance of individual conflicting opinions may be transferable to a Chinese context.

6.3.2 Research Design Limitations and Future Research

Analysis of the actual group-talk in the present study depended greatly on the coding of what each speaker said in each piece of group-talk. Inductive data analysis was then conducted based on the coding. Although the author was careful not to be biased when coding, she might have misinterpreted some speakers' talk or overlooked some major coding.

Another research design limitation is that during the transcribing of audiotapes, there may be certain cases that the author may have mistaken a boy's voice as a girl's voice, or misidentified certain speaker's voice, even though the author has made every effort to discern each voice carefully. For future research, multiple observers may be employed to observe all small-group discussions in one class. For example, if there are eight small-groups discussing at the same time in one class, eight observers will be needed. Each observer will observe and record the group-talk of one group. The observer will clearly identify the talk and the speaker. The observer can cross-validate his/her written record with the taped group-talk.

6.3.3 Sampling Limitations and Future Research

Eight Hong Kong primary schools, twenty-two primary five classes and about 770 pupils (about 35 pupils in the 22 classes) were sampled. This is a small sample and may impose limitations on the generalization of the results. In future research, larger sampling may be taken for stronger support of generalizability of the results. Among the eight schools, there were five aided schools, one government school and two private schools. The results seemed to show no marked differences between the types of schools. In future research larger sampling may be conducted for each type of school to investigate if the type of schools has any effect on the results of research on students' group-talk.

Furthermore, only group-talk in General Studies lessons was investigated. There may be a limitation to test the validity of the Seesaw Working Model across academic subjects. In order to have a more extensive understanding of the Seesaw Working Model in group-talk, different age groups, different primary school levels, and different primary academic subjects may be attempted in future studies. More local and international research may also be conducted so that comparison may be made and the Seesaw Working Model may further be validated.

6.4 Significance of the Thesis to the Author's Professional Development

This research includes some contributions to the curriculum of Teacher Education, certain collaboration between the Institute of Teacher Education and local primary schools, and attempts to connect theories and practice.

6.4.1 Contribution to Teacher Education

The author works in the Department of Educational Psychology, Counselling, and Learning Needs of the School of Foundations in Education in the Hong Kong Institute of Education in Hong Kong. She has introduced the new module topic on Constructive Academic Conflict in Children's Group-talk in the Bachelor of Education (Honours) (Primary) Program (Three-year Mixed Mode) Year One for in-service primary school teachers since the 2001 to 2002 academic year. The Module is Child Development and Learning in the Hong Kong Context (Module Code EP3008C). A six-hour curriculum section was devised. Certain theories and findings from the current study were presented for discussion, reflection, try-out and evaluation. Some in-service teachers conducted similar research on their students. It appears to bring some new element to the Teacher Education curriculum. It also appears to have stimulated in-service teachers' action research and the implementation of Constructive Academic Conflict into their teaching practice.

Two other colleagues were interested to attempt this new module topic on Constructive Academic Conflict in Children's Group-talk in the same course in the 2002 to 2003 academic year. It is likely that more in-service teachers now know about Constructive Academic Conflict in Children's Group-talk and may implement it in their classrooms.

Furthermore, in Hong Kong the primary curriculum is perceived as sets of facts to be transmitted under pressure of time. In whole-class teaching, or group-talk work, students' answers are most likely shaped to predetermined and non-negotiable responses. There is still a need to provide ample opportunities for students to engage in group-talk through which the "shared construction and negotiation of meaning" (Wells and Nicholls, 1985:18) may be achieved. It is hoped that in Hong Kong professional cooperation on group-talk can be initiated and developed as the Oracy Project or English Working Group in the United Kingdom in the 1980s.

6.4.2 Collaboration between Teacher Education Institute and Primary Schools

As a sign of goodwill towards the schools involved in the current study, the author assisted staff development in these schools in certain ways. Firstly, there was an evaluation with each teacher about his/her performance during the two observed lessons. A written report was then given to each teacher. Secondly, a written school-based research report was submitted to some schools, with evaluation and suggestions provided. The staff-development evaluation and the school-based research reports given by the author may serve as a sign of the author's attempts to contribute her professional expertise to local primary schools and a gesture of collaboration between Teacher Education Institute and primary schools. It may also promote experimentation with Constructive Academic Conflict in the schools

studied.

6.5 Final Remark

What the author perceived to be very essential in children's group-talk is children's initiation and happiness during group interaction. Initiation contributes to the homeostatic self-regulation and movement to attain internal harmony between Social Unity and Cognitive Diversity in the group-talk. Happiness embraces the fun in the up/down seesaw movement of their group-talk. The author is aware that this initiation in children's group-talk may, in the long run, help them to have autonomy over their own learning and to have initiative in their life-long education.

Their happiness in group-talk may help them to experience learning in a positive way. In Hong Kong, learning seems to be stressful due to an over-emphasis on assessment and the product of learning. The author hopes that children may find happiness in group-talk and to extend this happiness to more joy for learning. Children's initiation and happiness in learning, the essentials of the Homeostatic Seesaw Position in the Seesaw Working Model, well deserve educators' appreciation and attention.

6.6 Summary of Conclusion Chapter

The conclusion chapter deals with three aspects. The first aspect reiterates the major findings of the current study. These include The Seesaw Working Model in children's group-talk and findings of the four research questions. The second aspect reflects the limitations of the present study and makes suggestions for future research. The third aspect expresses the impact on the author's professional development. A final remark is given at the end of the conclusion chapter reflecting what impresses the author most from the whole research process.

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243

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253

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APPENDICES

Code: Ch1ScH5A (means Interview Child Class Number 1, School H, Class5A) I: interviewer B: Boy-interviewee

I: Which class are you in?

B: 5A

I: What is your class no?

B: 1

I: Do you like group discussion in general studies lessons?

B: Yes

I: Why?

B: Because it's fun.

I: Why?

B: We can chat together.

I: How many discussion do you have this year?

B: Not much. Only once.

I: Is this the first discussion in this term.?

B: Yes

I: How did you form the group?

B: We have formed groups in some other subjects.

I: But it is the first time in General studies lesson. How could you group so shortly?

B: We have experience in other lessons.

I: Is there any disagreement among your group members?

B: Yes.

I: Can you quote one example.

B: Mmm.... (Pause).

I: Can you remember today's topic?

G: Yes, I do. One member was asked what he would do if it was him. He said he

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261

would fight with them.

I: Who disagreed?

B: Almost all of us.

I: Why?

B: If he kept on fighting, what about if he was caught?

I: Did you mention this point when there was group report?

B: No

I: Why?

B: It would be too bad if he was caught.

I: Do you think it's good to have different opinions?

B: Yes

I: Why?

B: There's no need to discuss if we have the same view.

I: Who taught you this idea?

B: I think of it myself

I: Quote one example which you think the discussion was good.

B: Mmm....

I: Do you think today's discussion was good?

B: Yes

I: Why?

B: We can discuss together.

I: Can you quote one poor discussion.

B: Each of us objects others' opinion.

I: What does the teacher usually do during your discussion?

B: He usually gives us supervision and sees what we have written and gives us some suggestions.

I: Did he give you any suggestion today?

B: No

I: What does the audience do when there is group report? Will you give comment on the report?

B: No.

I: Did the teacher ask you to collect information?

B: No

I: Thank you very much

Code: Ch32ScH5A   I: interviewer B: Boy-interviewee

I: Which class are you in?

B: 5A

I: What is your class no?

262

B: No 32

I: How many discussions do you have in Social Studies lessons?

B: Twice.

I: Is this the first one?

B: No, it's the second one.

I: What did you discuss last time?

B: I can't remember.

I: Did you have disagreement on today's discussion?

B: Yes, but it's not that good.

I: Tell me what it is.

B: We suggested cutting it with scissors, but the other classmates said it would scare others. It's not good.

I: Did they give any reason?

B: It's too scary.

I: What do you think if there is disagreement in group discussion?

B: There are some pros and cons.

I: Why was it good?

B: The good points are we can discuss together, and learn knowledge. And the bad points are the classmates find it is very awful.

I: Why?

B: They think the whole story is horrible.

I: Quote one example which you think the discussion was good

B: Mmm....

I: Do you think today's discussion was good?

B: Yes.

I: Why?

B: We have learnt more knowledge.

I: What's it?

B: We learnt how to manage.

I: What was the good point for today's discussion?

B: We did the group work together, and we all agreed on some issues.

I: What do you mean?

B: In some cases, many of us will have different opinions on how to tackle it.

I: Do you think it's good if you disagree?

B: No, some discussed the points which were not relevant to the question.

I: Can you quote one poor discussion?

B: The questions are not correctly answered.

I: What does the teacher usually do during your discussion?

B: He usually gives us supervision and sees what we have done. We also ask him some questions

I: Did you ask your teacher any question today?

B: Yes.

I: Does the teacher guide you?

B: Yes.

I: How?

B: He will teach us how to answer.

I: Did he do it today?

B: Yes, when we talked about the 3 safety rules. Some said we talked on the mobile phone in toilet, but the teacher said we should use it outside the toilet.

I: What does the audience do when there is group report? Will you give comment on the report?

B: No.

I: Did the teacher ask you to collect information?

B: No.

I: Thank you very much.

Code: Ch9ScH5A   I: interviewer B: Boy-interviewee

I: Which class are you in?

B: 5A

I: What is your class no?

B: No 9.

I: Do you like discussions in general studies lessons?

B: Yes, I do.

I: Why?

B: Because it's fun. We can participate in it.

I: What did you discuss in today's discussion?

B: The 5th story.

I: Did you have disagreement on today's discussion?

B: Yes.

I: Tell me what it is?

B: The story is about a game. The one who loses will take off a piece of clothes. Some said we should bring a whistle with us. Some said this was not good. The sound Beep Beep will not be heard when the door was closed, and some might think it was made by toys.

I: Was the classmate convinced?

B: Yes

I: What do you think if there is disagreement in group discussion?

B: It's good.

I: Why is it good?

B: We can know what others are thinking.

264

I: Quote one example which you think the discussion was good.

B: Good discipline which won't be too noisy that will affect others.

I: **Can you quote one poor discussion.**

B: **Never give our opinion, objects what others suggest, and it's too noisy to be heard.**

I: What does the teacher usually do during your discussion?

B: He usually listens to us.

I: What does the audience do when there is group report? Will you give comment on the report?

B: No.

I: Did the teacher ask you to collect information?

B: No

I: Thank you very much

Code: Ch20ScH5A   I: interviewer G: Girl-interviewee

I: Which class are you in?

G: 5A

I: What is your class no?

G: No 20

I: Which story did you discuss?

G: Story 4.

I: Do you like discussions in general studies lessons?

G: Yes, I do.

I: Why?

G: Because it's more free. We don't have to sit all the time.

I: Was this the first discussion?

G: Yes

I: What's the story that you discussed today?

G: It's about a girl who lived with her parents and uncle. She left home secretly and went to a room in a hotel. She broke a glass item and was found. She was asked to take off her clothes.

I: Did you have disagreement on today's discussion?

G: No, they have more or less the same idea.

I: Quote one example which you think the discussion was good.

G: We can express our own opinion.

I: What do you think if your classmates don't agree with you?

G: I will think of our differences.

I: Then what? If there is difference?

G: We shall see which is better.

I: Can you quote one poor discussion.

G: Its meaning can't be elaborated, like the story we mentioned. We use effort to explain its meaning, but others are different from yours.

I: What about a poor group discussion?

G: The points are not clearly expressed.

I: What does the teacher usually do during your discussion?

G: He usually gives us supervision and sees what we need when he passes around

I: Did he help you today?

.G: No, because we can handle.

I: What does the audience do when there is group report? Will you give comment on the report?

G: No.

I: Did the teacher ask you to collect information?

G: Yes.

I: Okay.

Code: Ch14ScH5A   I: interviewer   G: Girl-interviewee

I: Which class are you in?

G: 5A

I: What is your class no?

G: 14.

I: Which story did you discuss?

G: Story 1.

I: Do you like group discussions in general studies lessons?

G: Yes.

I: Why?

G: Because we can discuss with each other, and share different opinions.

I: Was this the first discussion you have in general studies?

G: No, the second discussion.

I: What's the topic of the last discussion?

G: I can't remember.

I: Is there any disagreement among your group members?

G: Yes, mm... (Pause). I didn't hear.

I: Can you quote an example that the discussion is good?

G: Today's discussion was good.

I: Why?

G: We have a lot of touching feelings.

I: What was it?

G: We talked about what would we do if it were we?

I: Did you all express your opinion?

G: No, only a few.

I: Can you quote one poor group discussion?

G: It's very noisy.

I: Is it good if your have arguments?

G: Yes

I: Why?

G: We can know others' opinion.

I: What does the teacher usually do during your discussion?

G: Mmmm.... (Pause).

I: What does the audience do when there is group report? Will you give comment on the report?

G: Mmm......

I: Did the teacher ask you to collect information?

G: Yes, he asked us to think of the topic.

I: When?

G: The day before yesterday.

I: Thank you very much

Code: Ch31ScH5A   I: interviewer G: Girl-interviewee

I: Which class are you in?

G: 5A.

I: What is your class no?

G: 31.

I: Which story did you discuss?

G: Story 4.

I: Do you like group discussions in general studies lessons?

G: Yes

I: Why?

G: Because we can discuss together, and share different opinions.

I: Was this the first discussion you have in general studies?

G: Yes, it was.

I: Is there any disagreement among your group members?

G: No, I don't think so.

I: Do you think it's good to have disagreement?

G: We can learn from others' different opinions.

I: Can you quote an example that the discussion is good.

G: Mmmm.... It should be...

I: Do you think today's group discussion was good.

G: Yes, we were very cooperative, and we were not very noisy.

I: Can you quote one poor group discussion?

G: It's very noisy.

I: What does the teacher usually do during your discussion?

G: Mmmm.... (Pause).

I: What does the audience do when there is group report? Will you give comment on the report?

G: Mmm......

I: Did the teacher ask you to collect information?

G: No.

I: Thank you very much.

Code: Ch5ScH5A   I: interviewer G:-interviewee

I: Which class are you in?

G: 5A.

I: What is your class no?

G: No 5.

I: Which story did you discuss?

G: Story 5.

I: Do you like group discussions in general studies lessons?

G: Yes.

I: Why?

G: Because we don't have much group discussion during the lesson, and this is the first time. I feel like it. Besides I can know more friends.

I: Don't you know them all?

G: Yes, but I don't know them well, and don't know their opinion.

I: Was this the first discussion you have in general studies?

G: Yes, it was.

I: Is there any disagreement among your group members?

G: Yes.

I: Can you show me an example.

G: One girl suggested dialling 999, but others opposed.

I: Did she give any reason?

G: No

I: Do you think it's good to have disagreement?

G: No, it's not good.

I: Why?

G: It will hurt their friendship.

I: How did you settle the disagreement?

G: We settled by lots

I: Do you think it's good to have arguments?

G: Both ways work, but we don't know how to choose.

I: Can you quote an example that the discussion is good.

G: There is no disagreement, and no quarrel.

I: Do you think today's group discussion was good.

G: Yes, we were very cooperative, and we were not very noisy.

I: Can you quote one poor group discussion.

G: If the discussion can't be carried on.

I: What does the teacher usually do during your discussion?

G: He will see if we have done correctly.

I: What comment did he give to you?

G: He said we had done a good job.

I: What does the audience do when there is group report? Will you give comment on the report?

G: I don't know.

I: Did the teacher ask you to collect information?

G: No.

I: Thank you very much.

Code: Ch26ScH5A   I: interviewer B: Boy-interviewee

I: Which class are you in?

B: 5A.

I: What is your class no?

B: No 26.

I: Which story did you discuss?

B: Story 2.

I: Do you like group discussions in social studies lessons?

B: Yes.

I: Why?

B: Because it's new and interesting. We can learn more knowledge.

I: Was this the first discussion you have in general studies?

B: Yes, it was.

I: Is there any disagreement among your group members?

B No. We almost agreed all.

I: Do you think it's good to have disagreements?

B: The points given by both parties were reasonable, so we all agreed. It's good to have conflict. This is good competition.

I: How did you settle the disagreement?

B: The majority wins.

I: Can you quote an example that the discussion is good.

B: Each group should be provided a classroom to discuss, so we will not be disturbed. And we can have more space for privacy.

I: Do you think today's group discussion was good?

B: Yes, we know how to deal with abnormal people.

I: Can you quote one poor group discussion?

B: Talking about negative points.

I: What do you mean?

B: I mean violence and indecent issues.

I: You have sexual abuse in today's discussion. What do you think about it?

B: Yes, we learnt a lot.

I: What does the teacher usually do during your discussion?

B: He usually supervises us.

I: Did he supervise you today?

B: Yes, he did. He asked how much we had left, and gave us some idea.

I: What's it?

B: He answered our question of how to write the points. We suggested not writing the details on paper. He liked our idea. So we could elaborate when it's time for report.

I: What does the audience do when there is group report? Will you give comment on the report?

B: No, not in today's discussion.

I: Would you evaluate others' report if you are asked to do so?

B: Yes, because we have done that in other subject. We are confident to do that.

I: Did the teacher ask you to collect information?

B: No, he only gave us the question yesterday, and asked us to talk softly during discussion.

I: Thank you very much.

Appendix II Example of How the Semi-structured Interview Responses from the 8 Children in Class 5A of School H was Analysed and How Conclusions were Drawn

Step One: Table a data sheet

Data Sheet 1 on 'Children's interview key word sheet for Class 5A School H' was tabled with 9 columns. Key words of the questions were typed in the first column.

Step Two: Fill in children's key words

The other 8 columns were key words from the 8 children's interview responses as shown in Appendix I. The key words served for (1) frequency counts on children's perception towards disagreements; (2) indicators for the researcher to retrieve to the direct responses of the child through the child code; (3) drawing interpretations and conclusions about one class in one school.

Step Three: Data analysis

(1) Five out of eight children (62.5%) disclosed negative comments on having different opinions in group-talk. The key-words are bold-typed in Data Sheet 1.

(2) Seven out of seven children (100%) referred discussion as "fun", "interesting". The interviewer missed asking this question to one child.

(3) Two factors seemed to emerge affecting children's perception on academic conflict. The first factor was on "thinking", "ideas". Through academic conflict, they might know what others think. Four out of eight children (50%) commented on this cognitive factor. The second factor was concerned for social acceptance. Responses were bold-typed in Data Sheet 1. Five out of eight children (62.5%) commented on this. "Disagreement) will hurt friendship", (Ch5ScH5A). A poor discussion was when "Each of us objects others' opinions", (Ch1ScH5A).

Step Four: Drawing conclusions

(1) 62.5% of the 8 children in Class 5A inSchool H disliked different opinions in group-talk.

(2) 100% of the children interviewed in Class 5A in School H liked group discussion.

(3) Cognitive factor, such as learning what others' think; and social factor, such as disagreement hurt friendship, emerged as possible factors that might affect children's perception on academic conflict.

Step Five: Comparing Data Sheet 1 with 17 other Data Sheets

In each class, 8 children were randomly chosen for interview. In the whole research, there were 18 classes with children interview. (There was no interview in the 4 classes of the pilot study). So there were 18 data sheets of children's interview key responses. The researcher then made constant comparison, and categorize the conclusions of the total 18 data sheets. The result was then presented in Table 4.6.: Students' perception on factors affecting academic conflict in group-talk.

Data sheet 1: Key Word Interview Responses from Children of Class 5A in School H'

Interview Question	Ch1 ScH 5A	Ch32 ScH 5A	Ch9 ScH 5A	Ch20 ScH 5A	Ch14 ScH 5A	Ch31 ScH 5A	Ch5 ScH 5A	Ch26 ScH 5A
Like Discu-n?	It's fun.	(Q. not asked)	It's fun.	More free	Yes, share opinions	Yes, share, discuss	Yes, but no discuss	Interest, more knowledge
Different opinion?	Yes, no need to discuss if same view.	**Not good to disagree**	Know what others think	**No Disagr-eement.**	Know Others Ideas	Learn others diff. ideas	**It will hurt friend-ship**	Good to have conflicts. Good competi-tion.
Poor Discu-ssion?	**Each of us objects other's opinion**	No correct answer to Qs	**Objects what others suggest**	We use effort to explain its meaning, but others are different from yours	Noisy	Noisy	**Good Discus-sion: no disagr-eement**	Talking about negative points.
Settle Conflict?	(not asked)	(not asked)	(not asked)	(not asked)	(not asked)	(not asked)	By lots	majority wins
T's Role	We ask Qs.	Super-vises	Super-vises	Super-Vises	Super-vises	Super-vises	See if we're correct	Answer Our Qs.
Group report?	No	No	No	No	No	No	Don't know	No
Prepar-Ation?	No	No	No	Yes	No	No	Yes	No

Code: IT12ScD5C (means Interview Teacher12 in School D, Class 5C)
     I: means Interviewer; T: means Teacher

Interview: 1 December 2002   **11:15 a.m. to 11:45 a.m.**

I: How long have you been teaching in primary school?

T: Over 10 years.

I: Do you like conducting group discussion?

T: Yes,.

I: Why?

T: According to my own experience, my son also attends this school. He told me it's quite boring when he has general studies lessons. This is because our school edited our own text book in general studies, and all the pictures were removed. He said they had a lot to talk about in subjects other than general studies. I think it may be due to lack of attractive pictures to motivate the children. When I have the chance to teach the subject this year, I tried to think of how to arouse the interest of the children, or else it would be too dull in class.

I: Yes. And what do you think are the criteria of a good discussion?

T: They can voice their opinions freely. Sometimes they are quite noisy. I hope they can keep good discipline and will not affect others.

I: What do you think are the criteria of a poor discussion?

T: Poor ones? They don't know exactly what to do. No relevant points are made.

I: Do you find disagreement in group discussion?

T: Yes, there is.

I: How do they settle it?

T: Sometimes children are funny. If one speaks loudly or repeats several times, then others may keep silent.

I: Any thing else?

T: If they have conflict, they will agree to record all the points and reasons.

I: Do you encourage them to have different opinions?

T: Yes. I appoint a leader to take down the points. In some cases, I don't arrange any leader, but the group member told me they had a leader, and he recorded all the opinions.

I: Does the leader always make final decision of which is right or wrong?

T: This seldom happens. They usually talk together.

I: How do children settle the different ideas?

T: The majority wins. When they discussed the schedule for tourists, they had some arguments. At the end, the recorded points were based on majority wins. Some kept silent if the majority agreed. This is one way of solution.

I: What do you usually do during group discussion?

T: I walk around to each group and see how they carry on the task. I also probe them if they have nothing to say.

I: How do you probe?

T: Referring to the schedule, the tourists have to accommodate, eat and shop, so I asked them where they would suggest staying and eating. I asked them to look for the relevant materials, such as where the hotels were. They could look for them from the information sheet.

I: What else?

T: I remind and explain to them if they have no idea.

I: What about the discussion on the causes of the blooming tourist industry?

T: I probe them with some ideas. In fact that question was quite simple, they could think of its causes. If they felt difficult, I would tell them there was a route for visits, what was related to its schedule, its transportations, and where would they like to go.

I: Would you tell them the answer?

T: I would not tell the answer if I could find other ways instead.

I: What do you think are the areas of improvement?

T: I found there was insufficient time in the first discussion. Only one group had completed the job. This shouldn't be like that. We could do better if time allowed.

I: You returned their record the next period. Did they all make it?

T: Yes, but some were not happy that they were not selected, and asked me if they could write again after school. I told them they have made the conclusion. I would not give them time to record extra points. I prefer them to record more, because they can think more.

I: Then you don't have enough time.

T: Some have taken down 6 points.

I: Was there any preparation before the discussion?

T: Yes, I have asked them to prepare before discussion, so they have some ideas to talk about. I think it's good to let them voice out more points, no matter they are right or wrong. When it comes to conclusion, I can explain to them.

I: What do you think of the successful elements in these two periods?

T: Mm … the topic was appealing. There was relative information to be discussed, so they were very interested.

I: Any other part you find is good?

T: Mm…

I: Are you happy to conduct group discussion?

T: Yes, I do.

I: Thank you.

Appendix IV   Sample of Semi-structured Teacher Interview Questions and Responses from Teacher17 of Class 5B in School G

Code: IT17ScG5B (means Interview Teacher17 in School G, Class 5B)
    I: means Interviewer; T: means Teacher

Interview: 6 February 2001   11:55 a.m. to 12:30 p.m.

I: How long have you been teaching in primary school?

T: This is the 10th year.

I: Do you like conducting group discussions in general studies lessons?

T: Yes, we do have discussions.

I: Do you like it?

T: It depends on its contents. We hold discussion if its contents are appropriate.

I: What do you think about group discussion?

T: It trains children to express opinions, and the smart children can develop their leadership.

I: Have you achieved?

T: Yes, especially those smart ones in my class.

I: What do you think are the criteria of a good discussion?

T: Personally I shall provide them with sufficient materials, and probe them with related information, and let the leader take the lead. I usually appoint one child to record what they have discussed and make a report after discussion.

I: What are the criteria of a poor group discussion?

T: I think the key point is if the leader is able to lead the job, it affects the participation of other members to a large extent. Some pupils in the class seldom express themselves and talk nonsense. That will probably ruin the whole discussion.

I: How do you train the leader to take the lead?

T: Sometimes I brief them before the lesson or during recess, and teach them how to do it.

I: How do they lead?

T: I ask them to throw some questions and give some hints if the members cannot find the answers.

I: To probe them?

T: Yes, and I shall also join them in some cases.

I: Is it the leader to finalize if there is disagreement?

276

T: No, I don't instruct them in this way. I ask them to collect all the different opinions and find an appropriate one after negotiation.

I: What do you think of their disagreements in group discussion?

T: I think this is normal. It reflects their different opinions. But I remind them to respect others' opinions as well.

I: Do you think argument is good?

T: It's good.

I: Why?

T: Because it can stimulate their thinking.

I: Have you taught children in this way?

T: Yes, but I don't always remind them. I only ask them to accept other's opinion.

I: What do you usually do during group discussion?

T: I usually walk around and see how they carry on the task. Sometimes I join them and express my own opinion.

I: What is it?

T: Opinions of the discussing topic.

I: What about if there is conflict?

T: I try to settle it.

I: How?

T: If the opinion of A is disagreed by B, soon they will quarrel.

I: How do you settle?

T: I ask them to respect other's opinion. Let other people have chance to voice their points. They sometimes aim at pointing others.

I: If some choose NE and some choose SW, how do you settle?

T: I shall ask the one who choose NE to look at the good points of SW.

I: What about when they come to report?

T: They are asked to state two different opinions. See if there is any chance to compromise.

I: Did you ask children to collect information before the discussions?

T: It depends.

I: What about this discussion?

T: For discussion of crops, I have asked them to look at it well in advance.

I: Will they do it, with so much homework in hand?

T: Leaders are willing, but not the members.

I: How often is the leader changed?

T: It will be changed when they change the seats.

I: How often?

T: Nearly once a month.

I: How do you choose a leader?

T: There are 2 leaders in a group, have you noticed? I appoint a smart one to be the leader, and the less smart one to be his/her assistant.

I: How does she help?

T: She helps to lead discussion.

I: 2 of them are in charge? They are trained.

T: But I think the training is not sufficient, because time is short.

I: But I saw they were willing to carry the job. They were very responsible. They initiated other members to voice their opinions.

I: How do the teachers cooperate to reduce workload in this subject?

T: I find it's difficult, because we don't have much time.

I: Can you share some resources?

T: Yes. I share some of the materials with other colleagues if I find it is good.

I: How did you prepare?

T: I find some extra materials and teaching aids, or some topics which are suitable for discussion.

I: What kind of topic?

T: Topic for discussion.

I: What about this discussion? What else do you share?

T: When we have found some non text book material, we share with each other.

I: What is it?

T: When we taught the topic on the structure of the Hong Kong government at the beginning of the year, some colleagues shared materials they found from internet. The names of some departments have been changed.

I: I see. They are different from what are in the text book. Did you share this time?

T: Yes, I did. My colleagues also showed them to the children.

I: Referring to what you have prepared in this topic, will you also share with others?

T: Yes, I do, I put them on computer, so teachers can access any time they like.

I: Do the children in your class have to do news clippings?

T: Yes, they do.

I: Is this compulsory for all 4 classes?

T: Yes, but it could be at different time.

I: How often do you collect children's general studies log book?

T: Once in 2 or 3 weeks.

I: Oh it's quite frequent.

T: It depends on if they are busy with their homework.

I: Are they told it carries mark?

T: No, they know it does not.

I: And they work with efforts?

T: Yes,

I: What about project work?

T: Yes, that carries marks.

I: Can you remember the name of the topic last term?

T: It was about first aid.

I: Last term?

T: We have just finished that.

I: Is it the same topic for each group?

T: That's right. All are the same.

I: What's the topic on second term?

T: The coming one will be about China, because we have just finished a unit on China.

I: What is it about China?

T: We have to discuss its detail.

I: How many are in a group in doing the general studies log book?

T: It's individual work.

I: Oh I see: individual work. Do they have to decide what special topic it should be?

T: We shall give them some instructions.

I: This carries marks.

T: Yes, in the test.

I: How do visits, news clippings, and project work affect group discussion?

T: This could increase interaction between them, and there are more chances for training.

I: What will be like if they are no such preparation?

T: Less adequate.

I: How did the visit help in group discussion?

T: I have given some instructions before the visit.

I: You went to Farm Kadoorie?

T: Yes, then I asked them to be attentive to what they have seen?

I: Did you give them worksheet?

T: No, but I asked them to make a report at home.

I: Each one of them? What kind of report?

T: What they have observed and seen in this visit.

I: How long is the essay?

T: Above 50 words.

I: Are they asked to do it after every visit?

T: No, not every time. They were not asked to do last time when they visited Space Museum.

I: Did you have a lesson yesterday after visit?

T: No, only today.

I: Will you review?

T: Yes, after I've marked their reports and I'll talk it over again.

I: Do you think all these help them in discussion?

T: Yes, definitely, but visits do not help much, because they seldom go for visit.

I: What does it help?

T: It helps to increase their knowledge. I prefer to explain while we visit and view together.

I: Yes. Thank you very much.