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LANGUAGE INTO LEARNING: SMALL
GROUP INTERACTION

A thesis submitted in fulfilment of the requirements
for the award of the degree of Doctor of Philosophy

by

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October 1998

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ACKNOWLEDGEMENTS

I would like to express my sincere thanks to the following people who have contributed to this study.

I wish to thank Professor Diana Davis who has been my supervisor for this study. I have conducted this study as a part-time student over a number of years during which she provided positive, professional guidance. At all times, she challenged me to pursue excellence through clear, logical thinking and conceptualisation of issues related to the study. Her encouragement and professional guidance at all times helped me to conduct the study and structure the writing of the thesis.

Thanks are extended to the Principal (Neil Robinson), Deputy Principal (Sandra Davey) and the Year Six teacher (Brad. Hampson) of Cranbrook State School for their professional support. I also extend thanks to the five Year Six students of this school who participated in the research and Tony Price who did the videotaping in the school.

I wish to thank my wife Margaret for her patience and support while I was conducting this study.

ABSTRACT

In a world of technological and cultural change and multicultural contexts, the Primary School is challenged constantly to provide learning experiences as foundations for students' acquisition of lifelong learning strategies. Consequently, classrooms need to provide learning experiences related to the real world via television and the internet and opportunities for sharing ideas/information. Effective sharing of ideas/information entails empowering students to acquire skills that enable them to evaluate ideas/information and critically validate information sources. In these contexts, questions arise in relation to the nature of group learning and its effectiveness for learning across knowledge domains of the curriculum.

Research on group learning in both primary and secondary schools has indicated that, compared with whole class teaching/learning, group learning provides enhanced opportunities for social development through student-student interaction that leads to improved learning outcomes. However, there is little research which has focused on a detailed analysis of how group interaction might be understood and enhanced. This study has accepted this implicit challenge by probing the linguistic and cognitive processes generated in collaborative, heterogeneous group contexts across three knowledge domains of the primary school curriculum (science, social studies and language arts).

In examining group processes, this research analyses the dimensions of group interaction at both global and individual levels. Research paradigms are examined to identify and develop an appropriate methodology, in this case ethnology of communication.

Prior to implementation, the instrument developed for the research was trialled in terms of effectiveness for tapping the students' perceptions of the group learning process. A systematic trialling process was also undertaken to develop a data analysis system which encompassed at once (a) the language created by the participants, (b) the cognitive processes engaged in by participants, (c) the contexts constructed by individuals and (d) extra/nonverbal dimensions of the group interaction.

The research site selected for the study was a large State Primary School with students from mixed social and cultural backgrounds and the selected participants consisted of five Year Six students (two females and three males) of mixed ability.

Analysis of the data at both global and micro levels generated the following pathways to effective, collaborative, heterogeneous group learning in the knowledge domains of the Primary School curriculum.

(1) The research model provides a learning paradigm considered an effective adjunct to whole class teaching/learning. This paradigm is characterised by communicative contexts with potential for interactive learning via sustained dialogue and appropriate teacher roles to ensure symmetry of learning.

(2) The group interaction spontaneously generates a range of linguistic forms, accompanied by body language, and cognitive processes, including core linguistic forms and cognitive processes, to structure a semantic field of relevant content.

(3) Participants structure the group learning by adopting roles through which they collaboratively establish contextual frames and interaction

segments by initiating and responding to ideas/information drawn from their individual knowledge structures.

(4) In the context of ongoing teaching/learning, students indicate that they have acquired (a) perceptions of purposes for learning the knowledge domains and (b) preferred, knowledge-domain-specific learning strategies.

This research has implications for further research on the impact of cultural and gender differences on the generation of linguistic and cognitive processes in other group structures as well as collaborative, heterogeneous group contexts. In the classroom context, it has implications for an effective teaching/learning paradigm for laying foundations for lifelong literacy for learning the knowledge domains of the curriculum and strengthening fundamental pillars of education in a world of rapid technological change. It also has implications for both Preservice and Inservice programs providing the necessary understandings for teachers to implement and develop collaborative, heterogeneous group learning as an effective supplement to whole class teaching/learning in the instructional program.

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CHAPTER 1
INTRODUCTION : COMMUNICATION AS CLASSROOM
FUNDAMENTAL

1.1 COMMUNICATIVE COMPETENCE

Communication is fundamental to learning and language development. Fundamental, communicative needs should form the basis for classroom planning by the teacher to ensure that effective language development and learning occur in the classroom. During the preschool years, the young child spends a great deal of time exploring the environment and engaging in a range of experiences which form a basis for learning. As the learning proceeds, the child acquires language, and consequently extends the learning process through the use of language as he/she uses language for a range of functions while playing and engaging in a variety of activities. During many of these activities, the child interacts with peers and adults, and, through these interactions, acquires the ability to communicate over a range of contexts.

As teachers and students interact during the school day, they engage in communication within a series of instructional contexts which include teachers assigning tasks to students and students responding to the teachers' instructions and directions. Teaching and learning in tandem are thus perceived as a communicative process (Puro and Bloome, 1987). During these interactions, both teacher and student display communicative competence which *is that aspect of our competence that enables us to convey and interpret messages and to*

negotiate meaning interpersonally within specific contexts (Brown, 1987:199).

The concept of communication is expanded by Tartter, (1986) who states:

Our analysis thus far suggests that the bare rudiments of communication include effecting a behaviour change in another, toward a common goal, with feedback from the other causing a change in the transmitter. In other words, communication must be two-way. (p.267).

Within the classroom interactions, messages are transmitted and interpreted during which account is taken of the interactional contexts which are constructed by the teacher and the students (Puro and Bloome, 1987). Nonverbal communication through the use of body language, eye contact and gesture also forms part of the classroom communicative system which can be affected by the similarity of the participants' experiential backgrounds, the degree of similarity in the way the participants structure their experiences, purposes of the communication, and the relationships established in the communicative act by the participants (Emmitt and Pollock, 1991) as well as the context in which the communication occurs.

Communication may be established through interaction which incorporates exchanges of ideas and opinions. Exchanges amongst interactors may occur through the use of verbal and nonverbal language codes which include oral, graphic and gestural modes. Classroom interactions that utilise oral language may be generated

through teacher-led, class discussions and student discussions which are forms of interaction.

Alvermann, Dillon and O'Brien (1987) indicated that discussion is important as a communication skill and must satisfy the following three criteria:

Discussants should put forth multiple points of view and stand ready to change their minds about the matter under discussion; students should interact with one another as well as with the teacher; and the interaction should exceed the typical two or three word phrase units common to recitation lessons. (p.7)

Cintorino (1993) links the discussants' talk with social skills and indicates that discussion is an exchange of ideas, opinions, questions, responses and explanations, during which the course of the discussion is determined. Green and Wallat, (1981) reinforce the social and creative dimensions of verbal exchanges of ideas, opinions, observations and sentiments and refer to them as conversations within the framework of teaching as a conversational process.

Student discussions provide opportunities for students to ask and respond to questions and respond to each other's ideas. They also have the potential for providing opportunities for students to (a) clarify and expand their interpretations of text-based material, (b) evaluate texts and peers' interpretations, (c) reflect on their own thinking, (d) review and master subject matter, (e) work together to

develop interpersonal skills and construct meaning and (f) heighten their sense of accountability (Kletzien and Baloch, 1994).

1.2 COMMUNICATIVE CONTEXTS

Shuy (1981) emphasises the importance of context and function for language development and communicative competence, and Adams (1984) indicates that the major aims of language education are related to the students' acquiring linguistic repertoires for as many different contexts as possible. Puro and Bloome (1987) also indicate that classroom communication is influenced by both implicit and explicit communication. For Puro and Bloome (1987) the teacher asking students a question and the students responding are an example of explicit communication while the teacher requesting the students to do something and their complying with the request is an example of implicit communication. The former portrays the communication as language interaction, and the latter portrays communication as a request followed by an action.

Students operate within the broad contexts of home and school and use language for a number of functions within these contexts, but these contexts are made up of a range of focused contexts in which learning takes place. Social contexts that consist of people, activities, talk and feelings are established in the classroom (Genishi, 1984), and learning becomes a social process through interaction during which knowledge is transmitted and structured as the individuals interact with other individuals in the learning context.

Teachers are thus challenged to create communicative contexts for learning that ensure students engage in quality interaction in which they are sensitive to the contextual differences imposed by the learning tasks and the individuals engaged in the learning tasks. Contextual features are significant determinants of language outcomes and, consequently, it is vital for students to understand the context of language for effective communication and learning.

1.3 COMMUNICATING CONTENT

As students engage in the learning process, they engage in communication and use language for learning. In this learning process the language used is determined partly by the nature of the learning task which may or may not include opportunities for the students to explore meaning and elaborate ideas. If the students have opportunities to use language to make meaning, they are able to construct frames of knowledge (Berry, 1985) and reconstruct frames of reference as learning proceeds. Learning in the disciplines of the curriculum that incorporates interaction allows opportunities for students to interpret and develop concepts based on prior knowledge and experience, and develop the language of the discipline.

In the context of learning mathematics the process of making meaning through a language of numbers and relationships, involves oral and written communication, gesture, drawings, and diagrams (Marks and Mousley, 1990). Texts of mathematics learning thus go beyond language and include other meaning systems. In

mathematics there are structural forms to make meaning within the social contexts of learning, and appropriate texts and generic forms are generated for communicating mathematical concepts. Learning mathematics also entails the students using language to express their mathematical ideas in forming and developing mathematical concepts, so it is important for students to learn the language of mathematics and use language in mathematics to develop and communicate their understandings (Marks and Mousley, 1990).

Particular disciplines influence the contexts of learning and generate texts that are appropriate for that discipline, therefore, it is important to take account of the texts generated as part of the learning process. Learning within the disciplines thus takes account of the discourse of the discipline and the communicative systems that operate within that discourse.

1.4 COMMUNICATIVE CLASSROOMS

It is important for classroom teachers to ensure that communicative competence is enhanced in the classroom as it aids expression and understanding within the framework of effectiveness and appropriateness. Rubin and Kantor (1984) analysed communicative competence in the classroom in terms of the four principles of sensitivity, flexibility, performance, and feedback.

Communicative competence entails a *sensitivity* to the situational features of the medium of communication, audience, function of the communication, the setting of the communication, the topic, and the

discourse process of the communication. Communicatively competent people are *flexible*, adapt to the situation in which the communication is occurring, and select appropriately from their repertoires of communicative styles. Communicatively competent people also need to *perform* effectively within a range of situations, and, as communication involves feedback, it is important for the communicator to use effectively the *feedback* that occurs in the communicative act.

These principles of communicative competence emphasise the need for students to be able to understand the modes and functions of language so that they can communicate effectively through language for a universe of purposes over a range of contexts which provide opportunities for language development and communication to occur. According to Savage, Flynn, Ohlms, and Christie (1981), classrooms are filled with language. They also indicate that good teaching/learning situations draw on the students' knowledge, experience and language. It is also important for students to be aware that speech is context-dependent and that writing is context-independent so that they can take account of these factors in their communications through oral and written language.

Classrooms in which meaningful communication is encouraged may be perceived as learning classrooms in which communicative contexts generate the learning through interaction that occurs between teacher and student, and between student and student. Learning thus occurs within social contexts that take account of the

language of the participants and important factors that affect the communication that occurs within those contexts. Communication, language and learning are then enhanced within meaningful social contexts.

1.5 ALTERNATIVES TO DIRECT INSTRUCTION

In direct teaching the transmission of knowledge is often achieved by the initiate-response-evaluate (IRE) format (Cazden, 1988). More generally this format is perceived as the elicitation-response-feedback (ERF) format (Heap, 1985). This mode of teacher-centred instruction is still a common form of practice (Cazden, 1988; Heap, 1985; Swain, 1988) so it is important for teachers to explore a range of other instructional strategies that enhance the interactional mode of learning more to allow more student participation in the learning process. If more participation occurs, we can view classroom discourse as a process of teacher and students producing knowledge (Heap, 1985) rather than a process of the teacher imparting knowledge. However, interactional learning that involves high student participation must take account of students' communicative competence hence the study of classroom discourse becomes a study of classroom communication (Cazden, 1986).

Classrooms are complex social settings in which a series of relationships are established during the learning process. Teacher-student relationships and student-student relationships are established over a variety of learning episodes during the school day. Interactions occur between teacher and student and between student

and student, and these interactions entail a great deal of talk for a variety of purposes which include the teacher giving directions, the student asking for assistance/guidance, and students talking about a task or problem. However, classroom talk can often be controlled predominantly by the teacher who spends a great deal of time in direct teaching of the whole class during which he/she asks questions and the students answer. Teachers are thus instrumental in controlling the classroom context through a variety of classroom organizational patterns to enhance meaningful learning within the disciplines. Given this control, teachers may encourage more discussion in the classroom, and allow students to engage in more language-centred learning which provides opportunities for both language development and learning to occur together.

Swain (1988) drew attention to the distrust of the whole class context for learning, and derives the following principles:

*teachers must avoid inhibiting children's language that is
used to explore, analyse and hypothesise
whole class discussions do not permit all children to have
the opportunity to talk
children learn to use language for a range of functions
including talking their way to understanding
teacher-led discussions produce discourse asymmetry,
arising from the asymmetry of knowledge between the adult
teacher and the child learner
children have lots to say and they need guidance to
elaborate and diversify the codes in which they say things*

adults are authority figures who exercise their right to sanction meanings, negotiate and determine meanings for children, silence and dismiss children (p.61).

Yet, Swain (1988) does indicate that whole class discussion has value as a teaching context if the teacher assumes a participatory role which allows for free-flowing discussion rather than a supervisory role. Contexts in which free-flowing discussion occurs in learning in the disciplines allow the students to do most of the talking thus overcoming the problem of knowledge asymmetry where the teacher controls the learning.

Wells and Wells (1984) studied children's language at home and school and concluded that compared with home interactions children at school initiated fewer interactions, asked fewer questions, and generally interacted less. They also found that the children's utterances at school had simpler syntactic structures and portrayed a narrower range of content, and recommended that learning and teaching in the school context be collaborative during which all participants contribute to the interaction on an equal footing. They thus expressed another important challenge for teachers to go beyond teacher-led initiations of learning in whole class instructional contexts to learning contexts that generate language and learning through collaboration and discussion.

1.6 CREATING LANGUAGE CONTEXTS FOR LEARNING

Learning/instruction in the classroom includes acquisition of and instruction in a body of knowledge perceived as the curriculum. The teacher's role includes organizing the classroom for meaningful learning so that knowledge, skills, and attitudes are acquired, and used appropriately by the students. This organization needs to take account of the way knowledge acquisition is achieved as well as the knowledge itself to ensure that the students are active participants in the learning process because active participation by the students in the learning process, helps avoid both discourse and learning asymmetry which occur in teacher controlled learning.

If teachers are to avoid learning asymmetry and too much whole class teaching, they need to experiment with ways to create learning contexts that ensure students have opportunities to use language in the learning process during which they learn the language of the disciplines that they are studying. These contexts may provide opportunities for students to use language, learn language, and learn about language (Savage, Flynn, Ohlms, and Christie, 1981). These contexts may also provide opportunities for the students to use language to hypothesise, analyse, synthesise, and explore and elaborate meaning. The challenge, therefore, is for teachers to structure meaningful learning contexts in the disciplines in which students participate and contribute to the learning through shared interactions, and build on their individual knowledge during those interactions.

Classroom discourse then becomes a complex pattern of interactions that generate communicative contexts for learning in which the teacher and students take on roles in the learning process. The communication and learning that are generated are shaped by these roles as well as the school curriculum. Social relations that involve the teacher and students as they pursue curriculum tasks are derived from the communicative contexts of learning, and the curriculum is contextualised in the classroom (Puro and Bloome, 1987).

Researchers also have an interest in the learning process, the language process and their relationships. If classrooms are to become places in which communication and learning are enhanced through language interaction, then the research process needs to inform teachers. If theory and practice are to work in the interest of improved language development and learning for the students, then there is need for a conscious, self-reflective examination of language and language learning by both researchers and teachers (Harste, 1982).

Research and theory have raised important issues related to classroom interaction and learning (Wells and Wells, 1984; Heap, 1985; Cazden, 1986; 1988; Puro and Bloome, 1987; Swain, 1988; Marks and Mousley, 1990) and the issues have highlighted the importance of discussion in enhancing communication and learning, and the significance of context for classroom learning through interaction. In the search for effective interaction to enhance learning, this research

project focuses on group learning as a context which can provide opportunities for students to participate in and initiate interactions, ask and respond to questions, and share information in learning the disciplines in the primary school. The research problem examined in the project is concerned with the nature of group learning and its effectiveness for language development and learning.

1.7 STATEMENT OF THE RESEARCH PROBLEM

The research reviewed has highlighted the need for teachers to ensure that students have opportunities to participate in interactions during the learning process to develop appropriate language and build on their individual knowledge to extend and learn concepts for understanding the disciplines. The literature reviewed has also revealed the significance of group learning as an effective context that allows individuals to participate in discussion and cooperative learning. However, there is no clear evidence to support a methodology to elicit elaboration of discussion and learning in the disciplines in group contexts.

This study focuses on ways to organise group learning in the classroom to develop linguistic and cognitive skills within communicative contexts. Within these contexts the effectiveness of instruction for the enhancement of group learning over a range of curriculum disciplines is examined. This examination will provide insights into the ways students structure their learning in the different disciplines and the teacher's role in effective group learning in the classroom. It is anticipated that the study outcomes will form

the basis for guidelines to guide teachers in their endeavours to overcome some of the learning problems that have been raised in the foregoing theory and research, which include learning asymmetry and too much whole-class teaching, and to help them enhance language development and learning in the disciplines through group discussion.

Therefore, the problem addressed in this research is an examination of the linguistic and cognitive processes of learning the disciplines in collaborative, heterogeneous group contexts.

The organisation of classrooms into groups allows teachers to structure contexts similar to real life situations where individuals meet and share ideas and information. Children have encountered group conversations in family interactions and other social contexts such as play groups and interest groups and, as they have participated in group discussions, they have built on their present knowledge and acquired the language of discussion through interaction. Classroom teachers may build on these abilities and develop students' ability to learn through discussion.

In group settings individuals listen and talk, organize meanings in terms of their own frames, and learn to be sensitive to the context in which they operate. Group participation and learning may thus become a dynamic event in which individuals have an opportunity to pursue and achieve individual goals, share and negotiate meanings, and respect the point of view of others as learning proceeds (Pinnell,

1984). Group learning contrasted with whole class learning allows more student interaction which in turn allows students to structure their learning based on their own knowledge rather than the teacher structuring the learning. Group learning also allows more participation by individuals in discussion which provides more opportunities for individuals to acquire and develop communication skills in context.

1.8 AIMS OF THE STUDY

The achievement of the following aims of the study will provide insights into ways students structure learning in group contexts in the classroom.

The main aim of the study is to provide insights into the ways students interact in groups by creating language and engaging in cognitive processes to learn and develop concepts in learning the disciplines in collaborative, heterogeneous group contexts in the Primary School.

A second aim of the study is to examine the roles adopted by students and the ways students structure their learning in group contexts in the disciplines of the curriculum.

A third aim of the study is to tap the students' perceptions of learning strategies and the group process for learning the disciplines of the curriculum.

A fourth aim of the study is to formulate guidelines for teachers to structure effective group learning in the classroom.

The implementation of the study will provide research outcomes on the nature of group learning, and provide instructional guidelines to assist teachers to implement effective learning in group contexts. The study will thus contribute to research on group learning by adding new knowledge in this field, and relate the research outcomes to classroom practice.

1.9 ORGANISATION OF THE STUDY

In order to complete the study, account will be taken of the following organizational precedures.

Firstly, the importance of oracy and literacy will be examined then the preliminary literature survey that has been carried out will be extended to gain detailed insights into theory and research relevant to the study. Basically, the literature survey will focus on two areas of theory and research. Part one will consist of an overview of selected studies on the concept of literacy and learning theory that have influenced Australian teaching over three decades. This overview will include examination of the main influences on literacy development in Australian schools and will take account of context and the role of the student in mediating and structuring knowledge as enhancement of literacy and learning. Part two will focus on studies relevant to group learning contexts in the school system. The review will provide a basis on which to build a conceptual

framework for the articulation of the research questions that will be examined in the study.

Secondly, the research questions will be articulated and the methodology for the study determined. The research questions will be determined from the conceptual framework derived from the literature surveyed and the research problem. The methodology adopted for the study will allow for examination of group interaction in practice, and include instructional material which will be prepared and used as a stimulus for group learning in selected disciplines of the curriculum which is the focus of the study.

Thirdly, the school population will be selected and the research sample will be drawn from that school.

Fourthly, the study will be implemented within the selected school context and primary data, which will consist of video tapes of group interaction and student responses to a questionnaire, will be gathered for analysis.

Fifthly, the data will be organized, analysed, research findings examined, and conclusions drawn from the research findings for the final writing up of the research which will include instructional guidelines for learning the disciplines in group contexts.

CHAPTER 2

ORACY, LITERACY AND LEARNING

2.1 ORACY AND LEARNING

In the early years of their lives children use oral language extensively in their games and in their communications with their peers and parents. Oral language is used in situations in which the children perform rituals, act out roles, and engage in experiences which enable them to build an oral language foundation which becomes the foundation for reading and writing. Children learn to express and comprehend ideas, feelings, understandings and concepts through oral language experiences, and they bring this language ability and the ability to learn to the reading and writing tasks in school that take account of, and expand on, this literacy base (Goodman, 1987).

Recent studies (Staab, 1991) have examined the need for students to have time to talk in the learning process which means teachers have to talk less to allow students to take more control of their own learning. Collaborative talk amongst students allows them to achieve individual goals, and collaborative talk between student and teacher allows the teacher to increase his/her understanding of the student's purposes and current level of learning (Gen Ling Chang and Wells, 1988). The measure of the student's level of cognitive processing can be determined to some extent by examination of his/her ability to put a point across, produce supporting facts, and sustain an argument (Staab, 1991).

Staab's study (1991) entailed detailed observations of year three and year six classrooms, and generated important information on ways classroom teachers structure their classrooms to permit student talk. Although the study showed that there were differences amongst teachers and the type of learning engaged in by the students, it showed most of the school day was spent in quiet work or the teacher talking. It was noted that most of the student-student talk was on occasions when students were talking informally and helping each other.

If teachers are to plan for talk to develop oral communication skills and learning, classroom structure needs to provide opportunities for students to develop productive talk in learning contexts. Therefore, ways to enhance peer interaction need to be examined and implemented by teachers so that students have opportunities to formulate opinions and clarify ideas within classroom structures that encourage active learning by providing opportunities for classroom talk (Barnes, 1976; Barnes and Todd, 1977).

Barnes (1988) discusses oracy in the curriculum and indicates that we should examine oral language in relation to the topics and contexts in which it is used. He also points out the need for teachers to be able to intervene in the learning/teaching of oracy and to understand the significance of that intervention for instruction. He suggests we intuitively operate a set of choices when we speak and offers these levels, which follow, as a guide for teacher intervention.

- A Context:*
1. Awareness of situation and relationships
 2. Purpose(s)
- B Message:*
1. Constituents of the message ('gist units')
 2. Role choices (on which style, polite forms, etc., depend)
- C Speech act:*
1. Elicit, command, state, etc.
 2. Organization of information within the utterance
- D Formsl:*
1. Syntax
 2. Intonation
 3. Choice of words
- E Formsl l:* Sound production (delivery, phonology, etc.)
- (Barnes, 1988:46)*

With the foregoing levels of intervention in mind, and the need to develop oracy skills in context, teachers may enhance oracy in the classroom and make the whole curriculum the content of oracy. Spoken language can then be developed through enquiry and learning in context. Oracy then becomes a tool for discussion, and a means of engagement in a range of activities to increase the student's understanding of the world through active learning (Barnes, 1988). Oral communication contexts then provide opportunities for (a) enhancing cognitive skills, (b) enhancing literacy and (c) learning within the knowledge domains of the curriculum.

2.2 ORACY AND LITERACY

Gen Ling Chang and Wells (1988) considered the thinking processes engaged in by students in collaborative talk sessions and concluded that linguistic attributes such as explicitness, connectivity, justification, and relevance are attributes of thinking processes in both oral interaction and literate thinking. They argue that becoming literate can take place potentially through speech as well as through engagement with written language, and reinforce this perspective by arguing that it is not the mode of language that defines literate thinking but the manner in which language is employed. Thus a literate person exploits the symbolic potential of language to empower his or her thinking individually and socially across many domains of knowledge and experience (Gen Ling Chang and Wells, 1988).

In the past, reading and writing have often been viewed mainly as intrapersonal processes between reader and writer or reader and text. Bloome and Theodorou (1985) indicate that reading and writing are also interpersonal processes that involve students, teachers and multiple texts. In the classroom context, what count as reading and writing are established by teachers and students as they interact with one another and with the reading text. Reading and writing take place within social contexts and these contexts may influence the ways texts are interpreted and constructed. For example, the teacher's expectations of the reading and writing may influence the way the students interpret the text. Competition and collaborative learning may also influence the reading and writing processes

because competitive reading and writing and collaborative reading and writing could generate different learning outcomes within different contexts. In these situations, students not only require ability to read and write but also need the communicative competence to understand what is required during reading and writing sessions.

Communicative competence may be enhanced in the pursuit of literacy. The Australian Government's Language and Literacy Policy takes account of important issues related to literacy and defines literacy in English as:

Literacy is the ability to read and use written information and to write appropriately, in a range of contexts. It is used to develop knowledge and understanding, to achieve personal growth and to function effectively in our society. Literacy also includes the recognition of numbers and basic mathematical signs and symbols within text.

Literacy involves the integration of speaking, listening, and critical thinking with reading and writing. Effective literacy is intrinsically purposeful, flexible and dynamic and continues to develop throughout an individual's lifetime. (Dawkins, 1991;8)

This view of literacy goes beyond the traditional view of literacy as reading and writing and presents a broader view of literacy that incorporates oral language and cognitive development.

Students who participate in classroom reading and writing events may come from different cultural backgrounds which may influence the way they interpret meaning and perceive the reading and writing processes. Becoming literate thus includes engaging in a socio-cultural process of meaning making which draws on linguistic, cognitive and communicative skills within learning contexts which utilise both oral and written texts. Consequently, instruction for literacy needs to take account of the social and interpersonal contexts structured for reading and writing events, and the cognitive, linguistic and communicative skills utilised in the learning process.

Mikulecky (1990) suggests the following positive directions in his discussion of literacy instruction. Firstly, students need to encounter a wide range of contexts and uses for literacy. Secondly, families and other institutions need to be encouraged to play a larger role in literacy instruction. Thirdly, attention needs to be given to the use of literacy within social networks which includes the solution of group problems. Fourthly, literacy instruction can occur almost naturally in functional learning contexts.

With the foregoing suggestions and definition in mind, teachers may take account of language development within the learning contexts which they structure in the classroom, and include oral communication and reading and writing in learning across the curriculum. Classrooms may then become communities of learning within which the teacher plays an important role in the

establishment of an environment that encourages interactions that enhance oral communication, reading and writing which are learned within social contexts that shape the meanings that are generated through social interaction. The scenario for effective learning then becomes the individual constructing meaning within planned social contexts for learning.

2.3 CONSTRUCTIVIST LEARNING

Bennett's (1987) review of teaching-learning processes considered the theoretical and empirical underpinnings of teaching-learning processes, teaching styles, opportunities to learn and classroom tasks. He draws attention to the importance of the role of the student in mediating and structuring knowledge, and indicates that teachers need a repertoire of teaching styles whose effectiveness can be judged against the appropriateness of the task for the students' capabilities, the degree to which students are motivated, the quality of student understanding and the adequacy of teacher diagnosis and explanation.

From a cognitive view of constructivist learning the learner takes an active role in the learning with the focus on relating new knowledge to what is already known. In a constructivist learning context, the learner reshapes his/her knowledge base by constructing and restructuring knowledge through engagement with the learning task.

From a social constructivist view of learning, emphasis is placed on the social context of learning and the way the social context

influences the learner's construction of knowledge. The social constructivist view implies that teachers need to consider the contexts in which learning occurs and what counts as learning in different contexts. This view has implications for teacher-student and student-student relationships.

Marshall (1990) portrays classrooms as learning contexts which have implications for teachers, curriculum development and the socialization of students. In the implications, Marshall indicates that teachers need a firm knowledge of how students construct knowledge within the dynamic social context of the classroom, and a knowledge of general and specific strategies to structure the environment for purposeful learning. Teachers also need to plan authentic, problem situations that are meaningful to the students and allow them to express concepts in varying ways. Students are thus viewed as learners in settings that emphasise linguistic, cognitive and social development through collaboration.

To ensure meaningful and effective learning is to take place, the classroom teacher needs to plan learning activities that are meaningful to the students within contexts that take account of the communicative, cognitive, social and linguistic processes that operate during the learning; and the implementation of these activities needs to take account of the classroom organization to cater for the developmental levels and interests of the students. Teachers also need to ensure that students have opportunities to enhance their language skills within the knowledge domains of the curriculum as

they engage with oral and written texts relevant to these knowledge domains. If communication through interaction is encouraged and carefully planned as a basis for learning, students will acquire the social and linguistic skills of interaction, structure their learning based on past experiences and express concepts in their own way. Learning and language are thus developed through the interplay of overlapping processes of language development and learning in context.

Enhancement of oral communication, reading and writing perceived as fundamental in the learning process has implications for Primary School teachers who have opportunities for laying the foundations for effective, meaningful learning. Davis (1996) contemplates Century 21 and draws attention to the importance of developing a range of educational pathways for students. She considers Australia's graduates and states:

Graduates were found to be wanting in terms of communication skills – their listening and speaking skills and their reading and writing skills were neither sufficiently honed nor responsive to the applications required of them. They were also criticised for inadequate problem solving capacity, for lack of flexibility, and for underdeveloped team skills. (Davis 1996, 27)

With these findings in mind, primary school teachers may lay the foundations for the development of communication skills and take account of oral language as fundamental to this development.

In their search for appropriate classroom structures and effective methodologies for language development and learning, teachers may critically examine past educational influences that have shaped Australian education. A range of events over the last three decades have influenced the construction of state syllabuses that have given direction to instruction in Australian Schools and formed the foundations for education in the nineties.

CHAPTER 3

ORGANISATIONAL CONTEXTS FOR LANGUAGE LEARNING : A GLOBAL PERSPECTIVE

3.1 INTRODUCTION

Following is a global perspective of important educational events, important theorists and their theories, and emergent concepts that influenced English teaching in North America, Great Britain and Australia over three decades of educational change. This perspective is achieved by an examination of: traditional classroom contexts; moves to break with traditional classroom contexts; and challenges and solutions for English teachers and teachers of language arts in Australia.

3.2 TRADITIONAL CLASSROOM CONTEXTS: THE SIXTIES AND SEVENTIES

The sixties and the beginning of the seventies were times of rebellion, times for hippies, times for drugs, and times for vivid fashions. In Australia, education was influenced by "the cultural cringe" which referred to Australia's deference to ideas and movements from overseas, particularly from Britain and the USA (Davis and Watson, 1990), and they were times during which traditional, educational perspectives were examined and new perspectives suggested.

3.2.1 The American Context

In the sixties and seventies, the goal of the American English curriculum was to prepare students to communicate more

effectively and to respond more perceptively to language and literature (Muller, 1967; Bennett, 1973). The content of the English curriculum was composed of the three major studies of language, literature, and composition. (Delves, 1972; Bennett, 1973; DeBoer, 1973). Language study was mainly concerned with the study of grammar, spelling, punctuation, word usage, and varieties of language; literature study was mainly concerned with the study of a range of forms of literature; and composition study was mainly concerned with the effective use of oral and written language. In order to achieve the goals of the curriculum, teachers emphasised the acquisition and development of skills, and learning objectives for English reflected the skills approach to instruction.

A survey of the teaching of English of the best high schools determined by outstanding students who won English prizes (Squire and Applebee, 1968) showed that about half the time was spent on literary studies with very little time devoted to discussion of the text. Much of the writing was superficial and little time was devoted to improving students' writing ability, and language programs were confusing. There was also heavy reliance on text books in the classroom, and most reading instruction utilised packaged reading systems (Dixon, 1991). Thus a great deal of English instruction entailed teachers following a rigid instructional program that emphasised skill learning.

In the seventies, teachers and educators began to ask important questions about the content and instruction of English. Muller (1967) had indicated that English had no content as there are no

facts to transmit. These questions on content and instruction led to changes in the English curriculum. The study of literature was expanded to include the study of science fiction, women's studies, film studies and studies of adolescent literature (Dixon, 1991). The triad theory of literature, language and composition was perceived as limiting by some curriculum theorists (DeBoer, 1973) who made efforts to reduce the fragmentation of the English curriculum by examining the content of English instruction, and suggesting that the study of English is related to the study of other discipline areas of the curriculum. Teachers then began to perceive the importance of communication through oral and written language which included communication within the disciplines of the curriculum as well as the study of literature. Although the role of grammar in the English curriculum was questioned (Muller, 1967; Elley, 1971), teachers still taught formal grammar, and taught language skills rather than leading students to an awareness of language in use. Moffett's ongoing criticism of skill teaching (1982) indicated that teachers at this time were teaching mechanistically by breaking instruction down to the teaching of small, sequenced skills rather than developing communication through discourse analysis. However, changes that affected teachers' perceptions of language instruction did occur and the emphasis on communication led teachers to view language from a different perspective.

Interest in the development of communication ability shifted attention from the study of the structure and form of language to the study of language as a means of communication. Syllabus committees and teachers were influenced by Halliday (1973) who

examined the child's learning of the functions of language and drew attention to the importance of social context for language learning. Wilkinson's visit to North America (1973), and Moffett's ongoing perspective on language learning (1982) emphasised the importance of oral language as a form of communication and as a dimension of social and cognitive development. Oral communication was thus viewed as an important dimension in the child's cognitive and social development, and this view was accompanied by an awareness of the significance of context for language development and learning, the ways school contexts affect the cognitive and social development of the students, and the teachers' role in classroom learning and instruction (Martin, 1983).

In America, the focus on the concept of "language across the curriculum" (Bullock, 1975; Martin, 1976) emphasised the importance of oral and written language in learning the disciplines of the curriculum. Language was recognised as instrumental in both language development and concept learning (Healy and Barr, 1991). This focus acknowledged the importance of the prior experiences of the learners, and emphasised language as a process and means of learning rather than a product.

In the sixties and seventies in America, changes in the perceptions of language and its role in the English curriculum did occur. Importantly, language was viewed as a means of communication and learning which shifted the focus of language study from a study of language structure to a study of its role in communicating and learning. With the changed view came a changed emphasis in

the curriculum which affected teachers' perception of language instruction in the teaching of English. These changes were reflected in a growing emphasis on the importance of communication, a growing awareness of the role of oral language in the communicative process and the establishment of links between instruction in English and the other disciplines. However, the American emphasis on evaluation in the school context slowed up full acceptance of the significance of language and learning for the individual's literacy development (Healy and Barr, 1991) as the study of aspects of language was not fully integrated in the instructional process.

3.2.2 The British Context

During the sixties and seventies in England, English was perceived as consisting of the three facets of literature, composition and language; and instruction focused on the skills of those facets. Britton (1970) significantly drew attention to the centrality of experience in language learning and relationships between language and experience. Derived from this relationship, *reception* of language was perceived as listening and reading, and *production* of language was perceived as consisting of speaking and writing. *Oracy* embraced listening and speaking, and *literacy* embraced reading and writing, and the task of the teacher was to create contexts in which students participated in activities from which language was a natural outcome (Wilkinson, 1973). Like the Americans the English perceived the importance of context and began to tap the potential of context for creating purposeful language development and learning.

Perceptions of language changed from "an end in learning" to "a means of learning" that took on new forms as the learning tasks demanded them (Britton, 1969). Syllabus committees and teachers began to make a distinction between the use of language and the study of language, and made efforts to shift the emphasis to the use of language based on Britton's model of language which consisted of three principal functions derived from the participant and spectator roles of the language user. His influential model of language use consisting of three functions of language (TRANSACTIONAL-EXPRESSIVE-POETIC) was perceived by him as a means of synthesising the studies of literature, composition and language (Britton, 1969; 1970; 1972).

Within Britton's theory of language, the "expressive" function of language covered a wide range of uses of language and was central to the model (Britton, 1969; Britton, 1970). The Model portrayed Expressive Speech as language used in face to face conversations of speakers in shared contexts, and was the speech of personal exploration and the shaping of individual experiences. Britton (1970) emphasised the need for learners to use language in meaningful situations, and encouraged teachers to explore the interrelatedness of listening, speaking, reading and writing for instruction. This meant teachers were to examine the relationships between oral and written language, and focus on the process of language learning through experimentation and individual interpretation by students. As a result of these examinations, teachers became interested in the language processes, and applied Britton's (1970) model to the writing process which resulted in concern for the application of function to the writing process.

Transactional writing described writing to inform, instruct or persuade; *expressive writing* described writing that was close to speech; and *poetic writing* described writing as an art form.

Informed by Britton's model of language, English teachers began to examine their role as language teachers and promoted the use of language in learning which included the development of oral language, reading, and writing in the discipline areas of the curriculum. As teachers examined the language processes and the language functions, they began to focus attention on the language learner and his/her role in the learning process.

Classrooms create complex social contexts in which roles are established for students and teachers, and interactions are generated amongst teachers, students and tasks. The Plowden Report (1976) espoused child-centred instruction in which children are active learners during which they interact with the teacher and with each other. From their review and analysis of the research generated by the Plowden Report, Bennett (1987) and Galton (1987a) concluded that the teacher's role included accurate diagnosis of student learning, and appropriate instruction to ensure meaningful learning; in addition, the students' role included mediating and structuring knowledge. They stressed the need for teacher competence in subject matter and curriculum knowledge, and drew attention to the importance of classroom organization for creating contexts that allow for individualization in the learning process. They also concluded that, although the Plowden Report described the importance of group learning contexts, whole-class teaching was still widely used for all

subjects except reading. This conclusion indicated that changes in classroom organisational patterns were occurring slowly.

In Great Britain, the concept of "language across the curriculum" (Bullock, 1975; Martin, 1976) focused on the relationship of language and learning rather than the acquisition of a range of language skills, and significant features that emerged from this focus included: how a learner saw himself; the writer's sense of audience; the role of everyday language in learning; and conditions needed for good transactional writing (Martin, 1976).

Important changes in the ways language was viewed in Britain reflected an emphasis on the learner and his/her creativity, and the role of language in the individual's everyday interactions. Relationships between language and experience were emphasised and the significance of context in language learning was acknowledged. Teachers began to adopt the notion of purposeful learning which was assisted through sensitivity to context and the need to develop language across the curriculum. These were important changes that were instrumental in the noticeable move away from an emphasis on skill teaching to teaching language in context.

Language across the curriculum movements in both America and England emphasised the links between language and thought, and considered the notion of the students' prior experience as important in the learning process. Thus an important shift from language as a product to language as an accompaniment to learning had occurred in both countries (Healy and Barr, 1991)

and this shift impacted upon the Australian, educational context during these times.

3.2.3 The Australian Context

English education in Australia in the sixties and seventies was influenced by changes that occurred in both America and Great Britain (Davis and Watson, 1990) but at this time, was influenced more by changes that had occurred in England (Watson, 1981). In 1965 *The Australian Association for the Teaching of English* was established and its journal included ideas from overseas and, particularly, ideas from England which emphasised student self-discovery, creativity and personal growth (Watson, 1981). These ideas influenced educational planning in Australia which consists of a number of states each with its own state education department and unique educational perspectives. Syllabus committees and teachers at the workplace, both of whom take account of overseas, educational changes, began to examine the ideas from overseas and incorporated them into changes in English instruction in Australia.

In N.S.W., the main three basic assumptions underlying the construction of both the primary and secondary syllabuses at this time were:

- 1. English is a humane and civilising study, not merely a utilitarian one.*
- 2. While English is prescribed, it can or should be only very broadly prescribed.*

3. English is concerned with personal growth and response, and the development of abilities, rather than systematic knowledge about subject matter. (Little, 1971: 19).

The high point of English education occurred in N.S.W. in 1973-74 during which there was a general belief that language development would occur when students were involved in meaningful learning tasks. Teachers believed that they could integrate the facets of English instruction through a thematic approach to instruction, and through this approach could provide a wide range of listening, speaking, reading and writing experiences. Teachers also believed that speaking had been undervalued and students should be given opportunities to develop proficiency in speaking as well as writing, and small group methods of instruction were widely used in classrooms (Watson, 1981). This was a positive move in the direction of accepting the importance of oral language and integrating listening, speaking, reading and writing in the instructional program.

At this time, Tasmania had rural, area schools as well as preschools, primary schools and secondary schools. The area schools had preschool, primary and secondary sections, offered trade courses for boys and girls, and incorporated a school farm. Although this state referred to English as language and literature, it also considered that speaking, reading, writing and appreciation of literature were complementary. Oral language was supported by a speech education centre which had operated in that state for many years, and the study of film, T V, newspapers and

advertising were included in the English curriculum (Horner,1970). Tasmania is the smallest of the Australian states and, because of this smallness, has enjoyed a high level of communication within the state, but because it is separated from the mainland, does experience some overall isolation.

In Queensland, the syllabus was divided into the four main sections of language work, composition, comprehension and literature. The syllabus committee of this state expressed awareness of the importance of spoken English, and teachers were encouraged to give attention to developing skill in speaking, reading and listening to English, and participation in discussion (Hamilton, 1971). However, the teaching of English was extensively influenced by the public examination system that was in place, and there appeared to be no significant moves towards making clear links between the study of English and the study of the disciplines.

In South Australia, the syllabus committee focused attention on the three related areas of composition, comprehension and literature. "Liberal" teaching was encouraged, and emphasis was placed on clarity of thought and clear expression of ideas. (Goodenough and O'Brien, 1971). This emphasis on thought and expression was a move in the direction of relating language and learning but it did not go far enough in the direction of making clear links between language and its role in the learning process.

In Victoria in 1967, schools had freedom in determining their courses in the first four years of the secondary school, and public

examinations were confined to the last two years of the secondary school. English consisted of the study of literature and expression. The emphasis in the expression course at the sixth year (Higher School Certificate) was on comprehension, precise writing, exercises to develop clear and critical thinking and reading with understanding (Fowler, 1971). The Higher School Certificate was an important achievement for students in Victoria so a great deal of emphasis was placed on English instruction that assisted students to pass this examination so teachers experienced some lack of freedom in curriculum interpretation at this level of the school system.

In Western Australia emphasis was also on literature and expression but syllabus committees emphasised, (a) awareness of the importance of English as a communicative technique, (b) the role of oral English, and (c) the importance of the needs of the students (Bennett and Hay, 1971). The final examination in the secondary school in Western Australia at this time was the Leaving Certificate which acted as a tertiary entrance examination so schools were influenced by the need to ensure students passed the examination which constrained the literary and language experiences of the students to some extent.

The concept of "language across the curriculum" movement (Bullock, 1975; Martin, 1976) in Australia affected educators' perceptions of English as a subject in the curriculum and its relationship to discipline studies in the curriculum. Encouraged by this concept, teachers of English and teachers of the disciplines began to work together to create policies to enhance language

development and learning across the curriculum. However, English teachers were still mainly concerned with their role in the development of literacy and the content of English, and were slow to make meaningful links between language and learning beyond the English syllabus.

During these years, there was an influential flow of ideas generated within the states and across the states but acceptance and implementation of the ideas were often constrained by examination expectations within the states. However, syllabus committees and teachers began to examine the content of the curriculum more critically and included a closer examination of the content of English.

3.2.4 English: Context or Content?

In the sixties and seventies, changing views of English and its content had emerged and affected instruction of English in the classroom (Muller, 1967). Traditionally, for many Australian teachers of English, the study of English was perceived as a study of literature, and the study of language which included the study of grammar. However, other teachers began to make noticeable moves to link the study of literature and language by focusing attention on the child and his/her responses to literature rather than instruction in rules to enhance language development. For these teachers, instruction in English included reading literature and responding to it through talking and writing, and using language as part of the literary experience of the individual (Delves, 1966). Although content for English instruction was perceived, at first, as literature and skills of grammar, reading and

writing (Kitzhaber,1973), ideas changed as many teachers began to perceive English instruction as enhancement of language and learning with content drawn from literature and all the disciplines of the curriculum (DeBoer, 1973; Martin, 1976; Healy and Barr, 1991). Content of the English curriculum thus included literature as an important element but also included the students' language development which included the development of listening, speaking, reading and writing in the study of the disciplines.

Following the lead of America, and in the context of the primary school, Australia expressed the skills of listening, speaking, reading and writing as "language arts". The assumption existed that personal development of the child was an important aim of the primary school, and that language skills were central to this development. Unfortunately at this time, the concept of language arts in the primary school reinforced the skills approach to instruction at this level rather than solve the content problem of the English curriculum (Kitzhaber,1973). Language arts in the primary school were thus perceived as a foundation for English in the secondary school.

Influenced by changes that had occurred in North America and Great Britain, syllabus committees and teachers reviewed their knowledge of language learning and its role in the language arts and English curricula. At this time, an important focus of the primary school language arts was the development of literacy through instruction in reading and writing but there were signs of change emerging. The Department of Education Queensland's Language Arts Curriculum Guide for Primary Schools (1974)

located literature in the centre of the language arts model and showed links amongst language experience, social communication and self expression. The Guide expressed the need for teachers to emphasise the interdependence and integration of listening, speaking, reading and writing but portrayed a skills model of instruction. Although the Guide directed a focus on broad developmental levels of the primary school and acknowledged the significance of individual differences, it did not include specific content links with discipline areas of the curriculum. However, in the Seventies, important events that focused attention on language learning did occur, and these events provided occasions for the examination of the content of English and the language arts, and instruction in language arts and English in Australia.

3.3 MOVES TO BREAK WITH TRADITIONAL CLASSROOM PARADIGMS

3.3.1 Voices From Dartmouth

The Dartmouth Seminar held in the U.S.A. in 1966 had representatives from the United Kingdom and the United states and one representative from Canada. The convenors believed that an exchange of experiences and opinions by the participants would (a) assist in overcoming the problems associated with English as a school subject and (b) the participants would suggest ways for future international collaboration (Dixon, 1969). In his report on the Seminar, Dixon (1969) discussed the *skills model*, the *cultural heritage model* and the *personal growth model* of English which were considered during the Seminar. He related the three models through the introduction of a metaphoric map to plot their relationships.

During their considerations of the models and their discussions, participants attempted to define English, and considered a model of English based on experience and language in operation (Dixon, 1969). These discussions thus raised the question whether literature or language was the centrality of English instruction.

Allen (1980) was critical of Dixon's (1969) interpretation of aspects of the Seminar and indicated that literature was part of language which generated response and discussion. Allen (1980) also criticised the effectiveness of themes which were adopted extensively in the late sixties following Dartmouth to integrate language studies. Thematic studies were presented as opportunities for imaginative responses by students and illustrated the search by teachers for ways to make teaching relevant (Davis and Watson, 1990). However, they often resulted in distortion of the study of the topic and reflected the teachers' values rather than offering choices from students (Allen, 1980).

Although different perceptions of teaching English existed between the Americans and the British at the Seminar, each group wanted to learn from the experiences of the other so important issues which included (a) values in literature, (b) the importance of oral language, (c) the content of English, (d) English and the disciplines, (e) drama and (f) creativity were discussed, and both groups reached agreement on some issues (Muller, 1967). Even though the British emphasised personal growth, individual development and creativity, and the Americans emphasised a skills approach to instruction, as the Seminar continued, ideas from America and Britain came together. However, it was the

British view that prevailed and influenced English instruction in Australia (Watson, 1981).

"Voices" from the Seminar thus created a challenge for teachers of English in Australia as well as English teachers in America and Great Britain. This challenge for teachers entailed movement from traditional views of English instruction to a personal growth model of English instruction based on (a) the individual's experience, (b) the individual's involvement in the learning process, and (c) the use of language in the learning process (Muller, 1967; Delves, 1972; Watson, 1981; Britton, 1982; Davis and Watson, 1990). These challenges and problems as well as emerging challenges and problems for English teachers and teachers of language arts were later considered at an important conference held in Australia.

3.3.2 The Australian UNESCO Seminar

Problems associated with the content of the English curriculum and how to teach English faced by curriculum designers and teachers in Australia led to the UNESCO Seminar on the Teaching of English. The preparation for the UNESCO Seminar which was held in Sydney in 1972 included position papers by education departments in each state, and a survey of English curricula through the Australian Council for Educational Research by Davis of Monash University (1972). Professor James Britton and Professor Roger Shuy presented principal papers at the seminar, and professor Davis reported on research in the teaching of English and presented perspectives on the seminar (UNESCO Seminar on the Teaching of English, 1972).

Working Groups' Reports at the Seminar included: (a) parents, teachers, administrators, students and academic experts should be involved in curriculum development; (b) it is important to have continuity of teaching between primary and early secondary teaching; (c) drama is of special importance and there was need for better inservice of drama teachers; and (d) the school should be seen as a language community (UNESCO Seminar on the Teaching of English, 1972).

At the secondary level, participants at the Seminar agreed :

That the primary responsibility of the secondary English teacher is the overall development of the students' language, including the modes of speech, writing and reading and the relationships between them.

(UNESCO Seminar on the Teaching of English, 1972 :57).

Participants also agreed that special attention should be given to the study of literature of the expressive-poetic kind of language.

At the primary school level, participants agreed (a) that language learning could be facilitated through integration and the use of language in a variety of situations, (b) that reading should be taught through a variety of methods, and (c) teachers should be given support at both preservice and inservice levels (UNESCO Seminar on the Teaching of English, 1972).

The final resolution of the seminar was:

This seminar recommends that a broadly-based national committee for English teaching be created to gather and disseminate information and to promote research and

experiment at all levels, particular emphasis being given to involving teachers in this activity. (UNESCO Seminar on the Teaching of English, 1972:60).

In her perspectives on the Seminar, Davis (1972) indicated that there was lack of knowledge of language acquisition at the secondary and tertiary levels of instruction, with primary teachers being more concerned with the acquisition of mechanical skills rather than the use of language in the wider sense. She added that there was a need for teachers to learn the theoretical and practical implications of language acquisition in inservice and preservice courses and to become involved in research in the teaching of English. Later, the role of the teacher in the research process was emphasised again by Davis (1974) who indicated that teachers can initiate and become involved in research that is relevant for the classroom teacher.

Goodenough (1972) commented on the seminar and indicated that the seminar was planned to consider the child's language acquisition and, in his comments, included the following insights from the seminar: (a) language acquisition was an ongoing process and the teacher must respect both the child and his/her language; (b) in the school context, classrooms often inhibited learning rather than facilitated it; and (c) there was need for teachers to change and initiate new approaches to instruction. He indicated that the teacher's function was to create learning situations and real experiences to enhance language development, that the grammar based studies were irrelevant, and teachers needed to allow students to talk more as a talking situation was perceived as

intrinsically a learning situation. He also placed importance on the role of the primary school teacher in the determination of the child's stage of language development and ways to build on the child's language (Goodenough, 1972).

The Conference thus created another important forum for the exchange of ideas and focused attention on important issues related to language development and the need for research on language acquisition and development that involved teachers. This research was needed to give teachers a better knowledge of the language learning process to guide them in the instructional process.

The delegates focused attention on the importance of oral language development and drama as well as development in reading and writing in the English and language arts curricula. They also focused attention on the need for teachers to integrate language studies to enhance language growth within the classroom. Thus more balanced curricula for language arts and English were conceptualised by the delegates who were beginning to see the significance of "language in use". A few years later (1975), the Bullock Report, which had further implications for instruction in language arts and English in Australia, was published in Great Britain.

3.3.3 The Bullock Report

The formation of the Bullock Committee and the publication of the Bullock Report (1975) arose out of the problem of reading standards in Great Britain (Bullock, 1975; Moyle, 1975; Rosen,

1975). The Committee visited schools, colleges of education and language centres in England; visited the United States; and received reports from Scotland and Canada. In its examination of language and literacy, it considered: attitudes to the teaching of English; standards of reading at all levels of instruction; language and learning; oral language in the classroom; the study of literature; continuity of learning; and teacher education (Bullock, 1975). The Bullock Report (1975) was published during a time characterised by the growth of science and linguistics in which language was perceived as the great interdisciplinary study (Rosen, 1975), and was made available to Australian teachers during an important conference in Australian literacy events during which the Report was considered by the delegates at the conference.

This first National Australian Reading Conference included delegates from America, Britain, New Zealand and all Australian states so an international forum was established to consider the implications of the Bullock Report for aspects of reading and literacy. The theme of the Conference was "a focus on the future" and important questions on the acquisition of literacy were raised for teachers to consider.

This was the First Australian Reading Conference and it was held in August 1975 in Adelaide. Donald Moyle, who had prepared submissions for the Bullock Report, attended the Conference, and in his discussion of the implications of the Report for Australia, which he presented to the Conference, he included the following points. Schools do not produce enough students who have a love

for literature and good attitudes towards reading, and it is important for schools to ensure students understand the significance of reading in their lives. Students can learn to extend their ability to think and make judgments, and preserve their individuality through the use of print media. School staffs should get together to work out coordinated language and reading policies across age ranges. There is no room for formal language teaching but there is room for extending the students' language experiences by providing opportunities for them to engage in meaningful discussions, by extending their writing and by developing their word power. Reading must be developmental throughout the school system, and English teachers in the secondary schools should help their colleagues to plan for reading in the disciplines. Reading should be viewed from the point of view of its purpose and meaning rather than perceived as a set of skills because reading is best developed through purposeful learning (Moyle, 1975).

In addition to the foregoing points expressed by Moyle (1975) the Report also included the following information on teacher training. All teachers should have a course in Language in Education (Moyle, 1975; Saunders, 1976) which should take account of linguistic theory, the pattern of language acquisition, the importance of communication and the form of language. The Report portrayed the teacher as a significant person in the development of the students' language, and suggested that every school should have a language specialist as a resource person who would support the classroom teacher in planning integrated learning in the classroom (Moyle, 1975).

The Bullock Report (1975) acknowledged that "talk" had an important role in learning, and Dixon (1975) reflected on the Report's notion of discussion as a means of enlarging one's world and modifying it to take account of other people's worlds, and suggested that discussion in a socially relaxed atmosphere in the classroom provides opportunities for students to explore ideas and construct meaning. The Report also raised discussion on the need for providing appropriate learning situations and materials for instructing "at risk" children for improving language standards (Crystal, 1979).

The Bullock Report included consideration of teacher education, school organisation, literacy at all levels, "language across the curriculum" and reading and language difficulties but, as indicated by Rosen (1975), did not devote enough time to the study of cultural factors and their relationship to language and education. Medway and Frew (1975) criticised the Report for not paying enough attention to the content of language and suggested that it is important to consider both the process and content in instruction to achieve purposeful learning and language development. Therefore, an important analysis of literacy and language instruction in Great Britain at the time was presented for consideration and as a guide for change of approach and redirection in language education (Bullock, 1975).

Although the Report focused on literacy, it covered all aspects of language development. As a result of its coverage, it was a detailed report that generated considerable interest at the time

and became a point of reference for considering language development and instruction in both primary and secondary schools in Australia. It reflected Great Britain's theory of language development which (a) emphasised reading and writing for practical purposes as literacy, (b) located the study of literature into meaningful contexts, (c) acknowledged the importance of oral language for individual development and (d) related language study to context and purpose.

The Report considered implications for instruction for language development and enhancement of literacy by attention to stages of development of the learner, the learning processes, roles of parents, aides and teachers, teaching methods and school and classroom organisation. These considerations drew attention to the wide-ranging opportunities for language development that occurred in the students' daily experiences which emphasised "language in use" rather than formal exercises to achieve language growth and enhancement of literacy.

Like the UNESCO Conference (1972) the publication of the Bullock Report (1975) was a significant event that generated renewed thinking about the nature of the English and language arts curricula and language instruction in Australia at that time. In addition, interest was generated in language acquisition theories language differences, and the important theorists who were influencing teachers.

At that time in England, Bernstein was an influential theorist who influenced the thinking behind language, family interactions and

social environment (Bullock, 1975). However, other linguistic theorists were also having an impact on language education as their theories were examined closely by teachers to provide insights into language acquisition and language learning to form a sound theoretical basis for language instruction in the classroom.

3.3.4 Theoretical Underpinnings: Language and Linguistics

Teachers need an indepth knowledge of language acquisition and development so that they can plan and implement classroom activities that enhance language development and learning, and take account of students' language differences. The indepth knowledge will also help teachers to understand the power of language in the social and cognitive development of the students, and will help them to make informed decisions to cater for the language needs of students. This knowledge may be based on an understanding of the perspectives from which language may be viewed and an understanding of important linguistic theories that have influenced our knowledge of language acquisition and development.

Language may be considered from a range of perspectives which include the study of language: in sociocultural contexts; from the developmental perspective; from the perspectives of form and function; from the perspectives of process and product; and from the perspectives of register and dialect. Torbe, (1979) considered language from the two points of view of communication and learning during which individuals may use language for learning and may use language to communicate what they have learned. However, his emphasis was not on the distinction between

learning and communication but on their interaction as there is interaction between language to learn and language to communicate. Individuals may use language to access information thus using language for learning, and they may use language to communicate what they have learned. The interaction between language to communicate and language to learn occurs in contexts in which students may formulate ideas through the communication process and build on past experiences to structure their own knowledge. Examination of language for learning and communicating then shifts the emphasis of learning about language through teaching grammar in the traditional sense to learning language and learning through language (Savage, Flynn, Ohlms, and Christie, 1981) by engaging in meaningful experiences. This shift of emphasis to meaningful learning that entails language development must also take account of linguistic theory that informs the instructional process to ensure that teachers base teaching/learning processes on sound theoretical knowledge. Following are significant language theories that have challenged English teachers and teachers of language arts in their pursuit of good teaching/learning in the classroom.

The behaviourist approach to language learning was based on the association between a stimulus and a response (Skinner, 1957) and did explain some aspects of language learning. This theory was very significant in the sixties and the teaching of reading was based extensively on that theory. Reading instruction that was based in behaviourism utilised a bottom-up model of the reading process that entailed extensive skill learning with emphasis on letter and word recognition rather than looking at reading from

the aspects of comprehension and purpose. Language learning was perceived basically as a linear processing to achieve acceptable syntactic structuring, and reading thus entailed a linear processing of print.

The behaviourist theory of language learning was rejected by Chomsky (1965) who explained the capacity of human beings to understand and produce an infinite number of sentences through the individual's innate, creative language acquisition device (LAD) which enables him/her to generate language he/she has not heard. Within his theory, Chomsky (1965) distinguished between language *competence* which referred to the individual's capacity to generate language and *performance* which referred to the actual language used by the individual. His theory also included a detailed explanation of syntactic structures in language, explained the generation of particular syntactic forms by the language learner and resulted in teachers giving attention to sentence study in the classroom and a moving away from the letter by letter and word by word study of language.

Chomsky's (1965) theory of language challenged teachers to structure learning experiences during which students had opportunities to generate "natural" language. This challenge was accepted by many teachers which included drama teachers who provided opportunities for role play to sensitise students to a range of language registers and responses (Bullock, 1975). Thus language was perceived as a systematic process of development and an unlimited resource that the individual brought to the

learning task to inform, to clarify ideas and to respond individually to experiences.

Bernstein (1970) brought a sociological perspective to the study of language. He believed that there was a relationship between language and social class, and considered the *elaborated code* and the *restricted code* of language to be related to the individual's interactions within the family. For Bernstein, the individual's language was determined extensively by the relationships the individual had with those with whom he/she communicated. He argued that Chomsky's (1965) distinction between performance and competence did not take account of the social factors that affect the contexts in which language is used, and added that context shapes the language performance of the individual. He also argued that the forms of socialisation which the child undergoes orient the child towards a particular language code. At this time, schools perceived the language of the middle class more favourably than the language of the lower class who were considered as disadvantaged, and Bernstein's theory influenced teachers in the way they perceived the individual and his/her language (Bullock, 1975).

Labov (1969) challenged the significance of sociolinguistic context in his study of the speech used by black children with white teachers in America. He concluded that there was no evidence to support the theory that the speech of the black children was less suited for intellectual discussion than the speech of the white children. He also concluded that the language of some white children was too verbose and lacked depth of understanding. The

perception of the superiority of an elaborated code (Bernstein, 1970) was questioned by Labov who indicated that this perception was based on middle class values, and considered the language of the lower class as an effective language.

The implication for teachers arising from these theories was the need for teachers to accept the individual student's language (Bullock, 1975) and build on that language in the instructional process. However, the individual's relationship with peers and the teacher within interactions still remained as an important variable in the communication/learning processes that had to be considered in an analysis of the language learning process.

If teachers are to plan and implement meaningful learning and language development, attention needs to be given to relationships between language development and cognitive development to ensure students engage in language interactions that enhance concept development. Considerations of relationships between language and cognitive development and language and thought have drawn a range of conclusions from theorists for teachers to consider in structuring teaching/learning contexts that enhance concept development and language development. Three significant theories are those derived from the studies of Piaget, Bruner and Vygotsky.

Piaget's theory (Cited Watson, 1981) indicated that the child's overall development was the result of his/her interaction with the environment, that the child's intellectual growth fell into clear stages (sensori-motor phase, pre-operational stage, concrete

operations stage and formal operations stage), and the child's language learning was determined by his/her interaction with the environment during these stages. Piaget emphasised the importance of language more in the later stages of development than he did in the early stages by indicating that in the early stages of development language reflects rather than determines cognitive development whereas language is used to expand on ideas in the later stages of development (Watson, 1981).

Bruner (Cited Watson, 1981) described three stages of cognitive growth (the enactive, the iconic and the symbolic) that differed from Piaget's stages, but agreed with Piaget that cognitive growth and linguistic growth interacted. Bruner acknowledged the significance of the individual's interaction with the environment but emphasised the power of language in this interaction more than Piaget (Watson, 1981).

Vygotsky (1962) saw a more powerful relationship between language and thought than Piaget and Bruner. For Vygotsky thought came into existence through the use of language, and thought and language intersected to create verbal thought (Watson, 1981). Vygotsky's theory indicates that language is internalised by the individual and becomes the structure of the individual's thinking. Vygotsky also emphasised the importance of the adult's language in the child's development as the child and adult interacted. In his theory of learning written language he drew attention to the need to make reading and writing relevant for the learners (Bullock, 1975).

Although the three theorists drew different conclusions from the relationships between language and cognition, they agreed that language development and cognitive development were closely related (Watson, 1981). Implications derived from their theories indicate the need for teachers to be aware of (a) relationships between language and cognitive growth, (b) the students' stages of development, (c) the need to make language instruction relevant to the learner and (d) reading and writing as thinking processes within the students' overall experiences.

The relationship between language and cognitive growth expressed by theorists had an important message for syllabus designers, English teachers and teachers of language arts who endeavoured to relate cognitive growth and language growth in the teaching/learning process. Acceptance of the naturalistic approach of language learning and concern for relationships between language and cognition also influenced perceptions of the reading process by teachers who had previously perceived the reading and writing processes as derived from the acquisition of oral language. Teachers began to examine a top-down processing model of the reading process which emphasized the construction of meaning by the individual based on his/her individual experiences and knowledge of whole language rather than the acquisition of a series of skills. That is, processing entailed the construction of whole meaning by participants in the reading and writing processes during which letters, words and sentences were learnt as they were needed in their construction of meaning of discourse. This was an important move in the direction of viewing language as a whole rather than isolated skills and personal

response to print based on individual experiences in the comprehension process.

Linguistic theories thus provided important insights into language learning, language differences and relationships between language and cognitive development. These insights together with knowledge derived from both the UNESCO Seminar (1973) and the Bullock Report (1975) helped teachers realise that students came from different language backgrounds and that language differences and background experiences needed to be considered in planning for classroom instruction thus creating important challenges for the future.

3.4 CHALLENGES AND SOLUTIONS: THE AUSTRALIAN SCENE IN THE EIGHTIES AND NINETIES

3.4.1 The Context-Text Model of Language Development

The eighties were times of racial unrest, and times of concern about the environment and nuclear waste. In education, Britton (1982) indicated that the eighties were the decade of the teacher. In Australia, the nineties are times of unemployment, and, in education, they are times of accountability in language and literacy for employment, and times that challenge both syllabus committees and classroom teachers respectively to plan for and implement language programs to achieve that accountability. It is particularly a challenging time for classroom teachers who are confronted with new insights into language learning derived from theory and research which are communicated to teachers through the professional journals, language consultants and inservice programs. One challenge for teachers is to articulate the new

insights into classroom practices that work within the school language policy that operates within their school.

An important outcome of the 1973 UNESCO Seminar was the establishment of the National Committee on English Teaching out of which came the Language Development Project (LDP) which was chaired by Professor M.A.K. Halliday (Davis and Watson, 1990). One important outcome of the Project was the opportunities for consultants and teachers to participate in the syllabus development process. States undertook tasks set by the Project, and through their participation, acquired and circulated information on language learning and development (Davis and Watson, 1990).

This process of syllabus development was utilised by the Department of Education in Queensland who produced a discussion document *Using Language Learning Language* (Bond, 1983). The document was made available to teachers and administrators for comment and provided a language framework for consideration at that time which acted as a bridging to a new syllabus.

The document incorporated concepts from Halliday's (1975) model of language development which takes account of the contextual factors that affect language use, the appropriate language mode for communication in that context and the interpersonal relationships of the participants within the learning context. This model includes consideration of the social context which is an important determinant of the language which is generated, and includes attention to *field*, *tenor* and *mode* as aspects of context.

Field refers to the activity of the participants and the subject matter or the topic considered in a particular context, and affects the concepts raised, vocabulary used, personal responses, and events of the discourse in which the participants engage. The texts that are generated on the topic thus take on a particular form of language associated with the topic that is examined and include reference to concepts associated with the topic.

The tenor relates to the interpersonal relationships that exist in the context and the way the individuals relate to each other in that context. The relationships that exist in particular contexts affect the style of the interaction used by individuals, and the language that is used by individuals to relate to each other in those particular contexts. In a classroom, these relationships mostly entail teacher-student relationships and student-student relationships where teacher-student relationships are often displayed as superior-subordinate relationships. However, learning contexts in the classroom can be structured so that the teacher is not included as a participant in the interactions which emphasise the student-student relationships.

The mode refers to the channel of communication adopted which includes the oral channel, the written channel and the use of gesture to communicate meaning. Choice of channel may be affected by the purpose of the interaction and the distance among the communicators for example, writing may be used to communicate over time and distance and oral language used to discuss a particular topic at a particular time. Mode also refers to

the particular genre of the text that is generated in a particular context, which in turn affects the structure of the text and the way cohesion is achieved in the text.

This model focuses attention on important contextual factors that affect language use and the communicative process. Attention is given to the relationship between social factors that operate within learning contexts and the ways those factors affect the linguistic features of the texts that are generated to express the meanings to be communicated. Teachers who adopt this model focus their attention on the interactive nature of language and learning and, in their instruction of English and language arts, take account of: the relationship between language and learning; text and its content; mode; genre; and the communicative procedures of the participants in the interactions.

One important challenge for the teacher is to create learning contexts in which oral and written language are used to fulfil genuine, meaningful purposes. In these situations, students have opportunities to generate the appropriate language over a range of contexts and learn the functions of language through social interaction. This means that a language learning model is required by teachers to form a theoretical framework that takes account of the contextual factors that affect language use, the appropriate language mode for communication for the context and the interpersonal relationships of the participants within the learning context. Conceptualisation of Halliday's (1975) model of language learning and its articulation within instruction provided a challenge for teachers of English and language arts throughout

Australia in their search for an appropriate language model on which to base their instruction. The joint syllabus committee/teacher collaborative effort in Queensland allowed teachers to examine Halliday's model in their ongoing efforts to relate language development and learning.

An inservice package built around Halliday's model was used in Queensland to introduce teachers to *Using Language, Learning Language* in which attention was given to: beliefs about language and the child; planning the language program; and implementing the program (Bond, 1983), thus giving teachers the opportunity to examine aspects of a context-text model and its effectiveness for instruction.

Although the inservice caused some teachers some anxiety because many teachers were not familiar with the context-text model of language development, it did provide an opportunity for teachers to examine their language programs and, to some extent, prepared them for new ideas that were to be incorporated in the planned, new syllabus for Queensland schools. Therefore, this inservice provided bridging between the syllabus that operated at the time and the planned, new syllabus for the nineties.

Thus the context-text model has provided a significant input into the challenges and solutions for English teachers and teachers of language arts in Australia in the eighties. Another significant challenge for these teachers has been their search for an understanding of the ways individuals learn language, the conditions that are conducive to language learning, and

interpretation of whole language instruction as opposed to instruction in language skills..

3.4.2 Whole Language: A Natural Approach to Learning

If teachers are to implement the context-text model of language development successfully, it is important for them to consider the relationships amongst the modes of language to ensure students develop proficiency in the use of the modes over a range of contexts. It is also important for teachers to have an understanding of the conditions that are needed for effective language development as appropriate conditions can assist to create situations conducive to learning and the enhancement of literacy (Holdaway, 1979; Smith, 1983; Cambourne, 1988) and can allow students to explore language and share ideas in the learning contexts created by the teacher.

Smith (1983) argued that the categories of the language arts were arbitrary and artificial and the four categories (listening, speaking, reading and writing) did not require different levels of cognitive development. He also argued that language should make sense to the learner, and language learning should be related to other learning (Smith, 1983).

Cambourne (1985) discussed the conflict about the nature of language and its relationship to literacy. He indicated that the dichotomy between the fragmented view of literacy and the wholistic view of literacy would affect the way teachers planned for language development and enhancement of literacy in the classroom. He argued that the close relationships amongst

listening, speaking, reading and writing required a re-evaluation of the notion of naturalism in language learning. He considered the conditions of *immersion*, *demonstration*, *expectation*, *responsibility*, *use*, *approximation*, and *response* to be important for the four forms of language development (Cambourne, 1985).

Within these conditions, learners are immersed in a range of texts and receive demonstrations of how particular texts are constructed for particular purposes. Contexts are created in which the learners expect to succeed and, during the successful learning, make decisions on what they will learn and how the learning is to be accomplished. Opportunities are given for the learners to use their new learnings in appropriate and meaningful contexts to consolidate this learning. As the learning takes place, approximations by the learners are accepted within the process of learning, and feedback may be given by parents, the teacher or the learners' peers (Cambourne, 1988).

Although Cambourne was criticised for his lack of attention to social and cultural differences that affect language learning, (Luke, Baty and Stebhans, 1989), his conditions of learning have been accepted by many Australian teachers in their search for naturalistic learning environments for language development. Syllabus committees and teachers have been influenced by Cambourne's conditions for learning and Tasmania used the conditions of learning as a basis for its evaluation of ongoing language development (Revie, 1989). Cambourne's (1988) conditions of learning also reinforced the interest in whole

language as opposed to fragmentation of language learning in the classroom.

Whole language development emphasises the importance of the four modes of language development, the ways the modes are related (Stubbs, 1986) and the need for students to learn language in meaningful contexts (Watson, 1983; Rich, 1985). Whole language focuses on meaning and, during the learning process, learners are encouraged to take risks as they engage in meaningful learning (Shuy, 1981; Weaver, 1982; Goodman, 1986) within contexts that provide conditions that facilitate whole language development.

Acceptance of the conditions of learning (Cambourne, 1988) by teachers has focused their attention on the need for them to create meaningful learning contexts in which the learners could generate their own language during the learning process. These conditions generate expectations of language differences determined by the students' background and the need by them for feedback as they experiment with language, draw attention to the links between language learning in the home and the school through the feedback mechanisms, and orient teachers towards a particular role in the language learning process determined by their acceptance of the conditions of learning. This role entails teachers structuring learning contexts that allow for whole language development rather than instruction in skills.

The "whole language" movement and Cambourne's (1988) conditions of learning resulted in more focus on the individual

learner and the ways he/she used language over a range of contexts. Although the four modes of language were still considered important, there was more emphasis on their relationships and the ways language was used for particular purposes.

Whole language classrooms did not have identical programs, but they reflected an acknowledgement by teachers of the students' intrinsic motivation to learn (Rich, 1985), and instruction emphasised the connections amongst listening, speaking, reading and writing. Skills were still taught but their instruction was linked more to the contexts in which they were used, and teachers provided for reading and writing workshops during which students were able to discuss texts (Pigdon and Woolley, 1989) as they engaged in reading and writing activities which provided opportunities for the students to analyse texts and their meaning.

3.4.3 The Writing Process

Speaking and writing are forms of language and together constitute a means of functioning within a range of contexts. Writing may be used (a) to communicate, (b) to provide a permanent record of events, thoughts and information, and (c) as an art form (Smith, 1982a). Thus writing is a necessary mode of language with which individuals in a literate society communicate and participate within their culture.

Boomer (1980) addressed the challenge of the role of writing in the context of literacy for teachers and listed the basic conditions for reading and writing in which he emphasised purposeful

learning, experimentation by the writer and feedback by the teacher. He suggested that schools should take a workshop approach to writing instruction in which the teachers' role is to show, guide, criticise and help the student.

Walshe (1979) expressed the following five basic qualities of teachers of successful writing instruction:

- 1. The teacher values writing.*
- 2. The teacher values the learner-writer.*
- 3. The teacher encourages pleasure in reading.*
- 4. The teacher makes use of insights into how writing happens.*
- 5. The teacher fosters self-editing.*

(Walshe, 1979 :40-44)

Hence, teachers began to examine the importance of writing in the curriculum, writing instruction, and their role in the instructional process.

The eighties were described as the "decade of Process Writing" (Nolan, 1988). During this time, there was a shift of emphasis from the writing product to the writing process and the need for students to take control of their own writing (Walshe, 1981; Graves, 1982; 1983; Calkins, 1983; Butler and Turbill, 1984). Writing received more attention in the curriculum and students became more interested in writing as teachers and students wrote together and shared writing experiences. The process writing movement brought many opportunities for students to engage in the writing process and to become interested in writing as a form of learning and communicating. Students learnt to organise their

experiences and communicate ideas with a sense of audience. The changes in emphases from the traditional means of writing instruction to process writing occurred so quickly that, like other educational changes of the time, they were incorporated into classroom language programs before syllabuses were rewritten so new perspectives on writing were communicated by means of curriculum updates and teacher inservice.

In 1988, New South Wales implemented the curriculum document Writing K-12 which expressed writing as a "process of composing meaning" and provided a guide for teachers in teaching process writing (Walshe, 1989). The Western Australian Ministry of Education has adopted a continuum of writing development to monitor the students' writing. This document provides descriptors for teachers to enable them to evaluate the students' writing and modify instruction to enhance further development (Rivilland, 1991). The document also encourages teachers to be sensitive to the students' writing needs and to provide appropriate writing models through the study of texts to assist students in their writing development.

To cater for the interest in writing in Queensland, the Education Department provided funding for inservice workshops for teachers to engage in writing experiences to develop an understanding of the writing process, and appointed writing consultants to help teachers implement writing programs. The process writing movement challenged teachers to examine the writing process more carefully and to rethink their roles in the

writing instructional process as the success of the writing program in the classroom is determined extensively by the teacher.

Process writing was perceived as a naturalistic approach to writing that entailed the selection of a topic, drafting, conferencing, proofreading, editing and publishing (Wilson 1986), and students engaged in these processes to create a piece of writing for publication. This approach to writing instruction has been criticised because teachers often lost sight of the instructional/learning dimension of writing by following the processes without paying enough attention to the students' learning how to write (Wilson, 1986). Nolan (1988) indicated that the emphasis on process writing has now faded as teachers grapple with the complexity of the writing process and begin to pay attention to instructional processes. However, Nolan's view is not shared by Walshe (1989) who indicates that process writing is still very much alive and is an important learning dimension of the curriculum during which teachers guide their students towards individual, flexible writing (Walshe, 1989).

Teachers can enhance students' critical thinking by helping them to become successful readers and writers through the construction of meaning which is achieved by viewing process and product as equally important (Rivilland, 1989). It is also important for students to have opportunities to engage in dialogue as they respond to text (Rivilland 1989) as meanings are negotiated during classroom reading and writing. Thus it is a matter of teachers: developing the students' reading and writing over a range of contexts for them to see the purposes for reading and

writing; giving students opportunities to examine the reading and writing processes as they engage in purposeful writing for real audiences; and providing the students with the necessary scaffolding to enhance their control of the reading and writing processes.

The process writing movement stimulated interest in the writing process and created opportunities for students to analyse written text through conferences during which they studied their own writing and the writing of their peers. The conferences provided the students with feedback from their peers and the teacher through examination of meaning and the language used to construct meaning to communicate to an audience. Although aspects of text were considered during the conferences, emphasis was on the creation of whole language through the construction of cohesive written text.

The teachers' role in writing instruction includes ensuring quantity and quality are provided for in the writing program, and being able to put product and process into perspective to guide students in the craft of writing which includes allowing them opportunities to explore the range of writing genres used in their study of the disciplines. Writing is then viewed as one important aspect of literacy which is enhanced through the study of texts. This means that teachers need to develop an understanding of the language learning processes and provide opportunities for students to explore relationships amongst the language modes as they examine texts. These roles include the adoption and incorporation of an appropriate reading model that allows for

reading development in conjunction with overall language development.

3.4.4 The Reading Process: An Interaction Model

In their pursuit of literacy, teachers in Australia have been influenced by the research and theoretical perspectives on the reading process, reading instruction, and relationships among the language arts (Bullock, 1975; Downing, and Leong, 1982; Heath, 1982; Smith, 1982b; Harste and Mikulecky, 1984; Goodman, 1985; Stubbs, 1980). They have also been influenced by advocates of whole language development (Shuy, 1981; Calkins, 1983; Graves, 1983; Goodman, 1986) who have drawn attention to the importance of learning whole language through integration within purposeful learning contexts rather than breaking language learning down into a series of skills. The move towards whole language instruction and awareness of the conditions conducive to language learning (Cambourne, 1988) have resulted in teachers examining students' language use and language learning over a range of contexts (Goodman, 1982) which provide more realistic evaluation of language learning in the classroom.

Emphasis on whole language development, examination of the relationships between the reading and writing processes, and the pursuit of literacy have resulted in teachers critically analysing reading instructional models that allow for the students' interaction with text to construct meaning. Adoption of these models in classrooms has placed the teacher in the role of facilitator who makes it possible for students to learn to read rather than being taught to read (Smith, 1985). From a whole

language perspective, reading and writing instruction emphasises the construction of meaning based on the individual's prior knowledge and the use of whole language rather than individual skill acquisition. In these contexts students explore language and share ideas derived from their interaction with print.

Teachers may create classroom contexts that focus on product in reading and writing instruction or they may create contexts that focus on process during which students construct ideas based on their past experiences and the texts that they examine. That is constructivist learning is concerned with process and occurs in social contexts in which the efforts of the students are encouraged and used as a basis for learning (Marshall, 1990).

Teachers who have considered social context to be a significant factor in reading instruction have adopted the social constructivist theory of learning based on the following three assumptions:

- 1. knowledge is constructed through the individual's interaction with the sociocultural environment;*
- 2. higher mental functions, including reading and writing, are social and cultural in nature;*
- 3. knowledgeable members of a culture can help others learn. (McCarthy and Raphael, 1992:7)*

These assumptions provide opportunities for students to interact with their peers in the learning process and work towards a consensus of knowledge. Opportunities are provided for students to engage in dialogue with their peers and the teacher, as they

negotiate meanings within social contexts and move towards independence in reading (McCarthy and Raphael, 1992).

The constructivist learning model locates reading instruction within the social context of the classroom and promotes active learning through participation by the individual learners. Reading is developed through a whole language approach that focuses on meaning and written text thus linking the reading and writing processes.

Teachers who adopt constructivist learning in reading and writing instruction in the classroom may provide opportunities for discussion to be an important aspect of the comprehension of texts. This approach to the reading task allows individuals to bring their unique cultural perspectives to the learning task to share with others in the construction of meaning. Reading is then viewed as an interactive process, and reading instruction in the classroom allows for personal response to text and enhancement of meaning through discussion. Teachers may then structure learning contexts in which students generate oral texts through discussion of written texts thus linking oral and written language. Literacy development then occurs as students engage in the meaningful use of whole language to respond to a range of written genres in their study of texts.

3.4.5 Discourse, Genre and Text

A classroom that provides opportunities for students to construct their own learning takes account of the social and cultural differences of the students who bring their individual

perspectives to the learning task. The social context is created by the learning task, the teacher and the learners, and provides a context for interaction to occur amongst the learners. That is, in the process of learning, the students engage in discussion and create oral texts within the classroom discourse to structure meaning and their individual learning.

Classroom discourse is one dimension of discourse which refers to both oral and written language within social contexts. It provides a structure for learning within a particular area and provides the language and rules for that area of study (Kress,1985). When students are engaged in learning mathematical concepts, and use the language of mathematics,they are engaged in the discourse of mathematics. They may study mathematics through drawing and dramatisation (Bickmore-Brand, 1990) but will need to acquire the language of mathematics to communicate ideas. During the learning process, the students' acquisition of the language of mathematics may be facilitated by the teacher's modelling the language for learning mathematics which includes: procedural language; the language of reasoning; the language of explanation; and the language of prediction (Gawne, 1990). In acquiring the appropriate language for mathematical discourse students are also required to read and write in their study of mathematics. That is, they have to learn to read mathematical texts and express mathematical ideas in appropriate written genres (MacGregor, 1990) within the discourse of mathematics.

Genre refers to the particular structure of oral and written texts and includes the structure of written texts that the students write.

Particular genres may apply to particular areas of the curriculum and some genres may apply to all areas of the curriculum and include narratives, recounts descriptions and reports. However, the notion of genre also includes the structuring of oral texts for particular purposes, and applies to the text or language that is generated during discussion as it takes on a particular structure. Importantly, genres evolve as individuals negotiate meaning in everyday events (Martin, Christie and Rothery, 1987).

The nature of genre and the role of genre study in the curriculum has received a great deal of attention in the eighties and nineties (Kress,1985; Christie, 1987; Dixon,1987; Green, 1987; Martin, Christie and Rothery, 1987; Christie and Rothery,1990; Elliott and McGregor, 1990; Walton, 1990). Attention on genre has created a debate between teachers and syllabus committees committed to the process approach to language learning and teachers and syllabus committees who are committed to the genre approach to language learning (Green,1987; Walton, 1990). However, a balance of emphasis may be achieved between process and genre by a focus on literacy which entails the development of listening, speaking, reading and writing and takes account of the need for students to learn to handle and manipulate the genres in the study of the disciplines (Rivilland, 1989; Christie and Rothery, 1990). This focus has been highlighted by the Australian Federal Government's concern for literacy.

3.4.6 The Pursuit of Literacy: A National Approach

During the eighties, the Commonwealth Government resolved to develop a co-ordinated language policy that would address goals

for language competence for adults in the twenty-first century, and provided for input from the national language associations (Davis, 1989). In her discussion of a National Policy on Language, Davis (1989) indicated the need for more attention to be given to listening and speaking as important modes of language and the need for students to have the opportunity to learn a second language. Inputs that eventuated from the Government's resolution focused attention on important language issues and contributed to the eventual formulation of a national language policy for Australia during the next decade.

In the nineties, Australia has made a united effort in the pursuit of solutions for literacy learning. The leading professional bodies involved in the pursuit of literacy (Australian Association for the Teaching of English, Australian Council of TESOL Associations, Primary English Teaching Association, Australian Council for Adult Literacy, Australian Reading Association) formed the Australian Literacy Federation in 1990 to establish and maintain a national network to provide information and support in the pursuit of excellence in theory, research and instruction in the teaching of English. The Federation was able to respond to issues raised by the Federal Government's policy on Australia's language (Dawkins, 1992) by offering constructive advice to the Government on the formulation of an Australian language policy which has influenced language policy and instruction in Australia in the nineties. Responses from the Federation and individual members of the Federation provided forums during which important issues were discussed to formulate their responses thus providing opportunities for these associations to participate in the decision

making processes associated with the formulation of a revised language policy which reflected national concerns.

The publication of *Australia's Language* (Dawkins, 1992) has focused attention on Australian language and literacy needs in the nineties, and articulates an Australian Language and Literacy Policy (ALLP) which includes the following goals:

All Australian residents should develop and maintain a level of spoken and written English which is appropriate for a range of contexts, with the support of education and training programs addressing their diverse learning needs.

The learning of languages other than English must be substantially expanded and improved to enhance educational outcomes and communication within both the Australian and the international community.

(Dawkins, 1992.: xiii)

The policy makers emphasise their ongoing commitment to language development and the importance of second language learning in the educational outcomes of instruction. The Policy also draws attention to the importance of Aboriginal and Torres Strait Island languages as an important aspect of Aboriginal and Torres Strait Island identity, self-management and social and cultural development (Dawkins, 1992).

The Policy defines language as ;

Language in its broad sense (as used in the title of the ALLP. for example) is the primary means of human

communication, manifest generally in systematic ways through the communication skills of speaking, listening, reading and writing. Language in terms such as 'language and literacy proficiency' is an inclusive term, covering both English and other languages. (Dawkins, 1992 : 8)

General reference to language instruction thus includes reference to languages other than English and Australian English refers to a variety of English which has evolved from the Australian physical, social and cultural environment (Dawkins, 1992). Therefore, language development in both primary and secondary classrooms may incorporate the development of Australian English and the development of languages other than English. The focus on languages other than English has drawn attention to Asian languages and the Government's commitment to Asian studies which incorporates the study of Asian languages. This is an important step forward that provides for intellectual and cultural growth through language study and takes account of the multicultural nature of Australian society and the importance of language studies for communication across cultures both within and beyond Australia.

Through the consultative processes, the Australian Commonwealth has assumed the role of promoter of national cooperation and collaboration in addressing educational priorities. An example of this was the establishment of the Language Development Project which exemplified cooperation between the Australian states and the Commonwealth in English language teaching (Piper, 1992). A

feature of the cooperative process has been allowance for input by classroom teachers.

Although each Australian state is responsible for its own educational policies, the significant role played by the Commonwealth Government has created a series of opportunities for state representatives to exchange ideas to improve educational efficiency throughout Australia (Dawkins, 1992). These opportunities have shown that there are educational issues such as enhancement of literacy which are of importance for all states, and states may learn from each other through the exchange of ideas.

Dawkins' (1992) language policy has resulted in analysis of language teaching in Australian classrooms and discussion of important issues associated with language teaching. Hornibrook (1992) has noted the following as key precepts related to the interaction between language and learning in the School Language and Literacy Program which has evolved from the Australian Language and Literacy Policy (Dawkins, 1991) :

It is helpful for teachers to have a conceptual understanding of the structure of language, and an appreciation of the nature of students' language and learning development.

Skills of writing, reading, speaking and listening are interdependent elements of language skill.

Skills related to learning and thought (such as making judgments, classifying, abstracting, hypothesising) are entwined with and dependent on language skills.

The language and learning competence of individuals on any occasion is dependent on the context, content, audience and purpose of an activity, as well as the grasp they have of literacy conventions.

As with any other areas of teaching, there is more than one way to teach language and learning objectives- there is no one true way' that works for all teachers, for all students, or in all contexts.

There are several highly developed schools of theoretical thought explaining language development, which are often seen as competing paradigms. Each has provided useful insights for teachers aiming at practical improvements.

Promulgation of one school of thought to the exclusion of others is not likely to prove useful in professional development activities. (Hornibrook, 1992 :10)

The Literacy and Learning National Element that was based on the White Paper, Australia's Language (Dawkins, 1991) and focused on literacy and learning in the early years of schooling has supported a range of activities for developing literacy (Hornibrook, 1992). These illustrate the national effort that is going into the formulation and implementation of educational policies in language education and include the following which are examples of these initiatives (Hornibrook, 1992).

The National Statement on English in Australian Schools which identifies common ground for the English curriculum in all States and Territories, and The National English Profile which describes six levels of achievement for English for students K-10.

. The National Project on the Quality of Teaching and Learning which addresses teachers' career paths, teacher mobility, teacher education and exploration of a nationally consistent teaching profession.

. The Early Literacy Inservice Course for teachers involved in early literacy.

. The implementation of the Reading Recovery program (Hornibrook, 1992: 2-6).

The Literacy and learning National Element also acknowledges the challenge for teachers to plan learning experiences that integrate learning across the disciplines of the curriculum and accepts the notion that a fundamental understanding of the nature of language is its relationship with learning in the curriculum (Hornibrook, 1992).

The pursuit and implementation of a national language policy has also raised challenges for curriculum committees and teachers. An example of a challenge in the nineties is the introduction of the Mayer Report (1992) which proposes a set of seven key competencies, which includes the ability to communicate ideas and information needed by students for effective participation in the work force and the schools' role in ensuring students' achievement of the competencies. Consideration of the competencies also reflects the close links established between education and employment in Australia.

Discussion and acceptance by curriculum committees of important issues raised through the formulation of an Australian language

policy and the distribution of curriculum guides to teachers by curriculum committees have provided teachers of language arts and English with important guidelines to assist them to base their instruction on a sound theoretical basis. Teachers have also participated in the discussion of important educational changes and instructional issues. The issues include emphases on (a) the relatedness of language learning and learning the disciplines, (b) the need for teachers to take account of the contextual factors in planning for language development and learning in the classroom, (c) developmental expectations of language competency and (d) enhancement of communicative competence.

3.4.7 English Language Arts: A Queensland Solution

Queensland's Department of Education's (1991) Years 1-10 English Language Arts: Syllabus and Guidelines reflects the incorporation of important theoretical underpinnings of the eighties and nineties into guidelines for teachers of language arts and English. The same guidelines are addressed to both primary and secondary school teachers (preschool to year ten) which reflects the ongoing importance of language development at both levels of schooling and articulates language arts and English within one curriculum guide.

The following goals and objectives are derived from recent language theory and are stated in the Curriculum Guide (1991):

The goal of English language arts in years 1 to 10 is to develop children's ability to compose and comprehend spoken and written English - fluently, appropriately and

effectively - for a wide range of personal and social purposes.

At each Year level, participation in English language arts programs should develop students' use of English in a wide range of literary and nonliterary genres.

At each Year level, participation in English language arts programs should develop students' use of English in a wide range of social contexts. Social contexts will vary according to:

- . subject matter referred to*
- . roles and relationships of people involved*
- . mode and medium of communication.*

To assist students' use of English, programs will progressively develop and refine their underlying attitudes, thinking processes, skills and knowledge within the context of language use.

Students need to use English confidently and with enjoyment; to respect the language, culture and experience of other people; and to appreciate language in its many forms.

Students need to think imaginatively and logically as they use and learn language.

Students need to deploy and interpret textual features in ways appropriate to the genre and the social context, and to use appropriate procedures while composing and comprehending.

Students need to understand key concepts related to language in use and to their own language and learning.

(Department of Education Queensland, Years 1 to 10 English Language Arts: Curriculum Guide, 1991:21)

The theoretical basis from which the Guide was derived reflects the state of knowledge of language arts and English instruction in Australia in the nineties. This means, that its successful implementation needs to take account of the Queensland teachers' knowledge of language learning and language development in Australia in the nineties. In order to achieve this, inservice that takes account of knowledge of language learning and effective strategies for language development has been planned by the Department of Education Queensland.

The Guide reflects the significance of social and cultural contexts for language development and learning and is informed by a Context-Text model of language development, a Language Learning Model that reflects language in use and a Content Model that takes account of genres, social context and thinking processes (Years 1-10 English Language Arts:, Handbook,1991). The Guide reflects the importance of cultural differences in comprehending and composing, and focuses on a range of texts and genres within

learning discourses for the enhancement of literacy which includes the development of oral language in the study of the disciplines. Genre study receives detailed attention and Literature is perceived as an important study. Grammar study and the study of vocabulary are located in the context of ongoing language development expressed through a range of spoken and written genres. The theoretical basis of the Guide is thus drawn from a broad base of knowledge from which the Guide selects content and instructional guidelines to provide a focus for instruction.

As a focus for teachers at the instructional level, the Guide incorporates the characteristics of range and balance, integration and sequencing. Assessment of language development is perceived as a component of curriculum development and takes account of assessment procedures, monitoring techniques, assessment instruments and assessment information (Years 1-10 English Language Arts ; Curriculum Guide, 1991).

Effective implementation and the securing of the best learning outcomes derived from the Guide is extensively dependent on the teachers who have to interpret the Curriculum Guidelines and articulate their interpretation through sound classroom strategies. This has been assisted by ongoing inservice for teachers who face the challenges associated with implementation of the new syllabus and entails the teachers forming a sound theoretical basis for instruction. This time, it is a new experience for teachers as the syllabus is P-10 rather than Primary or Secondary which means, that both Primary and Secondary teachers can explore patterns of

classroom organisation that provide for effective implementation of the new syllabus.

The implementation of the new syllabus has taken place in the context of ongoing change in Queensland education derived from the Department of Education's Corporate Plan (1992) whose Corporate Mission is: *The mission of our Department is to provide quality education appropriate to the needs of our students and of our society. (Department of Education Queensland, 1992:4)* Included in the Corporate Plan are the following Studies Priorities for 1993: *Literacy; Numeracy; Languages Other Than English; Senior Schooling; and Supportive School Environments. (Department of Education Queensland, 1992:5)*

The *Queensland Syllabus and Guidelines* (1991) reflected the importance of literacy and language development as ongoing processes, and incorporated a theoretical base derived from recent research and theory. The syllabus committee planned the Guidelines after extensive consultation and trialling which included feedback from teachers from all levels which included university teachers.

In 1994 final drafts of the new syllabus were implemented throughout Queensland as *English in Years 1-10*. This syllabus incorporated a number of guides which included: *A Guide to Genres in English; A Guide to Analysing Text in English; A Guide to Classroom Practice in English; A Guide to Using Student Performance Standards in English; A Guide to Using Syllabus Materials.*

This syllabus provides a framework for effective language instruction in the nineties and lays sound foundations for language instruction in the twenty-first century as teachers explore ways of organising classrooms, that are sensitive to the learners needs, for effective teaching/learning.

CHAPTER 4 GROUP LEARNING STRATEGIES : THEORY AND RESEARCH

4.1 CLASSROOM CONTEXTS FOR ENHANCING LITERACY AND LEARNING

4.1.1 The Importance of Context

The importance of context as a dimension of learning was examined and literature related to group learning in classroom contexts was reviewed

Within the study of pragmatics in which behaviours, tasks and systems of meaning are studied, context is a key consideration (Giron, 1989). Judgments of relevance and importance are made with reference to context, and context is important in the examination of classroom learning. In education, context has been considered from a range of perspectives (Dixon, 1975; Halliday, 1977; Martin, 1983) and is perceived as an important variable in classroom discourse and oral communication because of its role in structuring meaning. Logically then, teachers need to take account of contextual variables when planning, implementing and assessing language and learning in the classroom.

According to McKenzie (1987) context includes: the environment of the school and classroom; the subject being studied; materials being used; ongoing activities; and the participants in the learning. Stephens and Harste (1985) examined context in reading and considered the linguistic context of the reading material, the physical context in which reading takes place, the larger social context within

the cultural context of interpretation, and the learner's history of literary experiences. They argued that all aspects of context are dynamic and combine to create a new entity, and also that teachers can establish environments which are potentially supportive for the learner. Garner (1990) emphasised the significance of context in learning within a theory of setting, and indicated that context can affect the learner's use of strategies and cognitive processes.

Mercer, Edwards and Maybin (1988) examined context in their study of oral communication. For them, context entailed everything a participant in a conversation knows and understands, including personal and culturally derived information which has its origins in talk, events and experiences. The physical correlates of the setting in which the talk takes place are invoked in the discourse of the classroom. Importantly, context was perceived by them as mental rather than physical thus linking discourse and knowledge. Analysis of classroom learning which entails oral communication must, therefore, take account of the context in which the talk is embedded because context affects the mode and genre of the discourse and the meanings generated from the discourse.

Whole-class teaching contexts have been examined with reference to classroom interaction (Hertz-Lazarowitz, Baird, Webb, and Lazarowitz, 1984; Cazden, 1986; 1988; Galton, 1987; Bennett and Dunne, 1991). Cazden (1986; 1988) indicates that the IRE (Initiate-Respond-Evaluate) pattern of classroom interaction is the most common pattern of instruction used in the classroom, and suggests that

teachers need to take more account of student differences in order to overcome inequalities of learning in the classroom. She adds that students need opportunities to ask questions as well as respond to them, and that this can be achieved by teachers structuring contexts which allow students to interact with their peers, a phenomenon which does not occur as a matter of course in whole-class teaching.

There is a need for teachers to organise classrooms for effective discussion and to avoid discourse asymmetry so that teachers and students have opportunities to engage in classroom discussion and share ideas (Perrot, 1988; Swain, 1988). Swain (1988) described the whole-class teaching model of initiate-respond-feedback (IRF) as the transmission model of instruction, and suggests the adoption by teachers of alternate models of instruction to enhance classroom talk and learning.

In reviewing research on questioning in classrooms, Carlson (1991) considered a sociolinguistic paradigm for the study of questions, and emphasised the role of social context in the interpretation of spoken language. He considered Cazden's (1986) two meanings of context which view the situation at the beginning of the discussion and the conversational situation as it is modified by the speaker as a basis for emphasising the conversationalists' roles in the construction of context. Thus, for him, context includes the description of the speakers and their relationships with one another as well as the ways in which utterances fit together in discourse.

Viewed from a sociolinguistic perspective, context, therefore, becomes an important factor in oral communication because of the way it affects the interaction. Halliday (1977) drew attention to the importance of contextual variables in his model of language development and emphasised the need for teachers to take account of the significance of context when planning for language development in the classroom. Consequently, teachers need to consider contextual variables when organising classrooms for effective learning because of their impact on learning, and to enhance continuously the students' awareness of the significance of context in structuring meaning in oral communication. Students also need to become sensitive to the way context is established in written language to enhance communication. Language and communication are thus best developed and examined within the contexts in which they occur.

4.1.2 Student Talk and the Role of Student Talk in Learning

Application of the transmission model of classroom instruction (Swain, 1988) means that the teacher does most of the talking during the instructional process and does not allow the students opportunities to express opinions or structure their own learning through interaction with their peers. As oral communication has been perceived as an important aspect of language development and learning (Britton, 1970; Wilkinson, 1973; Bullock, 1975; Barnes, 1976; Moffett, 1982; Adams, 1984; Berry, 1985; Gen Ling Chang and Wells, 1988; Dixon, 1988; Davis, 1996), it is important for teachers to

include opportunities for students to engage in discussion as part of the learning process.

Spoken language is fundamental to the individual's personal and social development and develops as he/she communicates in a range of contexts in which oral language is a natural outcome (Wilkinson, 1973). Indeed, oral language and thinking processes are considered to be the basic skills of language development and the underlying skills of the individual's total experience (Moffett, 1982). In oral language contexts, students are able to apply their individual knowledge to the learning task and, through discussion, are able to negotiate meanings through which they, consequently, acquire the language and develop the concepts related to the learning task. Therefore, it is important for teachers to provide opportunities for students to expand their oral language through listening and speaking in contexts in which discussion is used as a means of learning (Barnes, 1976; Tough, 1979; Berry, 1985).

Contexts in which discussion takes place bring language users face to face in the creation of oral texts. As the participants in the discussion interact, they generate language that is dynamic and context determined; thus text is constructed jointly by the participants (Hammond, 1990). When teachers structure contexts that allow for discussion over a range of disciplines, they provide opportunities for students to generate texts that are appropriate for those disciplines in those contexts. That is, opportunities are provided for students to

participate in the generation of appropriate texts to express the concepts and understandings of a range of disciplines.

Class discussions which are not dominated by the teacher allow students to participate in the generation of texts but opportunities for interaction are limited by the number of students taking part in the discussion. It is argued, if teachers incorporate small group learning into the instructional program, they will thus provide opportunities for more effective participation by the individuals who contribute to the discussion and respond to the discussion generated by other participants. These small group contexts thus provide opportunities for students to structure their own meanings based on their individual background knowledge as well as the outcomes of the discussion.

Research and theory on group learning contexts have provided a sound knowledge base upon which teachers can draw in their incorporation of group learning strategies for effective classroom instruction. Teachers have implemented group learning strategies successfully in their instruction and records of their outcomes provide insights into the ways teachers group students for learning in the classroom.

4.2 DIMENSIONS OF GROUP LEARNING

The following bases for grouping, and group processes provide insights into the implementation of successful group learning strategies in the classroom.

4.2.1 Bases for Grouping

Ability grouping of students refers to grouping students on the basis of achievement in order to reduce the heterogeneity of the group. Slavin (1987a) described ability grouping in the primary school in detail by referring to the following forms of ability-based, classroom grouping: (1) ability-grouped class assignments where students are assigned on ability to one self-contained class; (2) regrouping for reading or mathematics where students are assigned to ability levels for maths and/or reading within the class. Students may be grouped across the grades which is referred to as the Joplin Plan; (3) nongraded plans refer to placing students in flexible groups according to their performance rather than placing them in traditional grade levels; (4) special classes for high achievers where gifted or talented students are assigned to special classes for part or all of the school day; (5) special classes for low achievers where students with learning problems are assigned to remedial classes; (6) within-class ability grouping where students are assigned to small groups within the class (usually for reading) based on ability (Slavin, 1987a).

Drawing from his review of the research, Slavin (1987a) indicated that ability grouping created classes of low achievers and served to increase divisions along class, race, and ethnic group lines. He also concluded that:

Because no achievement benefits of ability-grouped class assignments have been identified, and because more

effective grouping methods exist, use of the strategy should be avoided.(Slavin, 1987a:325)

In his review of research on ability grouping in Secondary Schools Slavin (1990) indicated that the type of ability grouping in Secondary Schools is mainly on the basis of between class groupings and drew attention to the practice of assigning students to academic, general and vocational tracks in these schools. He also drew attention to research that considered achievement gains of students in groups compared with ungrouped students, and achievement gains by students in high-ability groups compared with those in low-ability groups. From his analysis of the literature, he concluded that ability grouping has little or no impact on overall student achievement in Elementary and Secondary Schools (Slavin, 1990).

Although he acknowledged limitations to the review (1990), he drew the following conclusions:

- 1. Comprehensive between-class ability grouping plans have little or no effect on the achievement of secondary students, at least as measured by standardized tests. This conclusion is most strongly supported in Grade 7-9, but the more limited evidence that does exist for studies in Grades 0-12 also fails to support any effect of ability grouping.*
- 2. Different forms of ability grouping are equally ineffective.*
- 3. Ability grouping is equally ineffective in all subjects, except that there may be a negative effect of ability grouping in social studies.*

4. Assigning students to different levels of the same course has no consistent positive or negative effects on students of high, average, or low ability. (Slavin, 1990:494)

Slavin's (1990) review of research at the Secondary School level reinforces awareness of the ineffectiveness of ability grouping and the need for teachers to explore other forms of grouping practices. He suggests that an alternative to ability grouping is the use of cooperative learning methods which have a positive effect on self-esteem, race relations, acceptance of mainstreamed academically handicapped students, and ability to work cooperatively (Slavin, 1990).

Although Slavin's (1990) research review refers mainly to class groups, his analyses and conclusions draw attention to the need for teachers to explore other classroom grouping practices besides ability grouping. Teachers have generally associated grouping in the classroom, particularly for instruction in reading and mathematics, with ability grouping. However, this is only one form of grouping. Indeed, teachers may use a model of flexible grouping based on three sets of interacting variables to cater for student needs. These variables are: *(a) choosing the most appropriate basis for grouping, (b) choosing the most effective format, and (c) choosing the most appropriate materials.* (Flood, Lapp, Flood and Nagel, 1991:610). If teachers consider these variables when choosing a model and thus adopt a model of group instruction in their classrooms, they will

include a range of grouping practices rather than one practice based on ability.

Teachers may provide opportunities for students to express their knowledge and cultural perspectives through discussion by providing a range of grouping practices in the instructional program which include: the whole class to develop the whole class learning community; groups of three or four to interact through a common interest; pairs to provide one-to-one discussion; and working as individuals (Berghoff and Egawa, 1991). Application of these grouping practices has provided for student-controlled learning, increased students language experiences and provided opportunities for students to support each other in the learning process (Berghoff and Egawa, 1991).

In their examination of ways to organise classrooms for effective learning of topics in the disciplines, Pardo and Raphael (1991) used flexible grouping to assist students to organise and synthesise information in the development of concepts. To ensure effective group learning, teachers need to consider the matching of a particular grouping pattern with a particular purpose, and to consider the strategies students need in order to operate successfully in group contexts (Bennett, 1985; Pardo and Raphael, 1991). Dalton (1987) discussed effective management of small groups and suggested guidelines for teachers to ensure that students are moved effectively from whole class to small group discussion.

Particular group patterns have been applied to particular fields of study in the school curriculum. Application of heterogeneous groups of seven to eight children to the study of literature in year four resulted in students becoming more involved in their reading, making connections between reading and writing, extending their thinking, and laying foundations for lifelong reading (Keegan and Shrake, 1991). To incorporate small group activities into the study of literature, Smagorinsky (1989) organised groups into four types *((1) introductory activities; (2) studying symbolic episodes; (3) synthesising ideas within a literary unit; and (4) weaning students from teacher dependence. (Smagorinsky, 1989;67))* and perceived the small group format as an intermediate stage between direct instruction and independent learning (Smagorinsky, 1989).

Response groups of four to six students utilized as a strategy within the writing program of first year high school students encouraged productive wide-ranging discussion by individuals and reflection on their writing (Dixon, 1985). Collaborative writing provides opportunities for writing processes to be developed (Burns and Housego, 1996). Reading to children from kindergarten and year one in small groups compared with reading to them in a one-to-one situation resulted in improved reading scores for small group members (Morrow and Smith, 1990).

Rowland (1985) observed a group of students' spontaneous interactions and harnessed the group's interests to the study of mathematics. From his instruction and observations he drew

attention to the need for teachers to allow students time to construct their own knowledge through manipulation of material and discussion, and the need for teachers to take account of the importance of material used to stimulate interpretation and learning (Rowland, 1985).

Okebukola (1985) examined cooperative and competitive learning in science and suggested that the best learning may take place through a combination of competition and cooperation. Hertz-Lazarowitz, Baird, Webb and Lazarowitz (1984) examined classroom interaction in learning science, and drew attention to social interactions and learning-related interactions, and the high percentage of "off-task" interactions during the learning.

Children's views on learning together and collaborative learning have been examined and have shown that they perceived the group as (a) an opportunity to learn and help each other, (b) an opportunity to get individual help from their colleagues, (c) an opportunity to work out the task with their friends, (d) an opportunity to make new friends, and (e) an opportunity for them to plan together and organise their work together (Cullingford, 1988; Crouse and Davey, 1989).

Galton and Williamson (1992) examined the data collected during the ORACLE Project (Observational Research and Classroom Learning) which took place at the University of Leicester from 1975 to 1980

and focused on the problems associated with interaction between students and teachers, and indicated that a major finding was that the preferred organisational arrangement was students working in groups involving common tasks but individual assignments (Galton and Williamson, 1992). This research also showed that students spent nearly eighty percent of their time on individual tasks and approximately twelve percent of their time on collaborative tasks which resulted in asymmetry of classroom interaction between teacher and students. They concluded from the research that group work was neglected in the Primary School (Galton and Williamson, 1992).

Based on the Leverhulme Primary Project which was located at Exeter University, Dunne and Bennett (1990) provided guidelines to help teachers change the practice of having students working *in* groups to having students working *as* groups. These guidelines drew attention to the need for students to work on cooperative tasks in groups rather than working on individual tasks in group settings. They justified cooperative grouping on the following grounds:

- 1. It is necessary to meet particular attainment targets in the National Curriculum.*
- 2. It can provide the time that teachers so critically need for assessing and recording in the classroom.*
- 3. Current grouping practices may be improved by this means.*

4. The research evidence shows the likelihood of clear improvements in pupils' social and intellectual development. (Dunne and Bennett, 1990:7)

These selected studies and applications illustrate the importance of interaction in the learning process and the attention given to grouping practices which are applied to classroom organisation to enhance learning. They also draw attention to the need for teachers to ensure appropriate grouping for desired learning outcomes; this entails a knowledge of the group processes in which students may engage as effective learners.

4.2.2 Group Processes

During their daily lives individuals normally participate in group interactions within and beyond the family. These may be members of social and sporting organisations in which they have opportunities to acquire knowledge and language associated with the groups' discourses and to participate as group members. Within these special interest groups, individuals have opportunities to acquire individual perspectives on the world by participating in discussions and assuming roles within the groups to ensure they participate as group members.

Johnson and Johnson (1987) analysed definitions of groups and concluded that:

A group is two or more individuals in face-to-face interaction, each aware of his or her membership in the group, each aware

of others who belong to the group, and each aware of their positive interdependence as they strive to achieve mutual goals. (Johnson and Johnson, 1987:8)

This definition emphasises the need for the individual to be aware that he/she is a member of the group and to take account of other members of the group in the pursuit of mutual goals.

Johnson and Johnson (1987) also considered important dimensions for effective groups and summarised them as follows:

Goals are clarified and changed so that the best possible match between individual goals and the group's goals may be achieved; goals are cooperatively structured.

Communication is two way, and the open and accurate expression of both ideas and feelings is emphasised.

Participation and leadership are distributed among all group members; goal accomplishment, internal maintenance, and developmental change are underscored.

Ability and information determine influence and power; contracts are built to make sure individuals' goals and needs are fulfilled; power is equalised and shared.

Decision-making procedures are matched with the situation; different methods are used at different times; consensus is sought for important decisions; involvement and group discussions are encouraged.

Controversy and conflict are seen as a positive key to members' involvement, the quality and originality of

decisions, and the continuance of the group in good working condition.

Interpersonal, group, and intergroup behaviours are stressed; cohesion is advanced through high levels of inclusion, affection, acceptance, support, and trust.

Individuality is endorsed.

Problem-solving adequacy is high.

Members evaluate the effectiveness of the group and decide how to improve its functioning; goal accomplishment, internal maintenance, and development are all considered important.

Interpersonal effectiveness, self-actualisation, and innovation are encouraged. (Johnson and Johnson, 1987;11)

These dimensions of effective groups portray groups as a means of achieving both group and individual goals through processes of cooperation, communication and participation. Such processes allow individuals to: (a) work within social contexts that enhance social growth with sensitivity towards other members of the group; (b) learn through discussion; (c) analyse and solve problems; and (d) evaluate the learning processes of the group. Consequently, groups become learning units that take on the character of their members and generate learning processes determined by their members and the learning task thus becoming powerful learning units within the classroom context.

Research, theory and insights from classroom teachers have shown the importance of providing opportunities for discussion and oral language development in classroom learning rather than having teacher dominated interaction resulting in asymmetry of learning (Britton, 1970; Wilkinson, 1973; Bullock, 1975; Barnes, 1976; Barnes and Todd, 1977; Tough, 1979; Moffett, 1982; Adams, 1984; Berry, 1985; Cazden, 1986, 1988; Chang and Wells, 1988; Dixon, 1988; Perrot, 1988; Swain, 1988). The body of knowledge derived from these insights has clearly pointed the way towards group learning as a means of providing opportunities for students to interact with each other, learn from each other and construct knowledge based on these interactions. Insights into effective group learning have been expressed (Hertz-Lazarowitz, Baird, and Lazarowitz, 1984; Bennett, 1985; Dixon, 1985; Okebukola, 1985; Rowland, 1985; Dalton, 1987; Cullingford, 1988; Crouse and Davey, 1989; Morrow and Smith, 1990; Berghoff and Egawa, 1991; Flood, Lapp, Flood and Nagel, 1991; Keegan and Shrake, 1991; Pardo and Raphael, 1991; Galton and Williamson, 1992) but there is need to go beyond ability grouping for effective group learning (Slavin, 1990).

An alternative form of learning is through heterogeneous grouping and collaborative learning which provide opportunities for group members to interact with each other to enhance sociocultural and cognitive skills and enhance learning by working together towards a common goal. Therefore, the research on collaborative group learning in the school is examined to provide a sound conceptual framework for research on group learning to contribute to the construction of a

defensible theoretical basis from which teachers may derive appropriate instructional principles for effective group learning in the classroom.

4.3 GROUP LEARNING IN THE CLASSROOM: A RESEARCH FOCUS

4.3.1 A Research Summary

Important research on heterogeneous grouping and collaborative group learning in the classroom is summarised in Table 3.1. This research is drawn from group learning in educational contexts and focuses on group learning in Primary and Secondary classrooms.

TABLE 4.1
Collaborative Group Learning in the Classroom

Researcher/ Date	Site	Nature of Sample	Research Purpose	Main Conclusions
Deutsch, M. 1949	USA	50 volunteer psychology students	To examine the effects of cooperation and competition on the group process	Co-op. individuals are more inter- dependent and helpful than comp. individuals.
Lawlor, M. 1955	Britain	9 females aged 20-30	To examine the effects of group discussion on opinions and preferences	Changes in opinion depend on the emotional tone of the group.
Deutsch, M. 1960a	USA	Adult college students	To examine the effects of co-op., comp. and individ. motivational orientations on behaviour	Co-op. orientation leads to trusting; comp. orientation leads to suspicion; individ. orientation depends on the conditions.

Deutsch, M. 1960b	USA	50 volunteer, adult, psych. students	To sketch a theory of the effects of co-op. and comp. on face-to-face group functioning	Individ. coop. perceive themselves to be more promotively independ- ent than individ. comp. Individ. co-op. exhibit more helpfulness and individ. comp. exhibit more obstructiveness.
Larson, C.E. 1971	USA	Speech students	To review research in speech journals up to 1969	Group discussion leads to improved problem solving accuracy. Students trained in group processes exhibit shifts towards open-mindedness.
DeVries, D.L. Edwards, K.J. 1974	USA	107 male and female grade 7 students	To evaluate the effects of student teams and instruct- ional games on cross-sex and cross-race interaction	Administering team rewards to heterogeneous groups reduces race and sex barriers inhibiting student learning.

Barnes, D. 1976	Britain	Secondary students 12-13 years	To explore the relationship between communication and learning in unstructured conversations	Speech provides opportunities for students to reflect on thought processes and strategies in solving problems.
Barnes, D. and Todd, F. 1977	Britain	56 average ability secondary students	To examine group talk in tasks set by teachers in curriculum disciplines	Group talk provides opportunities for students to clarify their understanding of the topic and construct knowledge jointly.
Johnson, D.W. Ahlgren, A. 1976	USA	2400 students from grades 2-12	To examine student attitudes towards coop/comp, motiv- ation relationships with students and school personnel, behaviour, personal worth and involve- ment in learning.	Co-op. is positively related to motivation, listening to other students, to expression of ideas and felt personal worth. Comp. is related to fears of not being able to communicate, to wanting rules and wanting teachers to communicate clear goals.

Johnson, D.W., Johnson, R.T., Johnson, J., Anderson, D. 1976	USA	30 white working-class students in grade 5	To explore the relative effects of co-op. and individ. goal structures on learning prosocial behaviour and achievement	Co-op. compared to individ. learning shows more altruism, more positive attitude to classroom life and higher achievement.
Wilcox 1976	USA	Low income students in grades 5-6	To examine ways of increas- ing student participation in classroom discussion	Trained student-led conditions provided a more adequate setting for problem solving and participation in small groups.
Kibby, M.W. 1977	USA	6 high achiev- ing students and 5 low achieving students	To explore the effects of status within a group on the formation of children's attitude towards reading	Individuals' concept of themselves as readers reflect classroom status as readers not actual reading ability.

DeVries, D.L. Slavin, R.E 1978	USA	Review of 10 studies of grades 3,7-9, 10-12	To evaluate research on the effects of Teams Games Tournament (TGT) on learning over a range of content areas	TGT has consistent effects on academic achievement, mutual concern, race relations and peer norms. Results on attitude to school were inconsistent.
DeVries, D.L. Edwards, K.J. Slavin, R.E 1978	USA	Students from grades 7-12 in 4 content areas	To review four studies that represent a wide-ranging test of the impact of TGT on inter-racial attraction	TGT is an effective means of increasing cross-racial friendships in integrated classes.
Slavin, R.E. 1978	USA	205 students in grade 7 Eng. classes	To investigate the effects of level of reward and comparison of student quiz scores on student achievement and attitude	Positive effects of team reward were partially supported. Participation in teams increased time on task but did not increase achievement.

Garibaldi, A.M. 1979	USA	92 M/F, Afro-American, students, in grades 10-12	To determine the relative value of group goal structures v individ. structures, coop. v inter-group comp. and individ. v interpersonal comp.	Coop. groups performed better. Coop. group members indicated positive ratings towards their team members. Students who work in groups express more certainty about their answers.
Peterson, P.L. Janicki, T.C. 1979	USA	100 mixed ability students in grades 4-6	To investigate aptitude-treatment interactions (ATI) on students' learning in large and small groups	High-ability students did better and were more positive in small groups; low-ability students did better and were more positive in large groups.
Sharan, S. Ackerman, Z. Hertz-Lazarowitz, R. 1979-80	Israel	217 students in disadvantaged schools grades 2-6	To compare the academic achievement of students in coop. groups with students in traditional classes	Small group learning in coop. groups compared with traditional classes leads to superior learning in higher-order thinking but not in lower-order thinking.
Hert-Lazarowitz, R. Sharan, S. Steinberg, R. 1980	Israel	243 students from 9 classrooms grades 3-7	To examine the extent of transfer of co-op. learning in small groups to other situations	Co-op. learning transferred to non-academic behaviour and group members were more co-op. on judgmental and behavioural measures than whole class members.

Johnson, D.W. Skon, L. Johnson, R. 1980	USA	45 mixed-ability grade 1 students	To compare the relative effects of co-op., comp. and individ. conditions on problem solving performance and to examine the influence of strategy, interaction and incentive on problem solving	Students in the co-op. condition outperformed students in the comp. and individ. conditions. Students in the co-op. condition used strategies superior to those used by students in the comp. and individual conditions.
Sharan, S. 1980	Israel	Primary and secondary students	To review research on five methods of small group learning (Jigsaw, TGT, STAD, coop. learning approach and small group teaching)	Students in groups compared with other students helped each other more, succeeded more on higher-level questions, expressed themselves more freely and engaged in more positive inter-ethnic interaction.
Webb, N.M. 1980	USA	5 groups of 4 mixed ability students in grade 11	To analyse group interaction and achievement related to new and previously learned maths	High-ability students did best in individ. contexts, low-ability students did best in groups and medium-ability students did well in both. Group interaction was related to achievement.

Ames, C. 1981	USA	42 male and 42 female students from grades 5-6	To compare the effects of co-op. v comp. reward contingencies on students' cognitive-attributions and feelings of deservedness and satisfaction	Co-op. structures created conditions in which students evaluated their partner in the same way they evaluated themselves. Comp. created a situation of strong differences in interpersonal perception.
Hansell, S. Slavin, R.E. 1981	USA	245 white and 157 black students in grade 8	To investigate the structure of new cross-race friendships caused by a co-op. learning intervention	Co-op learning intervention increased cross-race friendships of students of different sexes, races and achievement levels.
Johnson, R.T Johnson, D.W. 1981a	USA	21 males and 19 females grade 3 _ 8 with learning problems	To extend and corroborate research on frequency and quality of cross-handicap interaction, relationships between handicapped and nonhandicapped and the generalisability to free time.	There was more interaction between handicapped and non-handicapped in the coop. than in the individ. condition. Emphasis in the co-op. groups was on including the handicapped in the groups.
Johnson, D.W. Johnson, R.T. 1981b	USA	51 grade 4 students including black, Ind. and Hisp.	To extend and corroborate research on the impact of co-op. experiences on inter- ethnic relations	Co-op. experiences compared with individ. ones promote more cross-ethnic interaction in both instructional and free time activities.

Johnson, D.W. Maruyama, G. Johnson, R. Nelson, D. Skon, L. 1981	USA	Primary and secondary students	To apply meta-analysis to 122 studies to compare the effects of co-op., co-op. with intergroup comp., interspers- onal comp. and individ. goal structures in promoting achievement	Co-op is superior to comp. and individ. efforts in promoting achievement and productivity. Co-op without intergroup comp. promotes higher achievement and productivity than co-op with intergroup comp.
Peterson, P.L. Janicki, T.C. Swing, S.R. 1981	USA	93 students grades 4-5	To investigate ability X treatment interaction effects on learning in large and small group oriented teaching approaches	High and low ability students did best in the small group oriented approach and benefited from peer tutoring processes in small groups.
Slavin, R.E. 1981	USA	Mixed ability students prim. and sec.	A case study of Student Team Learning to translate basic research into practical application	Systematic change in classrooms is achieved by putting strong theory, field evaluation, program development and publication of information together.

Slavin, R.E. Karweit, N.L. 1981	USA	456 students grades 4-5	To determine whether or not STAD, TGT, and Jigsaw team learning could be used as a primary instructional mode	Intensive use of student team learning is feasible and produces positive outcomes on student friendships, liking school, self- esteem and reading and language achievement.
Slavin, R.E. Oickle, E. 1981	USA	78 black and 152 white students grades 6-8	To investigate treatment X race interactions on team learning in English classes	Coop. learning groups gained more in academic achievement than non- team classes. There were out- standing gains by black students.
Owens, L Barnes, J 1982	Aus.	279 students grades 7-11	To examine the connections between co-op., comp., and individ. learning preferences	Senior secondary school students express greater preference for co- op. and comp. social contact than first year sec. students.
Swing, S.R. Peterson, P. 1982	USA	43 grade 5 students	To examine student ability and student behaviour during small group interaction	Small group work was more bene- ficial for high and low ability students than for medium ability students.

Tammi-vaara, J.S. 1982	USA	144 males grades 5-6	To examine how task structures affect the distribution of initiation and influence in small groups.	Supported the theory that information regarding ability is generalised to novel situations unless the irrelevance of the prior information is acknowledged.
Webb, N.M. 1982a	USA	77 above average maths students grades 7-8	To investigate the relationships among group and individ. characteristics, interaction and achievement in mixed and uniform ability groups	Achievement and interaction in groups were related to group composition, sex, ability and personality. Boys achieved higher than girls.
Webb, N.M. 1982b	USA	96 average and above average maths students grades 7-9	To investigate the relationship between interaction and achievement in mixed and uniform ability groups	Asking a question and not receiving a response was related negatively to achievement. Group interaction was predicted by group composition and student personality.

Webb, N.M. 1982c	USA	Primary and secondary students	To review research with a focus on interaction and achievement, cognitive process socio-emotional mechanisms, and group characteristics	An individual's role in group interaction has an important influence on learning. Interaction is best predicted from the characteristics of the individ., the group and the setting.
Wikinson, L.C. Calculator, S. 1982	USA	30 grade 1 students	To investigate grade 1 students' use of requests and responses in homogen- eous reading groups.	Students in low-ability groups were less likely to have their re- quests responded to than those in high-ability groups.
Slavin R.E. 1983	USA	Primary and Secondary	Reviews research on achievement effects of cooperative learning instructional methods and cooperative, competitive and individ, reward structures	Co-op learning using group rewards and ind. accountability increases student achievement. Co-op learning using group study but not group rewards does not consistently increase achievement.
Webb, N.M. Cullian, L.K. 1983	USA	105 av. and above av. maths students grades 7-9	To investigate relation- ships among student and group characteristics, group interaction, achievement in small groups and stability of relationships over time.	There was a strong link between interaction and achievement; inter- action was predicted by the group; interaction in the group did not relate to student ability.

Hertz-Lazarowitz, R. Baird, H.J. Webb, C.D. Lazarowitz, R. 1984	USA	36 science classes in 6 junior high schools	To describe student interactive and noninteractive behaviour and to observe S-S-I in naturalistic classrooms	There was a high percentage of S-S-I in the classroom. Only one-third of the interaction was on task. Co-op. was most frequent in labs, and help was most frequent in labs and individ. work.
Slavin, R.E. Leavey, M.B. Madden, N.A. 1984	USA	504 students grades 3-5 and 375 in grades 4-6	To evaluate a new individual instructional approach in maths, that used co-op. learning teams T.A.I. (teams assisted individualisation) in two studies	The T.A.I. approach had positive effects on maths achievement, behavioural ratings and, to some extent, on student attitudes.
Slavin, R.E. Karweit, N.L. 1984	USA	588 students in 16 high schools	To investigate separate and combined effects of the principal components of mastery learning and team learning in maths	Classes that used teams achieved higher scores. Group paced mastery learning was not supported but team rewards were supported.
Webb, N.M. 1984a	USA	77 above-average maths students in grades 7-8	To examine sex differences in interactional variables beneficial or detrimental to achievement	Females and males showed equal achievement and similar interactional patterns in groups. In majority female groups the females tended to direct requests for explanations to males.

Webb, N.M 1984b.	USA	110 average students in junior high school	To investigate interaction as predictor of achievement, stability of interaction- achievement over time and stability of individ. roles	Giving explanations was positive -ly related to achievement and receiving no explanations was negatively related to achievement. Group behaviour tended to be unstable over time.
Johnson, D.W. Johnson, R. 1985	USA	72 grade 6 students	To investigate the effects of controversy and debate compared with individ. study	Interpersonal attraction between academically handicapped and non -handicapped students was strongest in the controversy condition. Controversy promotes the higher level of academic esteem.
Lambert, J.C. 1985	USA	185 boys and 170 grade 4 students	To investigate the effects of prewriting activities of class discussion and one-to- one interaction	Participation in structured oral language prewriting activities may have a differential effect on boys' and girls' willingness to write. Engaging girls in group discussion seems to have a negative effect on willingness to write.

Okebukola, P. 1985	Nigeria	319 boys and 311 girls in grade 8	To examine the relative effectiveness of co-op., co- op-comp. and comp. learning in science	It is suggested that TGT and STAD are superior means of promoting learning in science compared with other techniques.
Webb, N.M. 1985	USA	Primary and secondary students	To examine the theme that the benefit of small groups for learning depends on the verbal interaction that takes place within them	Students can expect to benefit from peer-directed small group learning when they give and receive explanations. Teachers can promote group, verbal interaction.
Yager, S. Johnson, D.W. Johnson, R.T. 1985	USA	38 male and 37 female students in grade 2	To investigate the effects of coop., individ. learning, and benefits to high, medium and low ability students	Students in coop. groups achieve better than students working individ. Oral explanations, and listening promoted mastery and understanding.
Granstrom, K. 1986	Swed.	10 male leaders 14-16 years	To observe the interaction within 10 informal teenage groups with a leader	The leaders dominated the physic- al and psychological space. Leaders more frequently finish a communication sequence and followers more frequently initiate communication.

Johnson, R.T. Johnson, D.W. Stanne, M.B. 1986	USA	75 grade 8 students	To compare the efficacy of computer-assisted co-op., comp. and individ. learning	Co-op. learning promoted higher quantity and quality of achievement, accuracy of recognition of factual information, more success in problem solving and greater success in operating a computer program. Co-op. and comp. students performed higher than students in the individ. conditions.
Lew, M. Mesch, D. Johnson, D.W. Johnson, R. 1986	USA	2 M and 2 F socially isolated grade 6 students	To examine the effects of opportunity to interact, positive goal interdependence, and goal and reward interdependence with the use of co-op. skills	Socially withdrawn and isolated students learned collaborative skills required to work effectively with their classmates and developed self-confidence to use the skills spontaneously.
Webb, N.M. Ender, P. Lewis, S. 1986	USA	30 students aged 11-14	To explore planning and debugging approaches and group processes related to learning BASIC	There were significant relationships between verbal interaction and achievement outcomes. Students showed no evidence of advanced or heirarchical planning.

Zahn, G. Kagan, S. Widaman, K.F. 1986	USA	864 students grades 2-6	To compare STAD and TGT with traditional classes on classroom climate	Co-op. techniques generally pro- duced a slightly more favourable climate measured on social relations and school work.
Crozier, S. Kleinberg, S. 1987	Britain	16 grade 3 and 16 grade 6 students	To observe group problem solving techniques	The sessions were saturated with talk. Statements were accompan- ied by nonverbal gestures and proposals rarely challenged.
Galton, M. 1987	Britain	Junior classes with students 7-11 years of age	To describe research in the ORACLE Project (Observation Research and Classroom Learning Evaluation) University of Leicester	There was asymmetric interaction of teachers and students. Students were generally required to fit in with the teacher's organisation. Discussion was often dominated by a single student. Students expected the teacher to take over when he/she joined the group.
Slavin, R.E. 1987a	USA	Primary students	To review 14 studies on the effects of between and within class ability grouping on achievement	Overall evidence does not support ability grouping. Regrouping students across grades for reading increases reading ability. Ability grouping is effective for maths.

Slavin, R.E 1987b	USA	Primary and Secondary	Literature review of achievement effects of practical application of group -based mastery learning	No evidence to support the effectiveness of group- based mastery learning.
Widaman, K.F. Kagan, S. 1987	USA	864 students in grades 2-6	To investigate spelling achievement in STAD, TGT and traditional whole class and students' interaction with the learning methods	Coop.-comp. social orientation and ethnic status interact with classroom structure to determine achievement. Student gender was significantly related to spelling performance.
Burden, M. Emsley, M. Constable, H. 1988	Britain	6 year old infant students	To identify what helped groups to work and the consequences for teachers	Some infant students can work cooperatively without preparation. Students were able to take turns, organise themselves and keep the activity going. Teachers can help students to be aware of the learning in groups.
Burns, D.E. 1990	USA	515 students in grades 3-8	To examine the effects of training to focus, manage and plan on students' decisions to initiate creative investigation	Grade level, gender, affective traits and prior out-of-school involvement in creative product- ivity account for variance in students' decisions to begin creative investigations.

Morrow, L.M. Smith, J.K. 1990	USA	27 students in kindergarten and grade 1	To investigate comprehension and verbal interaction in story book reading in groups.	Students' comprehension was greater when stories were read in small group settings. Students tended to ask more questions in one-to-one settings than in small group settings.
Ross, J.A. Raphael, D. 1990	Canada	51 grade 4 students	To determine whether what students talk about in coop. groups is related to learning complex cognitive tasks	There were strong correlations between achievement and communication in groups. Differences in task structure affect communication patterns.
Slavin, R.E. 1990	USA	Secondary school students	To review 6 randomized experiments, 9 matched experiments and 14 corr. experiments to compare ability grouping with heterogeneous plans	Comprehensive between-class ability grouping has little effect on achievement. Assigning students to different levels of the same course has no consistent positive or negative effects on low, average or high ability students.
Bennett, N. Dunne, E. 1991	Britain	Primary students 4-11 years of age	To examine the nature and quality of talk in coop. groups and its variation in relation to content, task, curriculum area and type of group	Task related talk is high. Nature and modes of talk vary according to task demand. Action talk predominates in all curriculum areas. Abstract talk is more difficult to generate.

Gordon,D. 1991	Aus.	20 students in grades 3-4	To observe a learning model that integrates co-op., comp. and individ. learning	Advantages of integrated learning were: co-op behaviour was strong; there was improvement in the quality of the learning; and students took individ. respons- ibility for performing tasks.
Mevarech, Z.R. 1991	Israel	117 maths students in grade 3	To examine effects of coop. mastery learning (CML), relative contributions of mastery v co-op. learning and student interactions in CML	Giving and receiving help were related to achievement. Students who did not receive responses to requests for help did not achieve. High achievers were more involved in giving help and low achievers were involved in receiving help.
Slavin, R.E. 1991	Usa	Primary and Secondary	Synthesis of research on cooperative learning and cooperative learning methods	Coopertive learning increases student self-esteem; greater achievement in co-op v control classes; acceptance of academically handicapped students.

Cintorino, M.A. 1993	USA	Tenth grade college students	To examine the teacher's role in monitoring and initiating group discussion via action research	Teachers can guide students in effective group discussion by taking account of purpose and context and allowing students to make meaning for themselves.
Nystrand, M. Gamoran, A. Ileck, M.J. 1993	USA	Ninth grade literature classes	To examine patterns of interaction between teachers and students to determine effective forms of small group work in literature	Effective small group work requires coherent activities. Small group instruction should draw on the potential for cooperation and collaboration.
Horbury, A. Pears, H. 1994	Britain	One infant class	To determine whether young children can handle the social aspects of collaborative group work	Children are able to function effectively in a group, manage the social dimensions and approach a task cooperatively.
Mulryan, C.M. 1994	Ireland	Five six grade classes and one fifth grade class (maths)	To examine a range of factors and teachers' and students' perceptions related to involvement and participation in cooperative small groups	High achievers manifest more time on task and more quality involvement. Low achievers appear to have a less complex understanding of co-op learning. Teachers and students generally agree on factors.
Ewing, J.M. Kennedy, E.M. 1995	Britain	Seven 11 year old mixed ability Primary	To examine students' improvement in personal and social attitudes and relationships with teachers	Confidence in communication grew and listening became important. Members showed growth in building and maintaining trust.

Healy, I. Pozzi, S. Hoyles, S 1995	Britain	Eight groups of six children 9-12 (3M 3F)	To identify factors associated with learning maths with computers in groups	Positive learning gains were achieved with no differences across gender or ability. The pattern of interaction was likely to influence group success.
Zhining Qin Johnson, D.W. Johnson, R.T. 1995	USA	46 studies between 1929 and 1993	Comparison of the impact of cooperative and competitive efforts on problem solving	Members of cooperative teams outperformed individuals compet- ing with each other on four types of problem solving. Superiority of cooperation was greater on nonlinguistic problems than linguistic problems.
Burns, C. Housego, E. 1996	Britain	Tertiary students	To understand the nature of collaborative writing and its benefits	Children are given time and help for relationships and processes, that contribute to learning about language and life, to develop.
Johnson, D.W. Johnson, R.T. Real, D. 1996	Canada	117-8th grade students	Investigated issues of effectiveness of conflict resolution, contact on effectiveness of training and impact of training on academic achievement	Students in co-op. conditions learned and retained integrative negotiation procedures more effectively than students in in- dividualistic conditions. The feasibility of integrating resolution training into an academic unit validated.

McManus, S.M. Gettinger; M. 1996	USA	26 third grade teachers 38 third grade students	To determine teachers' use and evaluation of cooperat- ive learning and students' reactions to working in cooperative groups	Both teachers and students attributed both social and academic gains to working in groups. Teachers noted growth in students' self esteem.
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4.3.2 Research Foci

The research relating to the demonstrated effectiveness of group discussion for learning and language development in the disciplines of the curriculum in TABLE 4.1 was examined to determine the dominant directions and foci of group learning research across the period under review. This analysis revealed four broad foci:

- (a) Focus One: Comparative analyses of group learning contexts;
- (b) Focus Two: Analyses of the compositional structure of groups;
- (c) Focus Three: Intragroup analyses of member characteristics and achievement;
- (d) Focus Four: Correlational analyses pertaining to forms of group interaction.

Analyses of the foci showed that each centre of interest contributed to the emergence of a broad pattern of research that incorporated a range of methodological issues and conceptual advances in group learning in classroom contexts across the seventies, eighties and into the nineties.

Focus One analyses (e.g., Deutsch, 1949: 1960a; 1960b; Johnson and Ahlgren, 1976; Johnson, Johnson, Johnson and Anderson 1976; Johnson, Skon and Johnson, 1980; Sharan, 1980; Yager, Johnson and Johnson, 1985; Johnson, Johnson and Stanne, 1986; Soyiba, 1991) have concentrated on styles of learning within groups which emphasised cooperative, competitive and individualistic learning.

Early studies with this focus (Deutsch, 1949; 1960a; 1960b) drew attention to relationships amongst learners in groups, and the significance of groups in the learning process, and indicated that competition appeared to disrupt intercommunication of ideas, coordination of efforts and group harmony. These studies explored a theory of cooperation and competition and the effects of cooperation and competition on face-to-face interaction. thus laying foundations for later research on cooperative, competitive, individualistic learning and related orientations. Although group learning research was not applied extensively to school contexts in the sixties, a range of classroom research on the group learning process emerged in the seventies and escalated during the eighties towards an examination of the theory of collaborative and competitive learning across a range of classroom contexts.

This research (Johnson and Ahlgren, 1976; Johnson, Skon and Johnson, 1980; Johnson, Maruyama, Johnson, Nelson and Skon, 1981) focused primarily on the challenges of effective classroom organisation and learning and demonstrated effects of cooperation, competition and individualistic learning on (a) achievement, (b) group learning as a means of improving student-student and student-school relationships and (c) enhancing positive self-attitudes and motivation amongst learners. Research in the eighties and the nineties has tended to support hypotheses that students in cooperative groups develop a positive desire to learn and outperform students in competitive and individualistic conditions leading up to

the conclusion that cooperative learning leads to better quality learning outcomes.

Hence research with a primary focus on cooperative v competitive v individualistic learning in the classroom over twenty years has yielded evidence for (a) the effectiveness of cooperation in enhancing the quality of learning; (b) improved relationships amongst learners; and (c) improved quality of learning resulting from cooperative group learning compared with competitive and individualistic orientations to learning.

Focus Two analyses (e.g. DeVries and Edwards, 1974; DeVries, Edwards and Slavin, 1978; Sharan, 1980; Ames, 1981; Hansell and Slavin, 1981; Johnson and Johnson, 1981b; Zahn, Kagan and Widaman, 1986; Widaman and Kagan, 1987) have been primarily concerned with cross-race friendships, social orientation, ethnic status and rewards in group learning.

Such research indicates the following: (a) administering team rewards reduces race and gender barriers; (b) group learning increases cross-race friendships; (c) socially withdrawn students develop self-confidence and work more effectively during group learning; (d) group learning contexts promote positive inter-ethnic relations; and (d) the status of minority-group children is enhanced in group contexts.

While not as extensive as the research on cooperative v competitive v individualistic learning, nevertheless research on social and cross-cultural relationships has added a dimension of importance to the understanding of group learning. Researchers (Sharan, 1980; Hansell and Slavin, 1981; Johnson and Johnson, 1981b) drew attention to social and cultural dimensions of group learning and clearly showed that group learning can influence relationships amongst learners as well as the level of achievement in group learning contexts. Such studies show that group learning contexts provide opportunities for teachers to enhance social and cultural relationships as an important dimension of the instructional/learning processes.

Focus Three analyses (e.g., DeVries and Slavin, 1978; Sharan, Ackerman and Hertz-Lazarowitz, 1979-80; Sharan, 1980; Webb, 1980; Slavin and Oikle, 1981; Slavin and Karweit, 1984; Okebukola, 1985; and Slavin, 1987;1990) examined relationships between student ability and achievement across the period 1978-1990.

This includes extensive research incorporating Teams-Games-Tournament (TGT), Jigsaw learning and Student-Teams-Achievement-Divisions (STAD) which included consideration of student ability, discussion, synthesising information and group enquiry. Related research indicates consistent positive effects on achievement, with high-ability students achieving better results in small groups compared with large groups. Research from Israel (Sharan, Ackerman and Hertz-Lazarowitz, 1979-80; Hertz-Lazarowitz, Sharan and Steinberg, 1980) showed that small-group

learning compared with traditional classrooms led firstly to superior learning in higher-order thinking and, secondly, to greater cooperation amongst members. Okebukola (1985) in Nigeria examined STAD and TGT for science learning and found them to be superior means of learning science.

The research on Teams Games learning which closely examined heterogeneous grouping and ability reinforces findings on research that focused on social and cultural relations and cooperative v competitive v individualistic learning. However, it extends these insights by indicating the significance of the ability variable in group learning, the importance of Teams Games for improving student friendships and the importance of group learning for ethnic integration in the classroom.

Focus Four analyses (e.g., Larson, 1971; Barnes, 1976; Wilkinson and Calculator, 1982; Webb, 1982a; 1982b; 1982c; 1985; Slavin and Karweit, 1984; Slavin, Leavey and Madden, 1984; Crozier and Kleinberg, 1987; Ross and Raphael, 1990; Bennett and Dunne, 1991) draw attention to the significance of interaction in group contexts. While early research (Larson, 1971; Barnes, 1976;) drew attention to the importance of student roles and discussion in effective group interaction, most of the research that has provided insights into group interaction and achievement was initiated in the eighties.

At that time, extensive research on group learning processes included examination of (a) relationships between interaction and

achievement in mixed and uniform-ability groups; (b) relationships between group characteristics and interaction; (c) relationships amongst gender differences, interaction and achievement; (d) the importance of verbal interaction in groups; and (e) group processes related to learning the computer. The significance of asking questions and receiving responses in group interaction was highlighted in research focusing on upper Primary and Secondary maths students of differing abilities.

The concept of interaction was also examined in a range of contexts including class discussion, one-to-one interaction, interaction in informal teenage groups and interaction associated with problem solving thus developing the concept of group interaction as a means of effective language development and learning.

In the nineties, research on group learning processes has attracted attention in Canada (Ross and Raphael, 1990; Johnson, Johnson and Real, 1996), Great Britain (Bennett and Dunne, 1991; Horbury and Pears, 1994; Mulryan, 1994; Ewing and Kennedy, 1995; Healy, Pozzi and Hoyles, 1995; Burns and Housego, 1996) and Israel (Mevarech, 1991) as well as the USA (Zhining Qin, Johnson, and Johnson, 1995; McManus and Gettinger, 1996). The Canadian research provided insights into student talk and conflict resolution in groups and indicated strong correlations between achievement and communication in groups. In Great Britain, the nature of student talk was examined within a framework derived from Vygotsky's (1962) theory of language development. Conclusions from the Great Britain

research indicated that confidence in communication grew, a high proportion of talk in cooperative groups is task related and, importantly, the curriculum area affects the mode of talk thus pointing to the importance of the learning task in the group process.

Research on group interaction indicates that the quality of the interaction is improved through students ability to ask questions and receive explanations during ongoing discussion; it is also affected by relationships established between student and student and between student and teacher as well as by the interface between the demands of the task and the orientation of the discussion. The research thus indicates that, by taking account of factors that influence the interaction in groups, teachers may use group learning to improve relationships amongst the learners and promote verbal interaction to assist students to structure knowledge in the enhancement of individual achievement in learning the disciplines of the curriculum.

Research on group interaction has also emphasised the role of oral language in creating a pattern of communication for learning in group contexts in which the teacher and students assume particular roles to ensure that effective learning takes place. Discussion provides opportunities for students to articulate their thoughts, communicate their ideas to other students and establish a forum for listening to the ideas of other students in the group. The research on achievement and group interaction has extended knowledge of the nature of group interaction and its effects on learning as well as

drawing attention to important factors that affect student interaction in groups.

4.3.3 Methodological Issues Across Focus Areas

Much of the research has had a skill or process-product emphasis (e.g., reading, learning facts, problem-solving and mastery learning) rather than an emphasis on induction into a particular discipline. These skills and processes were mostly located within the study of mathematics although other disciplines (e.g., science, language arts and social studies) received some attention. The research often had a combined focus of relationships amongst the learners and particular learning processes thus giving insights into how students operated within particular group contexts.

Such studies sampled subjects over a range of school levels. Although every school level has been considered at some time, and some research examined multiple year levels, years 4-7 have dominated while years 1-2 and 12 have been relatively neglected.

Studies that focused on cooperative learning and social relations utilised mainly large groups although small group study was included (Kibby, 1977; Ames, 1981; Lew, Mesch, Johnson, and Johnson, 1986). Studies that focused on relationships between ability and achievement and group interaction, included groups constituted by two to six members with emphasis on four or five member groups.

Homogeneous, cooperative, competitive and heterogeneous groups were utilised across the range of studies with an emphasis on collaborative or cooperative groups and heterogeneous groups. In most of these studies, heterogeneous groups were constituted by members of different ability and sex.

Examination of the research on group learning over three decades reveals that group learning is one important means of providing opportunities for collaborative learning in the overall pattern of classroom organisation. However, for group learning to be effective, thought must be given to the quality of interaction hence the need for close examination of the interaction in which students engage during the learning process in group contexts, and the instructional methods used by teachers to ensure that the students engage in appropriate, quality interaction in that learning process. Group learning also needs to provide opportunities for students to work in a range of disciplines, so that their learning goes beyond skill development to overall structuring of knowledge based on their experiences. This need for research on group interaction in which students engage during the learning process to provide insights into what constitutes appropriate and quality interaction for effective group learning over a range of disciplines is addressed in this research project.

CHAPTER 5 RESEARCH DESIGN AND METHODOLOGY

5.1 THE RESEARCH CONTEXT

5.1.1 Interrogating the Research Base

A global examination of perspectives on classroom contexts for language development and challenges and solutions for literacy development over three decades (CHAPTER 3) reveal the importance of the child-centred curriculum (Plowden, 1976) and the need for teachers to take account of relationships between language development and the content of language learning (Britton, 1970; Martin 1983). Solutions for literacy instruction also include taking account of the importance of oral language development for the individual's social and cognitive development (Halliday, 1973; Wilkinson, 1973; Barnes, 1976; Moffett, 1982; Davis and Watson, 1990).

A detailed examination of research on the group learning process (CHAPTER 4) reveals that much of the research on group learning was conducted in the eighties and was mainly concerned with learning processes, skill development and student relationships within group learning contexts. This research was conducted at a time when there was considerable interest in input-output models of teaching and particular segments of the overall learning process.

However, changes of direction in research have been occurring with interest in classroom conversations and meaning from context within

classroom social systems (Green and Walle, 1981). Wittrock (1991) draws attention to the need to go beyond the products of learning and to take account of the roles of teachers and students in the construction of meaning. McCarthy and Raphael (1992) reviewed alternative research perspectives on information processing theories, naturalistic theories and social-constructivist theories of learning and considered implications of these theories for the role of the teacher, the role of the student, and the learning context. These theories have generated research that provides insights into reading and writing processes and, importantly, draws attention to the significance of the learning environment and the need to examine learning within the context of social interaction and the learners' construction of knowledge through interaction.

There is extensive research which examines a range of group relationships including gender and ethnic relationships. Research on team learning has highlighted particular group organisational patterns. However, while the research on asking questions and receiving explanations for enhancing achievement is enlightening, research related to students' roles in group contexts is limited. That is, the research has provided extensive insights into a range of problems related to group learning, but it has not yet provided clear insights into the group communication patterns that constitute effective group learning where group learning refers to individuals operating within group contexts to achieve a *group* task.

Some consideration has been given to group learning in the disciplines (maths, social studies, science, language arts), but no research has explained the nature of the communication generated by a range of disciplines. Although the nature of group interaction has been examined to some extent, (Webb, 1982a; 1982b; 1982c; 1983; 1984a; 1984b; Webb, Ender and Lewis, 1986; Bennett and Dunne, 1991) that interaction has been mainly related to specific group skills and processes. Consequently, an important area for research lies in an examination of the particular communication patterns that are triggered by particular group learning tasks. These learning tasks may be discipline-specific and it may be pertinent to determine whether there are particular relationships between discipline-related learning and group communication patterns and, if so, to inspect the nature of those relationships.

Research on the group process may also need to give consideration to an instructional component to provide a detailed picture of the group process which may be perceived, basically, as including the two essential components of communicating and learning.

5.1.2 Towards a Specific Research Focus

The linguistic/conceptual basis underpinning this research project is shaped by Vygotsky's (1962) theory of learning considered in 3.3.4 which emphasises the interactive nature of learning which is dependent upon communication amongst individuals. The theory, which includes the concept of "the zone of proximal development", argues for learning through collaboration. Individuals thus construct

knowledge as they engage in social and cultural activities which include discussion with peers and adults. This theory stresses the construction of knowledge through social interaction, and emphasises the sharing of knowledge by individuals and the importance of oral language in the sharing process. The significance of oral language has been pointed out over the decades that have been considered (Halliday, 1973; Wilkinson, 1973; Barnes, 1976; Moffett, 1982; Davis and Watson, 1990) and the importance of context for determining meaning of conversations (Green and Wallat, 1981) has been considered. However, in spite of the importance of oral language, it appears that teachers have not recognised its importance for social and cognitive development of students.

Nevertheless, oral language and group learning have received renewed attention in the nineties in the search for key competencies that are essential for preparing students for the workforce (Mayer, 1992). Included in these competencies are;

The capacity to communicate effectively with others using the range of spoken, written, graphic and other non-verbal means of expression.

The capacity to interact effectively with other people both on a one-to-one basis and in groups, including understanding and responding to the needs of a client and working effectively as a member of a team to achieve a shared goal. (Mayer, 92:3)

Appropriate and effective group interaction embraces quality discussion which includes the students' utilisation of communicative systems and background knowledge to engage in discussion relevant to the learning task. In addition, quality discussion is perceived as discussion that generates thinking processes to engage effectively in the learning task (CHAPTER 1). This means, discussion can shape the interaction by allowing students to analyse ideas and issues, examine relationships amongst ideas, embellish ideas, make inferences, synthesise ideas and evaluate ideas. Language then becomes a vehicle of thinking within the communicative process directed by the learning task while collaborative, group learning becomes a sociolinguistic and cognitive learning experience during which students share ideas in fulfilling the set learning task. Discussion contexts thus provide opportunities for student growth in (a) social interaction; (b) communicative development; (c) language development; (d) cognitive development; and (e) mastery of content and skills appropriate for the learning task.

Consequently, it is hypothesised: *Group contexts provide opportunities for students to participate in group learning by (a) engaging in oral discussion during which they have opportunities to express and evaluate their ideas and the ideas of group members through group feedback, (b) interacting with oral and written texts to structure meaning and extend conceptual development and (c) working collaboratively to achieve the learning outcomes of the group learning task. Thus heterogeneous, group learning contexts may provide opportunities for collaborative learning to enhance*

literacy, (which includes communicating ideas and information through oral and written language), learning the disciplines of the curriculum and social development of the learners. Learning the disciplines in heterogeneous group contexts provides opportunities for learners to structure individual knowledge derived from group interaction.

The conceptual framework derived from Vygotsky's (1962) theory and renewed emphasis on oral language development for literacy development form a foundation to fulfil a need in the research by examining group interaction processes. Consequently, the research focuses on an examination of the communication patterns in which students engage in heterogeneous groups for learning the disciplines of the curriculum, and includes a consideration of instructional guidelines to assist teachers in establishing strategies for enhancing effective group learning practices.

5.1.3 The Research Questions

In order to achieve the aims of the research, (see 1.8 AIMS OF THE STUDY) an examination will be made of the communicative patterns established during the flow of discussion in heterogeneous group contexts. Careful analysis will be made of the linguistic dimensions and the body language of the communicative processes and inferences drawn in respect to the cognitive processes in which students engage. In this context, the patterns of communication are considered at both individual and group levels which include

1978; Kress, 1985); (b) roles adopted by individuals in the group; (c) nonverbal behaviours; (d) how to ask for and give information; (e) how to offer assistance (Saville-Troike, 1982); and (f) students' willingness to listen to other students and evaluate problems as they arise. The communicative patterns thus embrace linguistic interaction with accompanied body language, roles adopted by the individuals as they interact and cognitive processes and content generated by the learning.

The following research questions are drawn from these considerations to provide insights into the communicative patterns of collaborative, heterogeneous group learning.

1. What linguistic forms do participants use in the group learning process in collaborative, heterogeneous group contexts?

2. What evidence does participants' use of language provide of the use of cognitive processes in collaborative, heterogeneous, group contexts?

3. What are the roles of interaction segments and contextual frames in the articulation of content by participants in collaborative, heterogeneous group contexts?

4.(a) What roles do participants adopt in learning the disciplines in collaborative, heterogeneous group contexts?

(b) What are the functions of roles adopted by participants in collaborative, heterogeneous group contexts?

5. (a) What is the evidence for the participants' use of extra and nonverbal strategies in the communication process in collaborative, heterogeneous group contexts?

(b) What body language do participants use in the communication process in collaborative, heterogeneous group contexts?

6. (a) What kinds of responses characterise students' utilisation of instruction while learning the disciplines in collaborative, heterogeneous, group contexts?

(b) In collaborative, heterogeneous group contexts, to what extent and in what ways do participants display evidence of the use of instructional guides in the group interaction?

5.2 TOWARDS A RESEARCH METHODOLOGY

5.2.1 Working Within the Classroom Culture

Ongoing learning/instruction in the classroom generates a range of communicative encounters as the teacher and students interact and participate in the learning/instructional process. It follows then that classrooms may be broadly regarded as social systems designed for maximal stimulation of personal development and learning within which discussion may be generated as a fundamental for establishing communicative contexts.

The current exploratory study, which is grounded in a social-constructivist view of learning based on Vygotsky's (1962) theory of learning, views the interaction of individuals as a collaborative process whereby knowledge is constructed. The study thus raises a complex research design question because the complex issue of social interaction (McCarthy and Raphael, 1992) impinges on the process. Therefore, the adoption of an appropriate research methodology must fulfil specific criteria to ensure sensitivity to an exploratory study that examines a particular form of communicative learning encounter within the classroom social system.

Buchmann and Floden (1989) raise the question of the grounds on which a researcher chooses a research tradition or paradigm while Collins (1992) draws attention to the importance of relating the research tradition to the research question and the purpose of the research. Hence articulation and application of criteria to potential methodological paradigms in selecting a methodology for this study represent an essential stage in appropriate collection and analysis of data to answer the research questions and achieve the research aims. In this instance, an appropriate methodology needs to fit a constructivist view of learning and be responsive to the communicative encounters that will be examined.

Consequently, the following criteria are considered central to the choice of an appropriate methodology to answer the research questions and achieve the aims of the present study.

1. Manageability within ongoing instruction in the classroom to ensure the continuance of normal classroom conditions occur and to allow for interpretation of social and cultural patterns of behaviour within a naturalistic setting.
2. Sensitivity to small group analyses which interrogate the group process.
3. Responsiveness to face-to-face encounters amongst the participants to yield both verbal and nonverbal evidence of communicative processes. As the research focus is on communicative patterns established during student interaction, research procedures need to be able to capture the communication that occurs amongst the participants in the group process.
4. Flexibility of access to include sensitivity to contexts that are constructed by student interaction during ongoing discussion and learning.

In order to select an appropriate methodology which meets as many of these criteria as possible, both quantitative and qualitative paradigms are considered.

5.2.2 Quantitative Paradigms

Empirical research paradigms concerned with systematic collection, analysis and interpretation of data operate essentially from a quantitative data base. Quantitative designs are used to examine samples representative of, or randomly selected from, wider populations thereby allowing for generalisations of results across contexts. These designs include articulating and testing hypotheses,

examining relationships amongst variables and exploring cause-effect relationships. Measurements are applied to data and conclusions are drawn from the measurement outcomes. Such paradigms include examination of variation under particular conditions and employ statistical analyses in interpretation of the research data.

Research on group learning (TABLE 4.1: Collaborative Group Learning in the Classroom) has made extensive use of quantitative methodology including factorial analyses, correlational studies and regression analyses to test hypotheses related to students' learning outcomes.

Since the focus of the current study is on detailed analyses of small group interaction, it does not meet the criterion of large group data normally important to the application of statistical analysis. Additionally, strictly numerical data collection techniques are not appropriate for probing linguistic and cognitive nuances which are central to a study of small group communicative patterns. Although quantitative measures may be applied to some aspects of classroom behaviour, statistical analysis is not appropriate for examining the nature of context generated by student discussion within small, group learning. Clearly, then a quantitative paradigm does not meet essential criteria detailed in 5.2.1 (Working Within the Classroom Culture) and thus does not offer an appropriate methodology.

5.2.3 Qualitative Paradigms

In her comparative analysis of qualitative research traditions, Jacob (1987) argued that such paradigms have rich potential for informing understanding of educational issues particularly in relation to probing naturally occurring learning behaviours.

Qualitative researchers do not always decide precisely in advance what aspects of events they will examine. This approach provides opportunities to discover new aspects of the processes under examination. Consequently exploratory studies may well use qualitative methodology to discover new features. (Stotsky and Mall, 1991).

Ethnography is concerned with the exploration of the cultural patterns of events that occur during a day's events and the ways in which individuals and groups participate in those events. It allows for careful observation of interactions and their consequences for individuals and groups; consequently, it provides insights into the social processes of a particular culture (Zaharlick and Green, 1991). Thus the strengths of qualitative research may be utilised to stress *the importance of description, setting, context, and subjects' frame of reference* (Marshall and Rossman, 1989:46). Ethnology thus provides research paradigms that are appropriate for examining important aspects of any culture and associated processes.

Consequently, language education may draw from major qualitative research designs which provide possible research models from the

disciplines of psychology, sociology and anthropology. These include ecological psychology, holistic ethnography, cognitive anthropology, ethnography of communication and symbolic interactionism (Jacob, 1987).

A focus of ecological psychology is answering descriptive questions on patterns of behaviour of individuals within particular settings and the ways particular environments shape behaviour. Methodological goals include construction of a specimen record of the stages of an individual's behaviour over a period of time (Jacob, 1987).

A focus of holistic ethnology is exploration of a particular culture through description and analysis of particular groups within the culture (Zaharlick and Green, 1991). Cognitive anthropologists focus on descriptions of cognitive systems with a methodological goal of describing the organisation of cultural knowledge (Jacob, 1987). Central to both of these paradigms is the study of particular cultures.

The focus of symbolic interactionism is concern for an individual's covert behaviour and the significance of interpretation in the individual's point of view. Interaction between the individual and the social group is included in the methodology which allows for a study of an individual's interpretation of objects, events and people (Jacob, 1987).

Ethnography of communication is derived from sociolinguistics and focuses on particular scenes within institutions for example,

classrooms within a school setting. Ethnographers of communication view context and social interaction as important dimensions of social behaviour and are interested in the processes of face-to-face interaction and their relationships to issues of culture. Ethnology of communication is concerned with both exploration of new events and specific hypotheses. It includes the collection of data through audio-visual means which are preserved and used for detailed analysis and provides an approach appropriate for studying the social interaction of groups (Jacob, 1987; Zaharlick and Green, 1991).

Although the current study incorporates some aspects of ecological psychology, holistic ethnology and symbolic interactionism, these models do not fully fit the criteria used for selection of the research model. However, all important aspects of the study are included in ethnology of communication.

Within the qualitative research paradigms examined, it is judged appropriate to select ethnology of communication because it offers the best fit given to criteria identified in 5.2.1 (Working Within the Classroom Culture). In summary, within a naturalistic classroom setting, it provides for collection of data for examining (a) face-to-face interaction including nonverbal communication, (b) contexts in which focused discussions take place and (c) the range of roles adopted by the group members. The selection is reinforced by this methodology's potential for making inferences regarding the ways in which the group members structure knowledge through the group process.

5.2.4 The Research Design

Ethnology of communication provides an appropriate methodology for a range of group interaction studies within the disciplines of the curriculum. Such studies could include (a) comparison of interaction within or between groups in learning a particular discipline, (b) comparison of learning outcomes and aspects of interaction within and between groups in a particular discipline, (c) examination of group interaction and the use of structured learning material in a particular discipline, or (d) examination of interaction during group writing conferences for a particular genre in a discipline.

The suggested comparative (a) and (b) studies entail examination of groups that normally operate simultaneously within the whole class structure where observation could only be at the macrolevel of analysis. In these contexts suggested above, group learning constitutes significant organisational elements of whole class learning/instruction. Studies (c) and (d) have potential for microanalysis of group interaction in focusing on, and providing insights into, group interaction at the microlevel of analysis where each group structure has a particular learning focus. Each of these studies could be extended across discipline areas thus providing extended insights into group interaction and learning the disciplines in ongoing classroom instruction.

The research design of the current study accommodates five research questions expressed in 5.1.3 (The Research Questions) which are

applied to a selected group's interaction within each of three discipline areas of the curriculum. This design provides for microanalyses of group interaction of three knowledge domains of the curriculum. In order to achieve such analyses, the research questions focus on the linguistic and cognitive processes within the interaction. The design thus incorporates methodology entailing exploratory observation and interpretation of focused, group processes within a range of discipline contexts.

The overall problem of group interaction is derived from the concept of social interaction and is explored through research strategies which take account of variables that may potentially affect group interaction. The variables of ability and gender are acknowledged as important influences on the group interaction by being used as key factors in the selection of the sample group.

School system and school level variables will also be acknowledged in the selection process to allow for detailed examination of group interaction at a particular stage of group learning.

Interest and achievement of learning in the knowledge domains are recognised as variables with potential for influencing group interaction. These variables are acknowledged through the selection of three key areas of the curriculum to provide for a range of interests and achievement levels.

The research design includes instruction in the development of group learning to focus student attention on strategies for enhancing the quality of group interaction thus providing support systems for enhancing the quality of group interaction.

The design creates a context for students to express their perceptions of learning the disciplines to provide insights into the ways they view the learning process. These perceptions are tapped by the application of a questionnaire related to their experiences in learning the three disciplines selected for the study.

To ensure opportunity for systematic analysis of group interaction, the data will be derived from videotapes of group learning sessions. The videotapes will preserve ongoing interaction generated during the learning sessions and allow for focused examination of particular events. Importantly, the videotapes will provide opportunities for data to be retrieved for repeated and detailed examination. The videotapes will then be transcribed and an analysis system developed to examine the linguistic and cognitive dimensions of the group learning sessions.

Analysis of the group interaction will be achieved through the application of a data analysis system to answer the research questions. Gumperz (1981) discussed conversational analysis and indicated the importance of social differences in conversational sequences. Green and Wallat (1981) included an examination of social organisation and social context in their examination of

classroom conversations. Gen Ling Chang and Wells (1988) illustrated group conversations through transcripts of the sequential contributions of the participants followed by an analysis of the conversation. Mercer, Edwards and Maybin (1988) examined classroom conversations and the sharing of knowledge with a focus on context. In their analysis, they considered discourse sequence and the physical context in which it occurred. In an examination of classroom talk, Perrot (1988) examined classroom interaction with the aid of transcripts of the sequential, teacher-pupil interaction followed by an analysis of this interaction. These perspective of classroom interaction are examples of interaction analyses that go beyond IRF (Initiate-Respond-Feedback) models of classroom interaction. They are also sensitive to social interaction and the sharing of ideas in the classroom.

Frederiksen (1981) has drawn attention to the importance of the cognitive dimensions of communication in his consideration of *schema-based theories* and *text-based theories* of comprehension. The current study emphasises the process of communication by the expression of propositional information within the language structures generated during the social interaction. Therefore, cognitive dimension of the interaction will be examined through consideration of the sources of information and knowledge structures used by the participants in the communication process.

A structural map of the discourse will be derived to represent the sequential input by individuals during the group interaction. The

knowledge structures will be examined by analysis of the group interaction for the generation of cognitive strategies adopted by participants to sustain group interaction in the group discussion. Examination of the linguistic dimensions of the group interaction will be achieved by focusing on the form and function of the language used by the participants.

Therefore, the current study will include the application of a data analysis system to group learning contexts derived from classroom interaction studies that reflect sequential input by the participants. Each participant's input will be examined for cognitive strategies, knowledge structures and linguistic forms and functions used by them during ongoing group learning.

This design thus requires the selection of a research site, sample and discipline foci, and application of research tasks to provide data for examination of group interaction processes at a particular level of the school.

5.3 THE RESEARCH SITE AND SAMPLE

5.3.1 Year Level and School Selection

Patterns of communication of group learning may be examined in either Primary or Secondary School to extend knowledge of the group process at either or both of these levels. Both levels have attracted significant research on group learning as illustrated in CHAPTER 4 (4.3.4 Methodological Issues Across the Areas). As the current research will be conducted in Queensland, the context of

Years 1-10 Language Arts in this state discussed in CHAPTER 2 (2.4.7 English Language Arts: A Queensland Solution), is relevant to both primary and secondary levels.

The aims of Years 1-10 English language arts include the promotion of the students' capacity to:

- . *establish and maintain relationships with others;*
- . *organise their thoughts and learn about the world;*
- . *reflect upon their experiences, thoughts and feelings and share these with others;*
- . *obtain information, direction and advice, and inform, direct and advise others;*
- . *make decisions and solve problems involving themselves and others. (English Language Arts Syllabus and Guidelines, 91:3)*

Implementation of this syllabus thus provides a context in which group learning may be used for the achievement of effective and efficient language development at both primary and secondary levels of learning/instruction. Hence research on the group process may inform the implementation process by providing a research foundation for curriculum delivery.

Both state and independent schools potentially offer suitable sites for the research. General similarities and differences related to philosophy and instructional organisation of non-state and state schools are shown in TABLE 5.1.

TABLE 5.1
Non-State and State Schools: A Comparative Analysis

Non-State Schools	State Schools
Students pay fees.	Students do not pay fees.
Teachers are selected.	Teachers are appointed by the Department of Education.
The school may have a specific religious focus.	The school includes all children.
The school may have boarders.	The school has no boarders.
The school may be single sex or co-educational.	The school has both males and females.
The school often offers p-12 education.	Most schools are either primary or secondary.
The school operates from state syllabuses.	The school operates from state syllabuses.
Transition from primary to secondary is often within the same school.	Transition from primary to secondary is typically to another school.
The school encourages parental participation through parent groups.	The school encourages parental participation through school councils.
Teachers and students from primary and secondary may have frequent opportunities to interact.	Teachers and students from primary and secondary have few opportunities to interact.

TABLE 5.1 (Non-State and State Schools: A Comparative Analysis) indicates both state and non-state systems provide curriculum studies that have potential for group learning. The two systems also provide sites for comparative studies between state and non-state systems. Some independent schools also provide opportunities to study the same students making the transition from Primary to Secondary studies in the same school environment. However, independent schools may be restrictive for some research because they may only have males or females in attendance and, if expensive, may have a school population selected only from families that can afford that particular school's education. However, the state system represents the larger school population that includes children from both sexes and mixed socio-economic and cultural backgrounds thus representing a broadly based population. As the current study is not a comparative study and is concerned with the broader school population, it is judged appropriate to conduct it in the state school system in which the researcher has had extensive experience.

Research on group learning has been conducted at both Primary and Secondary levels with extensive research in years 4-8 (TABLE 4.1 Collaborative Group Learning in the Classroom). This research includes examination of group interaction which include particular forms of interaction for example, giving help, receiving help and not receiving help. Discussion has also been examined to some extent in the Secondary School but research with a focus on discussion as a form of interaction within particular disciplines in the Primary School is noticeably limited. The Primary School offers education

from P-7 where important foundations, which include good group learning practices, are laid for future learning, thus forming an ideal site for group interaction analyses which include a focus on discussion. Therefore, a range of factors points to the choice of a state Primary School in which important criteria will be the particular school's interest in group learning and its willingness to participate in the research.

Primary Schools in this state are obliged to write individual school programs within the context of state syllabuses to cater for the needs of students in their schools. This flexibility in curriculum delivery, which includes teaching practices, has been acknowledged in the *Wiltshire Report, Shaping the Future* (1994). TABLE 5.2 (Curriculum and Group Emphases in the Primary School) uses the overarching principles outlined in the Wiltshire Report (1994) to tease out stages in curriculum and group learning emphases at the Primary School level. Assumptions expressed in TABLE 5.2 provide a framework for teachers for innovative planning for group learning for curriculum delivery appropriate for all levels of the Primary School. In addition, TABLE 5.2 also provides a framework for selection of school levels and appropriate research on group learning.

From TABLE 5.2 (Curriculum and Group Emphases in the Primary School) research could appropriately reflect a range of emphases for each level of group orientation. Students in the Lower Primary School need to be introduced to group learning through strategies that ensure they engage effectively in group learning. At this level, the

TABLE 5.2

Curriculum and Group Emphases in the Primary School

School Level	Curriculum Emphases	Group Emphases
Lower Primary Years 1-3 Foundations Stage	<ul style="list-style-type: none"> *Social roles and social structures are introduced in the school context. *Foundations of literacy are emphasised. *Knowledge domains are introduced. 	Play groups are extended by the introduction of structured, collaborative, learning groups.
Middle Primary Years 4-5 Extension Stage	<ul style="list-style-type: none"> *Foundations of literacy are extended. *Key learnings within knowledge domains are extended. *Ways of learning and knowing are extended. 	Collaborative group learning is used to extend individual knowledge bases and introduce new dimensions of knowledge domains.
Upper Primary Years 6-7 Consolidation and Development Stage	<ul style="list-style-type: none"> * Literacy is developed in conjunction with learning within knowledge domains. * A wide range of knowledge sources is utilised 	Cognitive processes are developed within collaborative group learning contexts to develop students' understanding of knowledge domains by structuring individual knowledge.

foundation for group learning practices is established during which students learn group organisation and social skills to ensure that they work collaboratively within group contexts while acquiring foundation literacy. Research needs to reflect these aspects of group learning and the students' engagement with curriculum at the appropriate level of group emphases.

However, to ensure manageable data is generated for analysis to achieve the aims of the current study and consider the research questions, only one year level of the Primary School will be selected. Accordingly consideration is given to orientation of group learning within the State Primary School system to aid the selection of an appropriate year level.

Similarly, students in the Middle School may engage in group tasks which provide opportunities for extending the literacy base and knowledge domains acquired in the lower year levels. They may learn new ways to select and organise information and to evaluate that information through the application of more advanced literacy and reasoning skills. These abilities may then lead to the development of broader knowledge bases through group learning that incorporates more complex reasoning skills to solve group problems related to real life situations. Similar to the Lower School, research at the Middle School level needs to reflect the students'

level of engagement with the curriculum and group experiences at an appropriate level.

At the Upper Primary School level, group learning is more appropriately designed to build on the students knowledge bases to develop cognitive abilities to extend their individual learning bases. Emphases may be on the individual's learning within instructional contexts that provide opportunities for students to become responsible, individual learners. Here, cognitive development occurs along with the development of critical thinking and scientific processes while evaluating issues and solving problems related to real life. Learning at this level provides opportunities for conceptual development by means of analysis and synthesis of ideas through the creation of discourses of particular knowledge domains thus developing reasoning and knowledge-domain-specific language. Research at the upper primary level needs to reflect the development of literacy and knowledge within learning domains to guide teachers in the generation of appropriate strategies to ensure students acquire the ability to develop and use reasoning and cognitive skills in solving problems.

Students in the Upper School have developed maturity of learning over the Primary School years which allows them to draw from a range of past experiences in the generation of discussion to enhance literacy and structure learning based on those experiences. This study which includes examination of these processes in the group context is appropriate for this level of the Primary School which may

provide rich sources of knowledge of student interaction and cognitive processes while developing understanding of knowledge domains in group contexts.

In this state, Year Seven is the final year of State Primary Schools after which students normally make the transition to Secondary School; thus it does not afford opportunities for follow-up observation of students in similar contexts. Although research on group interaction could well be conducted at both levels of the upper primary school, Year Six offers an opportunity to examine ways students at this level work collaboratively in small group contexts within a range of curriculum areas and, additionally, provides opportunities for observation of students when they move into Year Seven of the Primary School. Hence Year Six is considered the more flexible level for this exploratory research for these reasons and will be used in the current study.

The subjects will be drawn from a Year Six classroom in a State Primary School in a North Queensland city of approximately 130 000 which provides a range of State Primary Schools from which one may be selected. From the selected school the teacher will be chosen based on his/her interest in group learning and willingness to participate in the research.

5.3.2 Group Composition and Size

In her analysis of group composition and group interaction Webb (1985) has indicated that heterogeneous groups include groups with:

high, medium and low ability students; high and medium ability students; and medium and low ability students. She also indicates gender of group members is another important variable in group composition. From her analyses, she has concluded that (a) teachers have a range of options for forming groups, (b) short term and long term groups may serve different purposes, (c) maintaining an equal number of boys and girls may be advantageous and (d) the group composition can influence the interaction outcomes. Research on small groups (4.3.4 Methodological Issues Across Focus Areas) indicates that small groups have consisted mainly of four-five members.

Slavin (1987a) suggests that an alternative to ability grouping, which is a form of homogeneous grouping, in classrooms could well be replaced by the formation of cooperative learning, small, mixed ability groups which entail student diversity as a resource for learning. Slavin's research (1987a) clearly indicates that improved learning results from the use of small, heterogeneous groups.

In the classroom, teachers need to be flexible in their choice of group formats to ensure groups serve the purposes for which they are chosen. These choices need to be made from knowledge of the group process to avoid overuse of ability grouping. Compared with ability grouping heterogeneous grouping has more potential for students to break down social barriers and bring a range of perspectives derived from individual interpretations to the learning task. Learning tasks may then be explored more fully through a sharing of ideas derived

from the learners' diverse background of experiences. Additionally, a heterogeneous group provides a context that allows brighter students to help other students thus sharpening their own knowledge bases while engaged in the group task. Heterogeneous grouping thus provides a context for social interaction and collaborative learning through the sharing of ideas both of which are important aspects of the conceptual framework on which this research is based.

In order to examine heterogeneous group interaction in detail, it is necessary to have a manageable data base for analysis. Therefore, guided by research on group learning which indicates the effectiveness of heterogeneous grouping in the classroom and the need to ensure a manageable data collection, a small heterogeneous group will be selected. The selected group will then constitute a sample for detailed study of heterogeneous group interaction in the Upper Primary School.

In order to provide opportunities for group interaction a group of five, Year Six children composed of three males and two females will be chosen thus ensuring representation of both genders. To ensure heterogeneity of ability in the group two, average-ability students, two, above-average ability students, and one, below-average ability student will be chosen. Five is chosen to ensure there is (a) ample opportunity for members in the group to participate and bring a range of perspectives to the task and (b) to allow for agreement to be reached, when appropriate, while engaged in the collaborative, group learning task.

The group will then be a heterogeneous group consisting of one, average and one, above-average female, one, average and one, above-average male and one below-average male or female. The selected group will thus be representative of one form of heterogeneous grouping that teachers can organise within the whole class context.

As the current study is to be conducted under naturalistic school conditions, the classroom teacher and researcher will consult in the selection of group members. In order to derive the required heterogeneous group, the teacher will be requested to rate the children in his/her classroom as below-average, average and above-average based on his/her observation of the students' potential for learning and performance in learning across the knowledge domains of the curriculum. Normally, the classroom teacher is able to designate the composition of the group in his/her classroom based on the purpose of the group learning and the type of group required. In this case, the teacher will be informed of the purpose of the group activities and the group will be chosen by the teacher and the researcher based on the main criterion of heterogeneity to constitute the group required for the research, again maintaining naturalistic, classroom learning conditions.

5.3.3 Discipline Foci

Although all discipline areas of the curriculum provide opportunities for group learning practices, the current study has a particular focus

on the development of cognitive processes through discussion and problem solving. Therefore, disciplines most appropriate for examination of these process will be chosen.

Disciplines selected for this study need to provide opportunities for (a) teachers to use group tasks appropriately during ongoing instruction, (b) collaborative learning, (c) student interaction through meaningful activities, (d) students to bring a range of knowledge and skills to the learning task so that they may contribute to the discussion and learning, (e) students to engage cognitive skills through language in solving group problems, and (f) satisfying a range of students' interests.

Aspects of interaction in learning mathematics have been examined in a range of contexts (4.3.4 Methodological Issues Across Focus Areas). Generally, physical education emphasises the development of physical skills and games, music emphasises appreciative listening and performance, and art emphasises knowledge of colour and design and creative expression of the individual. Although these disciplines may incorporate group learning that includes discussion, these disciplines offer fewer potential opportunities for students to engage in discussion for enhancement of thinking skills and problem solving. However, language arts, science and social studies do provide rich potential for engagement of cognitive skills through discussion to examine everyday, scientific problems and social issues.

Language arts, science and social studies provide opportunities for students to use reasoning skills in the generation of texts for each discourse with its particular concepts and vocabulary thus providing opportunities for conceptual development through discussion over a range of knowledge domains. These three disciplines also provide a range of opportunities for students' to draw on individual interests and knowledge bases to generate discussion to contribute to the learning task.

5.4 PLANNING THE STUDY: RESEARCH TASKS

5.4.1 Planning the Research

The planning stages in conducting the study are shown in FIGURE 5.1.

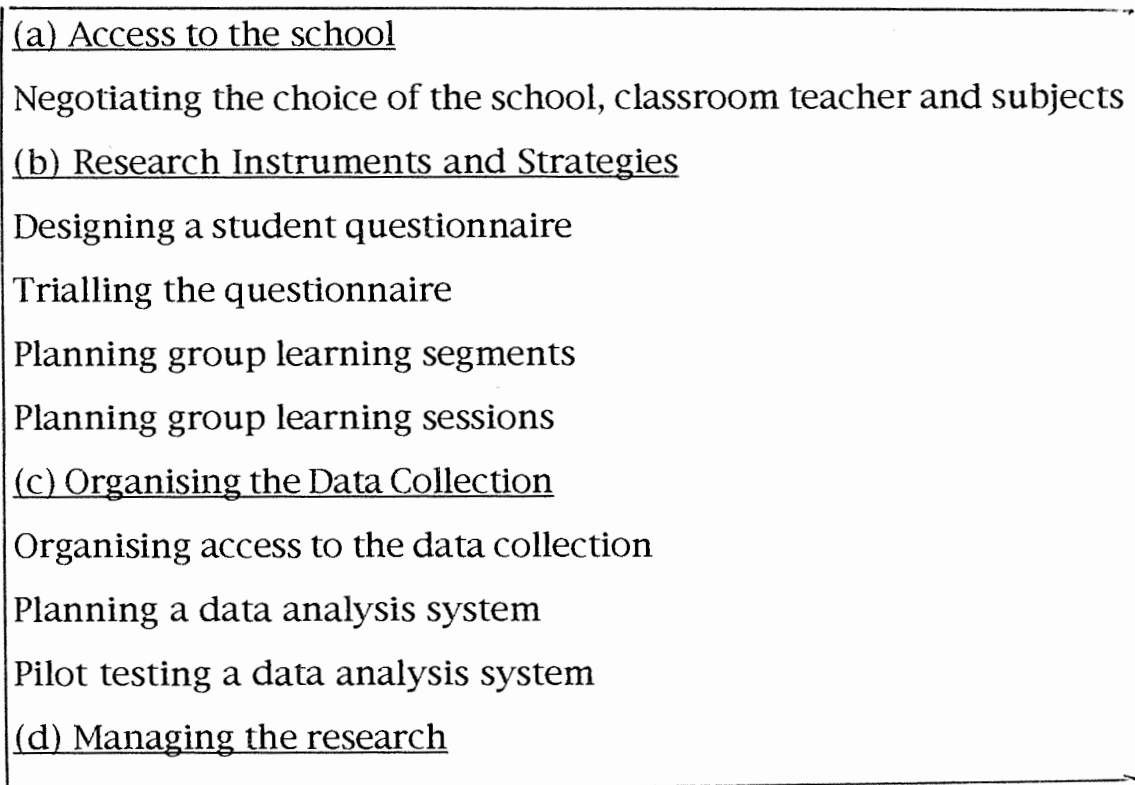


FIGURE 5.1 Planning the Research Strategies

5.4.2 Access to the School

Although the research will be conducted in a city with a wide selection of State Primary Schools, it is possible that all schools may not be equally interested in participating in the research. *Prima facie* interest in group learning and the research questions will be established through preliminary contact with Principals in the district to gauge the level of interest in this research. Based on interest in the research expressed by the Principal, the sample school will be a P-7, State Primary School with children from heterogeneous socioeconomic and cultural backgrounds as argued in (5.3.1 Year Level and School Selection). The aims of the research and what it entails for the school will be discussed with the Principal of the school to facilitate approval and access to the school during the study. The Principal will be requested to introduce the research to the Year Six teachers and gauge individual teacher interest in participating in the study. The role of the researcher, at this stage, will be to discuss what participation would entail with the teachers indicating a willingness to participate in the study. If more than one teacher wishes to participate in the research, one teacher will be selected by the researcher and teachers by joint agreement during discussion. It is anticipated that only two or three Year Six teachers will be involved as most schools in this district have one, two or three drafts of Year Six students. Once school and teacher have indicated willingness to participate, Department of Education and University permission to conduct the research will be sought.

Locating groups in a withdrawal room is an organisational technique that may be adopted by classroom teachers to facilitate group learning and provide an opportunity for groups to learn to work independently on group tasks. This technique is adopted in this research to allow the group to work independently and to facilitate the videotaping of the group interaction. Therefore, part of the commitment process by the teacher will be his/her willingness to organise time slots for conducting the research and locating the research group in a withdrawal room.

The researcher will discuss the classroom teacher's assessment procedures with him/her for each student's learning potential and achievement across all subjects, and request the compilation of a list of the students ranked high ability, medium ability and low ability on this general ability. The objectives of the group tasks will be discussed with the teacher and the heterogeneous group, considered in 5.3.2 (Group Composition and Size), will be chosen jointly by the teacher and researcher on the basis of data indicative of the range of student general ability and sex.

From each of the high ability and medium ability groups one male and one female will be randomly selected. From the low ability group one student will be randomly selected. These students will then constitute the sample group of five members for this study.

In order to examine the nature of interaction amongst the students of different abilities in each of the disciplines examined, a more

detailed knowledge of each student's potential and achievement in each discipline will be developed. This knowledge will provide potential for comments to be made on relationships between each student's participation and ability in each specific knowledge domain examined.

To develop the required detailed knowledge of each student's potential and achievement, the classroom teacher will be requested to rank each student's level of performance in each of the disciplines examined in the research. This ranking will be based on the teacher's observation of the students' classroom performance in these disciplines. Guided by the classroom teacher, the researcher will then develop the following profile for each group member..

Name :

Age :

Sex :

General ability level :

Class performance level in :

language arts :

social studies :

science.

After the group is chosen, permission for the group members to participate in the research will be sought from their parents or guardians. This will be achieved by sending a letter to the parents or

guardians explaining the research requirements and advantages. This will be accompanied by a consent form for them to sign.

Prior to implementing the research in the classroom, the researcher will meet the subjects, discuss the research and explain the role they will have in the research. During the discussion, the researcher will inform them that they will be participating in university research during which they will be completing a questionnaire and working as a group to perform tasks in social studies, science and language arts. The discussion session will prepare them for the research by allowing them to ask questions about the research, and provide them with information which will enable them to discuss their participation in the research with their parents/guardians if requested.

5.4.3 Preparing for the Research

An overview of the implementation of the research to be negotiated with the classroom teacher is shown in FIGURE 5.2.

The current study provides a context for sampling student perspectives on, and stimulating student thinking about, the learning process, class discussion and the group process. Information from students on the following will be elicited by the application of a questionnaire to provide data for examining these perspectives:

(a) why it is important to learn social studies, science and language arts;

Day 1

- (a) Meet the group members to discuss their role in the research with them.
- (b) Introduce the group to the video operators.
- (c) Allow operators to test video equipment in the room.
- (d) Implement all parts of the student questionnaire.

Day 2

Implement guided group learning segment 1 followed by group learning task 1.

Day 3

Implement guided group learning segment 2 followed by group learning task 2.

Day 4

Implement guided group learning segment 3 followed by group task 3

Implement Part E (follow-up) of the student questionnaire.

FIGURE 5.2 Planned Implementation of Research Tasks

- (b) the learning experiences in which they have engaged in learning social studies, science and language arts;
- (c) their rating of these experiences;
- (d) the best way to learn science, social studies and language arts;
- (e) the best way to have class discussion to learn science, social studies and language arts;
- (f) the effectiveness of discussion for learning in small groups;
- (g) the effectiveness of listening for learning in small groups;

(h) the effectiveness of asking and answering questions for learning in small groups.

This information from students will be elicited by requesting them to respond to a series of structured questions on the learning process. In order to acquire these responses each individual could be interviewed to gauge his/her spontaneous, oral responses to the questions. Alternatively, each student could be requested to respond to written questions by writing responses to them.

The interview between the researcher and individual student would be a face-to-face form of communication during which the researcher would elicit student responses to the prepared questions. One advantage of this form of communication is that it allows the researcher to explain the questions. A second advantage is it allows the researcher to provide feedback to the student by being able to answer questions. A third advantage is it provides an opportunity for the student to express his/her thoughts without the influence of other students.

A disadvantage of the student interview is the student may not feel at ease with the interview situation because the researcher is not well known to him/her. Additionally, the student may not be familiar with the interview situation through lack of experience in this genre. Consequently, the student may not feel at ease with the situation enough to express his/her opinions freely.

Presentation of a written questionnaire which requires written responses, would engage students in the task of writing. As in the interview situation, the questions could be explained to them before they answer them. One advantage of the written task is it allows the student time to think about each question before responding to it compared with the interview situation. A second advantage is each student would have an opportunity to look over what he/she had written and make alterations to the responses if desired. A third advantage is the writing task is a familiar task for the student. A disadvantage of the written questions is that the student may not have the writing skills necessary to articulate clear responses that reflects his/her thinking. A second disadvantage is that the student may not enjoy writing and consequently, may not put much effort into the task.

An important factor that could influence the effectiveness of both interview and written response is each individual's preference for talking about something or writing about something. The form of the questionnaire and the information required also impinge upon the effectiveness of acquiring information, for example, yes/ no responses may be best dealt with in written form to allow the student time to think about the question before responding. However, both the interview and written questionnaire have advantages and disadvantages in achieving the desired outcomes of the questionnaire and both could be used effectively to elicit student ideas on the learning process.

The questionnaire, shown in APPENDIX A, will be trialled before implementation. It has been developed collaboratively with a Year Six teacher and has been structured to allow students to express their perspectives on the learning process. This questionnaire will include both interview and written response forms considered appropriate for each part of the questionnaire. Opportunities will be provided at both these levels for students to discuss the questions with the researcher to ensure each question is understood.

5.4.4 Student Questionnaire

All parts of the student questionnaire will be administered at the beginning of the research (see APPENDIX A) and Part E will be administered as follow-up questions at the end of the research. The questionnaire will provide students' insights into learning in a range of knowledge domains and the group process, and provide base data for examining students' perceptions of learning in these domains. Comparison of the pregroup learning and the postgroup learning (Part E) will provide an opportunity to examine any changes in the students' perceptions of group learning and the nature of those changes after participation in the group learning experiences.

The written questions will be prepared and presented to each student together with paper and biro for responses. They will be asked to read through the questions and encouraged to ask questions about them before they start writing and also during the writing process to make sure they understand them. After they have

answered all the questions, their responses will be collected for analysis.

After they have completed the written parts of the questionnaire, each group member will be interviewed by the researcher. Each student will be asked the interview questions expressed in APPENDIX A (Part D) and the whole interview will be recorded on audio tape for later examination of responses.

5.4.5 Pilot Testing: The Questionnaire

The questionnaire was trialled in a large suburban school with a mixed socioeconomic population. The school was developing a school language arts policy which entailed presentation of questionnaires to teachers and parents and collecting writing samples from children. The researcher explained the purpose of the research questionnaire to the Principal and gave him a copy of it to consider. After considering the questionnaire and discussing it with a Year Six teacher, he gave permission to trial the questionnaire in the school. It was agreed to give him a copy of the results of the questionnaire.

The children were chosen by the classroom teacher on the basis of general ability determined by her observation of classroom performance and potential across school disciplines. The questionnaire was applied to the following trial sample comprising the range of abilities planned for the current research:

Tariah, female, above average;

Ben, male, above average;

Anthony, male, average;
 Rebecca, female, average;
 Kylie, female, below average.

The researcher and trial students met in a withdrawal room of the classroom during ongoing instruction. After preliminary introductions, the researcher explained the purpose of the questionnaire and handed each student a copy of (Parts A, B, C and E) for completion. Each section of the questionnaire was explained to the students who were encouraged to ask questions about it. While the students were completing the written questionnaire, the researcher was on hand to answer questions from individual students.

Individual student responses to Parts A, B and C are shown in TABLE 5.3. In this table, initials are used for each student, the numeral indicates the ranking by the student for that method and a dash indicates the student did not rank that strategy.

TABLE 5.3
 Trial Questionnaire: Student Ratings of Learning Strategies

	<u>Part A Science</u>	T	B	A	R	K
1	doing experiments	1	1	1	1	1
2	class discussion	4	6	7	7	4
3	group discussion	-	5	6	-	-
4	observing a life cycle	-	-	-	-	-

5	doing projects	5	-	5	2	-
6	reading about science	7	-	-	6	5
7	writing about science	7	3	4	4	3
8	drawing diagrams	3	4	2	3	2
9	researching in the library	-	-	8	5	-
10	watching television	-	-	3	-	-
11	making experiments	2	-	-	-	-
12	observing water cycle	-	2	-	-	-
	<u>Part B Social Studies</u>					
1	going on excursions	-	-	-	-	-
2	watching television	2	1	1	2	-
3	class discussion	3	3	2	-	3
4	group discussion	-	4	4	6	-
5	listening to guest speakers	-	-	-	-	-
6	reading about social studies	7	-	7	5	4
7	writing about social studies	4	6	3	4	2
8	drawing maps	1	5	-	7	1
9	researching in the library	-	-	6	3	-
10	doing projects	6	2	5	1	-
11	having tests	5	-	-	-	-
	<u>Language Arts</u>					
1	class discussion	2	3	3	-	1
2	group discussion	-	-	4	-	-
3	watching television	3	-	1	-	-
4	reading	1	1	7	4	5
5	writing	4	2	2	3	3
6	using the computer	-	-	3	-	-

7	researching in the library	7	-	-	5	4
8	doing drama	-	-	-	1	-
9	delivering lecturettes	-	-	-	-	-
10	doing projects	6	-	5	2	2
11	having tests	5	-	-	6	-

The following observations are derived from student responses to Parts A, B, and C of the questionnaire.

TABLE 5.3 shows a wide range of first, second and third rankings for learning strategies although all students ranked "doing experiments" as number one in science. "Watching television" received a high ranking for learning social studies, and "writing, reading and class discussion" were highly ranked for language arts.

No students included "observing a life cycle" (science), "listening to guest speakers" (social studies) and "delivering lecturettes" (language arts) as forms of learning in which they had engaged. New strategies added to the list by students were: "making experiments", "observing water cycle (science)"; and "having tests (social studies and language arts".

Results from Parts A, B and C of the written questionnaire suggest that there is not one highly preferred strategy by these students for learning science, social studies and language arts. However, results indicate that "doing experiments" is the most preferred way of learning science.

Student responses to Section E of the written questions are shown in APPENDIX B (Student Responses to Written Questions). Following are sample responses from these which illustrate the main, student perceptions of whole class and group learning drawn from these responses.

Question 1 In what ways is learning in a small group different from learning in the whole class? You can learn faster and noise doesn't get so high. In a whole class you get more questions and answers than in a small group so you learn a bit more. It is easier to get a message across in a small group and there is more listening involved in a whole class.

Question 2 To what extent does asking questions of other students help you to learn in a small group? To find out something for your own knowledge. It helps me more in small groups because I know the people I'm asking. It is good to ask questions to find out information.

Question 3 To what extent does answering other students' questions help you to learn in small groups? To help them learn what they're asking about and to see if you know it as well. You get to think about their questions and see it in a different way. It helps other people and me to cooperate.

Question 4 To what extent does discussion help you to learn in small groups? To help solve the problem. You get to talk and ask questions and it helps me to learn. I like to learn in small groups because things get done quicker. Discussion in small groups helps in sharing ideas. You get to tell everyone how you feel.

From this albeit small sample of responses it is inferred that these students are aware of:

- (a) some differences between whole class and small group contexts;
- (b) the potential of group learning for cooperating and sharing ideas with other students;
- (c) their roles in group learning;
- (d) the roles of listening and asking questions in the group learning process.

Sample interviews (Part D of the questionnaire) with each student are shown in APPENDIX C (Sample Teacher-Student Interviews). The main hypotheses derived from these interviews are:

- (a) students relate the role of learning in science, social studies and language arts to future needs in the workforce;
- (b) doing experiments and projects are popular forms of learning.
- (c) students enjoy doing projects and conducting experiments.

The following general hypotheses are derived from overall responses to the questionnaire.

(1) Students tend to relate the relevance of learning science, social studies and language arts to future needs and their importance in getting a job.

(2) "Doing experiments" and "projects" and "watching television" are popular forms of learning science and social studies, and "reading" and "writing" are popular forms of language arts learning. "Class discussion" is popular for social studies and language arts learning but not so popular for science learning.

The data also show that no student in the sample had observed a life cycle in science, delivered a lecturette in language arts or listened to a guest speaker in social studies.

Although the students expressed a basic knowledge of differences between whole class discussion and group discussion, they did not relate differences to particular knowledge domains of the curriculum. That is, they did not indicate that some things may be learnt best in whole class discussions and some things may be learnt best through group discussion.

In this context, some thought could be given to introducing guest speakers into the classroom to discuss their experiences with the students and motivate learning in knowledge domains of the curriculum. More awareness of the knowledge domain processes could also be developed, for example, instruction in science could incorporate more emphasis on the scientific process during experiments.

The questionnaire was successfully implemented within a positive context by allowing students to ask questions about it at any stage of its implementation. In this context, it has been demonstrated that the questionnaire (a) provided an opportunity for students to express their perceptions of learning in three knowledge domains of the curriculum and (b) focused student attention on aspects of group learning and its effectiveness for learning in these knowledge domains. Consequently, the questionnaire was accepted as suitable for providing student perspectives on the learning process and potential for detailed analysis in the current research.

5.4.6 Planning Group Learning Segments

Implementation of group learning in classrooms provides opportunities for a range of structuring options for teachers. These options include:

- (a) direct introduction of the task to the group by the teacher with minimal structuring which requires students to organise their own learning by planning and choosing particular tasks;
- (b) group learning during which the group members have allocated tasks and roles;
- (c) group learning during which students appoint a leader and work under the direction of that leader.

The structuring option chosen by the teacher needs to take account both of the nature of the learning task and the experience of the learners. This means matching a learning task with a structuring

option that ensures effective completion of the task and learning associated with that task. Within the context of group learning, it is also important to take account of the appropriateness of the task for the learners to ensure that they appreciate the purpose of the task. Thus group learning needs to take account of the form of scaffolding provided by the teacher to ensure effective learning.

Scaffolding is perceived as a range of support systems established by the teacher to assist the learner in the learning task. The support systems are appropriate for the learning task, help to enhance the student's learning and help the learner to take control of his/her own learning (Spaulding, 1992). In the context of group learning, the group task is planned so that students understand the task and have adequate support provided through teacher guidance. This guidance may be articulated through clear directions for accomplishing the set task. The need for group guidance expressed in 5.2.4 (The Research Design) includes instruction on effective group processes, and practice in operating within a range of group structures to ensure effective group learning.

The group structure adopted in the current study is designed to provide sufficient teacher guidance to establish an appropriate scaffold for effective learning. This guidance is provided by the teacher introducing and explaining the learning tasks and being present to answer students' questions on problems they cannot resolve as a group. This form of support allows the students to

formulate methods of achieving the tasks based on their own ideas and their own plan.

Given that the teacher is present to act as guide and facilitator, this form of structuring requires minimal training of group members, and is thus appropriate for the current study which utilises a newly formed group without training.

The guided group learning segments in the research which precede the group learning sessions will take the form of teacher-led discussion and act as a readiness stage for the group learning sessions that follow. The general shape of these segments is shown in APPENDIX, D (Group Learning Segments) In essence they will (a) act as an introduction to the structured group learning tasks and (b) stimulate thinking about the group process before the students engage in the group task. Hence the group learning experiences are designed to provide sufficient structuring to give direction to the learning while allowing for student initiatives within the group task.

Each guided group learning segment provides opportunities for students to discuss what they perceive as important aspects of group learning for enhancing the quality of group interaction. These inputs will be initiated through teacher questions followed by opportunities for students to discuss the inputs. During each segment, the teacher will also introduce guidelines formulated from Benson's (1987) processes of group learning shown in APPENDIX E (Guidelines for

Enhancing Quality Group Learning) thus providing the focus of the discussion.

5.4.7 Planning Group Learning Sessions

In order to observe group interaction, the selected group will be presented with three group tasks. Over the course of one week, the discipline-specific group sessions (science, social studies, language arts) will be conducted concurrently with ongoing classroom instruction. Each group task shown in APPENDIX F (Group Learning Sessions) will be in the form of a group problem planned to initiate group interaction and learning in which students have opportunities to discuss a discipline-related task and share ideas towards its completion. Thus each task will provide opportunities for students to participate in a group task and engage linguistic and cognitive processes through discussion to solve the group problem collaboratively.

These tasks were constructed in collaboration with two Year Six teachers not participating in the research. The tasks are drawn from Primary Social Studies Sourcebook Year 6, Primary Science Sourcebook Year 6 and the English Language Arts Curriculum Guide. The use of these source books ensures appropriateness of the tasks for Year Six level studies. The tasks for science and social studies have been structured around problems associated with everyday events in which group members take on the role of planning committees. The task for language arts introduces an unseen story to

relate the task to a real life situation in which group members take on the role of an evaluation committee.

5.4.8 Planning the Data Collection

Detailed examination of the data requires careful analysis of, and reflection on, ongoing events at the point of occurrence. Therefore, the group learning in the study will be videotaped as argued in (5.2.4) to allow for repeated viewing and transcription, where necessary, to ensure opportunity for detailed analysis of and reflection on the recorded data.

A video operator experienced in classroom videotaping will be hired to organise the videotaping of the group learning sessions and to plan for the the most effective utilisation of two video cameras during the sessions. A fixed camera will be focused on all the group interactions to record the flow of ongoing events. The video operator will move around the group with the other camera and videotape sample "close-ups" of members. These "close-ups" will assist in the transcription and interpretation of the oral utterances at a later time. Close-up shots of direction of gaze and body movements during the discussion will provide an opportunity to examine the way or ways that each individual uses body language to reinforce and/or express meaning.

Before the commencement of the group learning sessions, a trial run with group members is planned to take place in the withdrawal room where the videotaping is to take place in order to check that the

videotaping equipment is installed appropriately and provision is made for adequate light and sound. This will also provide an opportunity for the students to meet the video operator, see where they will be working, and thus gain familiarity with the videotaping process.

5.4.9 Planning a Data Analysis System

In order to analyse the videotaped data considered in 5.2.4, a system will be derived to transcribe these data and map the communication events that occur during group discussion. Such a mapping system will need to be sensitive to: (a) the language created via the group discussion, (b) each participant's contribution to the discussion; and (c) the interaction that occurs during the course of the discussion and thus to represent the sequential development of the interaction via the communication events that occur during the interaction.

In order to produce a structural map of the communication, it is necessary firstly, to transcribe the oral utterances and secondly, to segment the discourse that occurs during the group interaction in order to provide a basis for closer analysis. This transcription process entails (a) development of a transcription process to transform oral utterances into written language and (b) interpretation of oral utterances. The resultant transcription can then be segmented to maximize the descriptive possibilities of the overall discussion and each participant's contribution to the discussion.

The transcription process is designed to transform the oral utterances of each individual into written language forms in context to ensure utterances are clearly transferred from the oral language mode to the written language mode. During this process, both the videotape that recorded ongoing events and the videotape that recorded closeups will be examined to ensure the transcription clearly reflects the discussion. This will be achieved by examining each participant's contribution to the discussion in context and transcribing it from the videotape of ongoing events. The other videotape with selected closeups will be used, when needed, to clarify unclear utterances or body language. The oral utterances will thus be transformed into written language which will constitute another level of data which may be analysed in conjunction with the videotape data.

Segmentation entails processing the flow of oral utterances into units that provide a basis of analysis. Several models for segmentation exist in the literature. For example, segmentation could be based on units of meaning which would provide a syntactic/semantic orientation to the analysis. In this orientation a sentence is perceived as a unit of meaning examined in context and contributing to the overall meaning of the discourse. In this context, another model is to focus language development via syntactic structure.

In his studies of language development Loban (1963; 1976) overcame the critical problem of segmentation by segmenting oral language into *communication units* and *mazes* as measures of

syntactic complexity. The communication unit was defined as an independent clause and its modifiers. The maze referred to unattached words that could not be classified as a communication unit. That is, the communication unit and the maze together accounted for all syntactic structures of the oral utterances. In his examination of elaboration of language Loban (1963) examined syntactic strategies used by subjects to elaborate communication units. Indices of elaboration used by subjects included modification through the use of words, phrases and clauses.

Following Loban (1963) Hunt (1965) proposed the *T-unit* as a measure of written language development based on syntactic complexity in his study of language maturity. T-units were defined as minimal, terminable units consisting of one main clause and any subordinate clause, or structure attached to the main clause. Application of T-units thus allowed full segmentation of written text. In their studies of language development, Hunt (1965) and O'Donnell (1976) considered T-unit length, clause length and the number of clauses per T-unit as indices of syntactic maturity.

Other studies have also utilised syntactic structure as a measure of language development. O'Hare (1971) examined syntactic maturity through the application of T-units in a sentence combining system, Davis (1973) adopted syntactic maturity as one measure of language sophistication and, in a later study, Durkin (1980) adopted the T-unit to examine syntactic fluency.

In his critique of indices of syntactic maturity, O'Donnell (1973) concluded that the T-unit was a useful index of syntactic development. In a later study, Witte and Davis (1980) examined syntactic complexity and concluded that the T-unit was a useful measure of syntactic maturity.

The T-unit and the communication unit, respectively used to segment written and oral text (Loban, 1963; 1976; Hunt, 1965; O'Hare, 1971; Davis, 1973; O'Donnell, 1976; Durkin, 1980) have received widespread acceptance as useful indices of language development in both cross-cultural and longitudinal studies of language behaviour. In the current study, the T-unit was utilised in the first instance as a means of segmentation to see if it would also be sensitive to group interaction patterning. It was applied to a small sample of group interaction between two members of a Year Seven group discussing a reading comprehension question. The sample, which is segmented into T-units, is exemplified in TABLE 5.4 (Utterance Segmentation: T-Units).

As is clear from the examples provided in TABLE 5.4 such a segmentation of each student's contribution to the interaction can be examined for the number of T-units used, and the number of clauses per T-unit. The \bar{x} number of words used in each unit could also be considered in a sustained segment of interaction that would yield the mean number of words per T-unit for each participant.

TABLE 5.4
Utterance Segmentation:T-Units

Source	Language Input	Number of T-units	Number of Clauses	\bar{x} words per T-unit
Tim	They could walk through the bush but.	1	1	7
Jan	It says here that they walked over./ I mean they go over water./ They can't walk./	3	2	7
			2	6
			1	4

However, such an analysis permits only a comparative statement about the syntactic complexity of each participant's contribution to the discussion. This kind of analysis does produce data on some important linguistic dimensions of the interaction but does not produce data that is sensitive to the cognitive strategies and the sources of information used by participants during the interaction. Although segmentation into T-units includes the sequential input to the interaction by each participant, it can provide only limited information on each participant's contribution to the global interaction. It does not thus provide sufficient information potential for discussing the communication events that occur to constitute a detailed structural map of ongoing group interaction.

However, recent studies of classroom interaction (see 5.2.4) include examination of processes that do provide insights into classroom communication events enabling the present study to draw from these processes to derive a structural map of group interaction. At this stage, it was decided to draw from these processes to derive an alternative data analysis system to produce an appropriate structural map with relevant data. In order to achieve this, a number of systems, which incorporated these processes, were applied to group contexts and trialled to test their validity vis-a`-vis sensitivity to the linguistic and cognitive dimensions of the group interaction process.

5.4.10 Deriving and Testing the Data Analysis System

Trial System One was applied to a segment of group interaction taken from ongoing research on group interaction. The segment had been videotaped during research that examined the effects of discussion on students' written responses to inferential reading comprehension questions. Four students of average and above-average ability (two boys and two girls) from Year Six discussed their responses to two inferential reading comprehension questions on content reading material. The segment of interaction used in the trial occurred after the students had responded to the question *How did killing the kangaroo help Australian Aborigines to stay alive?*

A sample of the segmented utterances from this interaction is exemplified in TABLE 5.5. Column One contains the name of the participant, Column Two contains the transcribed utterances and

Column Three contains comments on interaction events that occurred during the discussion.

TABLE 5.5
Trial System 1 Group Interaction Sample

Name	Utterance	Comments
1 Ch.	Aborigines stay alive by the kangaroo that gave them food and they could use the fur for a coat. Often they could use the bones of the kangaroo to build something.	The student reads out what he has written to the group. He describes uses of parts of the kangaroo.
2 Dan.	My turn. Um it helped the Aborigines to stay alive because they used the kangaroo for meat and clothes and blankets and shelter. Your turn Robbyn.	Student laughs and the rest of the group laugh. Reads her response to the group. Lists new uses of the kangaroo and cues the next speaker into the discussion.

Examination of TABLE 5.5 shows each participant's input to the discussion segmented as an utterance thus providing some potential for analysing each individual's contribution to the global discussion. However, segmentation is confined to sentences structured within

analytical descriptions of the interaction events that occurred e.g., "Student laughs and the rest of the group laugh." This event could be analytically described e.g., "Student laughs and controls the group's response for that moment as evidenced by their laughter in response". Consequently, there does not appear to be capacity to generate more detailed data.

In order to overcome these limitations of Trial System One by providing analytical descriptions of the communicative events that occurred during the discussion rather than basic observations, a more detailed analysis was attempted in Trial System Two by adding analytical descriptions of linguistic and cognitive dimensions of the interaction and the roles adopted by participants during the discussion. A sample of group interaction from the same segment as Trial System One is exemplified in TABLE 5.6.

Compared with Trial System One this system provides for more detailed examination of the group interaction because it includes *Linguistic Function, Social Role, Cognitive Level* and *Body Language and Context* respectively shown in Columns Three to Six in TABLE 5.6. In this system, linguistic function refers to the functions of sentences e.g., statements, questions, commands. A social dimension has been added to the analysis process to determine the *initiation* and *following* roles of the participants. A body language dimension and context dimension have been added to portray respectively (a) the participants' use of body language to reinforce and extend

meaning expressed via verbal language and (b) the contexts generated through the interaction.

TABLE 5.6
Trial System 2 Group Interaction Sample

Name	Utterance	Linguistic Function	Social Role	Cognitive Level	Body Language and Context
1Ch	The head of the tribe could use the head of the kangaroo and the coat and put the hat on the head.	Statement	Ch initiates this segment of the discussion.	Inferential	Charan infers from an idea used by Canadian Indians.
2 Dan	Decorations	Statement	Interruption Follows	Elaboration	Danielle adds an idea to what Charan has stated.
3 Ch	And the coat would be going down.	Statement	Follows	Inferential	Charan continues his description.

Application of this system to the interaction (exemplified in TABLE 5.6) revealed the following.

Firstly, although the system provides for analysis into cognitive and linguistic dimensions, e.g., "cognitive level" and "linguistic function", it does not articulate the relationships between these with any clarity. That is, the data do not contain sufficient pathways to show links between the sequential input by participants and the linguistic and

cognitive processes they use in the construction of these inputs to express information/ideas.

The cognitive level dimension lacks analytical descriptions of individuals' input because it is constrained by reference only to level of thinking and cognitive strategy engaged in by participants. In this system, the cognitive dimension could be strengthened by inclusion of reference to context rather than reference to it in Column Five e.g., 1 Ch, Column Four, (TABLE 5.6) "Inferential" could be replaced by "From knowledge of Indian culture Ch. infers a use for the kangaroo's head and skin."

Secondly, a more detailed analysis of the linguistic dimension would be achieved by describing how form and function interact to express ideas/information within sentences. Although linguistic function is identified it is not examined in conjunction with linguistic structure to show how particular functions may be achieved via a range of sentence forms e.g., a question may be expressed via a simple sentence or a complex sentence. Analysis of the interaction between form and function of the language would indicate how participants use language to express ideas/information and elicit responses from group members in context.

Thirdly, the social role dimension is considered in this system to provide insights into the global interaction by identifying who initiates ideas and who follows in the discussion. However, in this example, statements on this dimension are mainly descriptive rather

than analytical e.g., "Ch initiates this segment of the discussion". It may be that analysis of the social role dimension has potential for providing insights into each participant's role in the interaction by indicating his/her willingness to initiate ideas and respond to ideas expressed by others in context.

Fourthly, statements on body language and context in this system provide descriptive data on interaction events but little detailed analysis. Analysis of body language has potential for indicating interdependence between verbal and body language for communicating ideas/information. Analysis of context has potential for indicating how participants construct meaning by identifying the sources of information from which they draw to structure ideas/information. Consequently, examination of these dimensions has potential for indicating participants' profile of use in the communication process.

Although Trial System Two did generate more detail than Trial System One, at this stage of the trialling, it was concluded that a more analytical system was needed. In order to achieve this, Trial System Three focused more on analysis of cognitive and linguistic dimensions and the use of context in the interaction process.

One particular student dominated the discussion in the segment of interaction used for Trial System One and Trial System Two. Because the focus of the study is on interaction dimensions in group contexts, this dominance by one participant was perceived as a potential

problem for trialling systems generating data useful for examining each participant's contribution to the global interaction. Hence in order to provide more extensive data for trialling subsequent systems, a different segment of group interaction was used for Trial System Three and subsequent trials. In summary, the interaction segment was changed in order to (a) trial the system on a more extensive sample, (b) trial the system during ongoing classroom instruction which created a different context from trials one and two and (c) develop a suitable transcription process in the new context.

A Year Seven inferential Reading Comprehension lesson provided the context for Trial System Three. The segment was videotaped during research on implementing whole language into a Year Seven classroom in a large suburban school. One group was videotaped while the whole class was working in groups selected by the teacher. Group members were asked to answer written questions on a passage on the convict settlement at Port Arthur and then discuss their responses with the group. The sample used in the trials was a segment of interaction generated by one group discussing the question *How were the convicts transported overland from Hobart Town to Port Arthur?*

Although the physical configuration of group members during discussion as part of group context was not part of the trialling process, it is helpful to note the location of the students around a table during the discussion, particularly in terms of their physical proximity (see FIGURE 5.3).

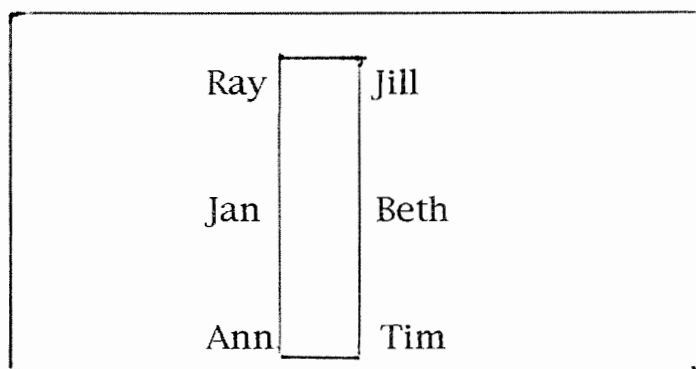


FIGURE 5.3 Year Seven Trial Group

Similar to Trial System Two, Trial System Three retained the integrity of each participant's contribution to the discussion. Each participant's discrete contribution to the discussion was termed a *conversation unit*, rather than an utterance. Each conversation unit contained at least one *message element* and segmentation into message elements occurred for each conversation unit. Linguistic dimensions of the interaction were examined by analysing each message element for *linguistic form and function* and *extra-verbal input*. Cognitive dimensions of the interaction were examined by analysing the discourse for *cognitive strategies* which included *initiating* new ideas and *following* which referred to the participant joining in the discussion after it had been initiated.

In this system, analysis of the global interaction included segmentation of the discourse into conversation units – a conversation unit is defined as the basic unit comprising each individual's total sequential input into the conversation at any one point in time.

Embedded message elements are defined as components of meaning contextually embedded in conversation units. They are determined from context and represent minimum, meaningful elements of conversation units. Each message element has a source, a linguistic form, a function and an informational/ideational or content structure.

In this trial, the examination of ideas/information or content in context was extended by inclusion of descriptions of *contextual frames*. Contextual frames are defined as the propositional or ideational structure of a message. During discussion, participants may draw from past experiences and textual information in order to structure information/ideas to establish contextual frames at the literal and/or inferential levels of thinking.

In this system the focus of the linguistic dimensions was on the linguistic forms and functions of the sentences used by the participants. That is, the discourse was examined at two linguistic levels. The functional level was examined by analysing the discourse for the participants' use of statements, exclamations, questions and imperatives. The form level was examined by analysing the discourse in terms of the participants' use of simple sentences, complex sentences, compound sentences, combination sentences, truncated sentences and sentence fragments. Extra/nonverbal input was included in the system in order to examine conversation units for discrete descriptions of the participants' use of body language

and other behaviours that modified communication during the group discussion.

A sample of the group interaction derived from this system is exemplified in TABLE 5.7. This table exemplifies the projection of utterances into written mode and their segmentation into message elements for analysis in column two. Columns Three to Six contain analytical descriptions of cognitive and linguistic dimensions of the interaction thus creating a structural map derived from application of Trial System Three.

TABLE 5.7

Trial System 3 Group Interaction Sample

Source	Conversation Units and Embedded Message Elements	<i>Cognitive Strategies</i> and Cognitive Functions	Contextual Frames	<i>Linguistic Forms</i> and Linguistic Functions	Extra-Verbal Input
1 Tim	They walked overland in bare feet.	<i>Hypothesising</i> Answers Ray by providing an answer to Q 1.	Q 1, Ray's question and inference	<i>Simple S.</i> Inferential statement of fact	Establishes eye contact with Ray.
2 Jan	No/ But they can't walk overland/ because it says here that they had to travel by sea.	<i>Non acceptance</i> Disagrees with Tim's hypothesis. Supports argument by reference to the text.	Written text	<i>Truncated S</i> <i>plus</i> <i>Complex S.</i> Statements of refutation	Points to the relevant section of the text.

Evaluation of the structural map (exemplified in TABLE 5.7) derived from this system revealed the following.

Firstly, the segmentation of conversation units into message elements provides discrete and manageable elements with potential for examining the cognitive processes utilised by participants in their contributions to the discussion. As chunks of meaning embedded within a linguistic structure they represent significant elements for analysis in terms of cognitive strategies and cognitive functions described in Column Three of the structural map (exemplified in TABLE 5.7). That is, message elements embedded within conversation units are examined in context and inferences made on the cognitive processes engaged in by participants during the interaction. The resultant analytical descriptions e.g., "Hypothesising" and "Answers Ray by providing an answer to Q.1" (1 Tim, TABLE 5,7) have potential for examining the cognitive processes inherent in the conversation units structured by participants to initiate and follow ideas.

Secondly, inclusion of contextual frames provides potential for further examination of the cognitive dimensions of the interaction. This is achieved through discrete descriptions of (a) the sources of information from which the participants draw, (b) whether they are operating at the literal or inferential level of processing information/ideas and (c) the contexts they create through the expression of ideas/information during ongoing discussion.

Thirdly, in order to examine the linguistic dimensions of the interaction, linguistic form and function were included to provide descriptions of the participants' use of language for structuring message content. This is achieved by analysing each conversation unit in terms of sentences and sentence fragments resulting from the transcription of the discussion into written language.

At this stage, the description of linguistic form and function was considered a weakness of the system because it was constrained by its focus on sentence structure. Examination of sentence structure is appropriate for writing but not necessarily appropriate for examination of oral utterances which do not always conform to sentence patterns expected in the formal writing context. During discussion, participants create language to embed ideas or information which can affect the quality of the individual's contribution to the discussion. Clear, well structured utterances have potential for communicating the information embedded in them by the speaker thus enhancing the quality of the communication. They also have potential for (a) acquiring information via well structured questions, (b) showing disagreement via negative statements and (c) achieving a response via an order. During group discussion however, these functions are manifested through oral utterances in context rather than necessarily conforming to the sentence patterns of written language.

Therefore, it was concluded that (a) the transcription process required scrutiny in order to ensure that the transcription clearly

reflected the oral structures of the discourse, (b) the structures needed to be examined in context mainly for linguistic function because of the varied structures of oral utterances and (c) descriptions of the linguistic structures of message elements needed to be related to function to describe how participants structured ideas/information linguistically.

Fourthly, inclusion of descriptions of *Extra-Verbal Input* provided potential for analysing the participants' use of body language and other behaviours that influenced the communication process.

Overall, the structural map derived from this system was more detailed than those derived from earlier systems. This system provided ways of generating data in the form of analytical descriptions of communicative events that occurred during the interaction. Consequently, it provided a more comprehensive way of classifying the processes engaged in by the participants and the global communication that occurred during the interaction. Trial System Three thus provided the framework for developing Trial System Four for deriving a more detailed structural map with more analytical data on the linguistic and cognitive dimensions of the interaction.

At this stage, it was decided that a conceptual model of group interaction was needed to assist in the illustration of relationships across the interaction dimensions considered in the study. This

model, which demonstrates relations between linguistic and cognitive dimensions of group interaction, is shown in FIGURE 5.4.

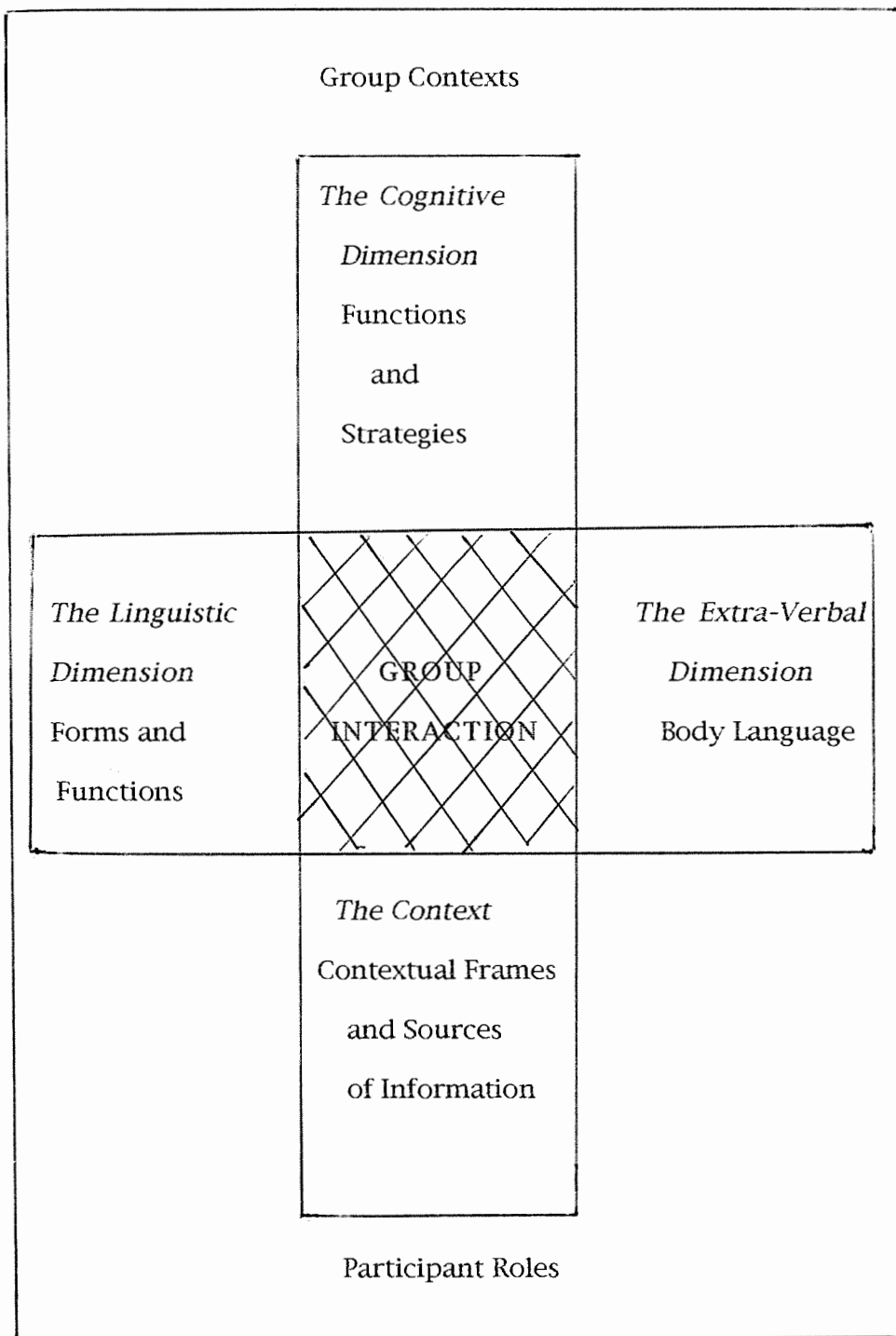


FIGURE 5.4 Cognitive and Linguistic Dimensions of Group Interaction:

A Conceptual Model

The model exemplifies the variety of input to interaction by participants in group contexts. It also provides a conceptual framework from which to examine the ways in which participants utilize cognitive and linguistic processes in the interaction process during group discussion in Trial System Four.

The major changes between Trial System Three and Trial System Four were related to the segmentation process and the linguistic dimension of the interaction both of which had implications for generation of data.

In Trial System Four the segmentation of each individual's input into conversation units and message elements was developed by the inclusion of *interaction segments* into the system. An interaction segment is defined as a segment of interaction that occurs between two or more participants on a particular theme/topic during discussion. In this study, interaction segments consist of conversation units and message elements each of which has two basic functions. The first is the proactive function characterised by participants "initiating" discussion and participants "following" by joining in the discussion. Initiating may take a variety of forms for example, asking a question and introducing a topic. Following may also take a variety of forms such as responding to a question and elaborating on ideas/information presented. In some cases, discussion may progress with *minimal interaction* for example, participant one may make a statement which expresses an idea or piece of information to which participant two responds by making a statement that expresses

another idea or piece of information. In this case, a listing of ideas/information is achieved and each entry into the list is an interaction segment. The second and determining basic function of an interaction segment is content focus which is achieved by the individual's expression of ideas/information on a particular theme or topic. The movement from one interaction unit to another is thus characterised by a content shift in the discourse. In this study, content is examined via message elements embedded within conversation units by the participants.

During group discussion, participants may present a series of ideas or pieces of information which are related to one another and develop understanding of the topic/theme as a whole. For example, participants may discuss "koalas" systematically by discussing their physical characteristics, their habitat, their food, and their uses for mankind all of which are related and contribute to knowledge of koalas. In this case, the participants' ideas/information are structured to form a semantic web. However, since discussion is a creative process during which participants may develop ideas and examine them from a range of perspectives, it may not follow a pattern of predictable interaction segments. Nevertheless, the boundary between two interaction segments is characterised by the introduction of a new theme/topic or content focus into the discussion by a participant. Because the transcription of oral utterances into written language presents participant's contributions in linear form, they need to be examined in context to determine their relationship to the global group interaction. That is, each

individual's contribution has potential for shaping the global interaction of the group in achieving the group task

In this study, the focus of segmentation of oral utterances into interaction segments is on the ideas and information expressed during group discussion across selected knowledge domains of the curriculum. It is hypothesised that group contexts have potential for eliciting and examining ideas and information via discussion. Consequently, segmentation of utterances into interaction segments, conversation units and message elements in Trial System Four has potential for maximising analysis of the interaction for (a) ideas and information expressed by the participants, (b) the sources of information used by them to structure contextual frames and (c) the linguistic functions of the messages during the interaction process.

A sample of the group interaction with analytical descriptions derived from Trial System Four is presented in TABLE 5.8 (Trial Selection of Group Interaction: Level of Differentiation). The segmented utterances plus the analytical description of the interaction create the structural map derived from this system. In TABLE 5.8, the numeral in Column One refers to the number of the conversation unit in the interaction and interaction segments are separated by lines.

TABLE 5.8

Trial Selection of Group Interaction: Level of Differentiation

Source	Interaction Segments Conversation Units Message Elements	Cognitive Strategies and Cognitive Functions	Contextual Frames and Sources of Information	Linguistic Forms and Linguistic Functions	Extra Verbal Inpu
1 Tim	They could walk through the bush but.	Presents a hypothesis	Inferential description of travel for Q1	Statement of modality-ends with "but" as adverb	Leans towards Jar and establishes contact.
2 Jan	It says here that they walked over/ I mean that they go over water/ They can't walk.	Explains via text. Monitors ideas.	Information from the text and Tim's hypothesis	Argues a case and refutes via short statements.	Points to the written text and establishes eye contact with Tim.
3 Tim	Yes/ but when they arrive by land, they walk by land.	Disagrees with Tim Agrees with Jan. Clarifies previous hypothesis.	Inference on how they travel	Agrees and qualifies via statements.	Establishes contact with Jan.
4 Jan	But it tells/ How would they get over?	Focuses on text then seeks clarification.	Text and Tim's hypothesis.	Incomplete statement of fact followed by a question	Establishes contact with Tim.
5 Tim	But they would walk by bare feet.	Returns to the argument and qualifies it.	Inferential description of walking	Statement of modality	Establishes contact with Jan.
6 Jan	But how can they walk over the water?	Expresses dissatisfaction with Tim's argument and seeks clarification.	Previous statement by Tim	Question commencing with "But"	Establishes eye contact with Tim.
7 Ray	I reckon they were transported by horse and cart.	Refocuses discussion via presentation of a new hypothesis.	Inferential description of means of transport	Statement of theory	Establishes eye contact with Tim.

8 Tim	But people weren't that kind to them in those days.	Disagrees with Ray's hypothesis based on personal opinion.	Inferential opinion of lack of kindness Textual information	Statement of opinion commencing with "But"	Establishes contact with Ray.
9 Jan	It says here---	Returns to the text to clarify information.		Fragmented statement	Points to the text establishes contact with Ray.
10 Beth	How could they?	Ignores Jan's fragmented statement and seeks an explanation from Ray	Ray's hypothesis	Question	Establishes contact with Ray.
11 Jan	It says here that---	Continues to draw attention to the text for clarification.	Textual information	Fragmented statement	Looks around group as if support.
12 Ray	In these days they get transported in carts.	Links past and present events to justify his hypothesis	Synthesised individual knowledge	Statement of fact.	Establishes contact with Tim.
13 Beth	Yes these days/ not those days	Judges Ray's linking of ideas as invalid.	Ray's statement	Truncated statement of agreement followed by one of disagreement	Leans towards Ray establish eye cont
14 Tim	In those days they were mean.	Emphasises the difference between past and present.	Statements made by Ray and Beth.	Statement of fact	Establishes contact with Ray.
15 Jill	What about the station?	Initiates attention to Question 2.	Question 2. on the sheet	Question	Looks around group as if to see response.

The structural map exemplified in TABLE 5.8 and derived from Trial System Four was used as a basis for deriving data on linguistic and cognitive dimensions of group interaction of the trial segment.

Firstly, segmentation into interaction segments, e.g., initiated by Tim, Ray and Jill as indicated in Table 5.8, provided data on the pattern of interaction amongst participants on a particular theme/topic by indicating (a) who initiates and who follows in the interaction segment, (b) the content of the interaction segment and (c) the point of departure from the theme/topic of the interaction segment. Consequently, the total interaction segments exemplify the pattern of global interaction.

Secondly, segmentation into conversation units and message elements shows the sequence of interaction events and provides the basis for deriving analytical data consisting of analytical descriptions of (a) cognitive strategies and functions engaged in by participants e.g., "Refocuses discussion via presentation of a new hypothesis." (7 Ray, TABLE 5.8), (b) contextual frames created by participants e.g., "Information from the text and Tim's hypothesis." (2 Jan, TABLE 5.8). (c) linguistic processes engaged in by participants e.g., "Argues a case and refutes via short statements." (2 Jan, TABLE 5.8) and (d) extra-verbal input used by participants e.g., "Leans towards Jan and establishes eye contact." (1 Tim, TABLE 5.8).

Message elements enable tracing of (a) the relevance of each participant's contribution to the discussion and (b) the linguistic

structure adopted by participants in the expression of information/ideas.

Inferences about the cognitive processes engaged in by participants (located in Column Three of TABLE 5.8) derive from analyses of the linguistic structure and content of each conversation unit. Such analyses include examining messages for linguistic cues e. g. "can't expresses negation. Each message is examined in context by examining it in relation to the message(s) that preceded it and the message(s) that followed it e.g., a question may initiate a response of clarification. In these analyses the language and content of message elements in context thus provide the basis of inferences on the cognitive processes engaged in by participants e.g., "Disagrees with Ray's hypothesis based on personal opinion." (8 Tim, TABLE 8.10). The analyses of message elements consequently traces the interaction as participants initiate ideas/information and respond to ideas/information initiated by other participants.

Analyses of messages for cognitive processes, sources of information and contextual frames thus provide insights into ways messages shape the contours of micro-interaction within interaction segments which, in turn, shape the contours of the global group interaction. That is, this system provides more analytical descriptions of each individual's contributions to ongoing group interaction compared with the other systems trialled.

Thirdly, Column Four exemplifies analytical descriptions of the sources of information and the contextual frames created by participants via message elements. These descriptions also provide data on cognitive processes engaged in by participants by indicating (a) whether they draw on past experiences and/or present texts to structure ideas/information, (b) whether they structure contexts at the literal or inferential level of processing and (c) how they relate their responses to what others have said to create a context of interpretation and meaning e.g., a participant seeking clarification of a previous statement by another participant.

Fourthly, column five embodies the linguistic form and functions of the messages embedded in the conversation units. Although the focus of these descriptions is on the linguistic functions e.g., statements, questions, commands, this dimension allows for identification of linguistic structures used by participants to create the language of group interaction e.g., "Question commencing with *But* " (6 Jan, TABLE 5.8). Analyses of the linguistic dimensions of the interaction thus provide descriptive data on the language created by participants during the group interaction.

Fifthly, column six identifies the forms and functions of the body language engaged in by participants as they communicate with one another during group discussion. Hence this system provided added data on the communication system of group interaction.

An important requirement of the analytical system is the generation of data for analysing group interaction at both the global level and the individual level. Therefore, in order to test the system's effectiveness to do this at these levels of analyses, the data (exemplified in TABLE 5.8) were analysed at these levels for research findings on both global and individual levels of group interaction.

Analysis of the data at the global level entails examination of the group interaction for its relevance for achieving the group task. This entails analysis of (a) the decisions made by the group to achieve the group task e.g., allocation of group tasks to individuals, (b) the sequence of events that occur via interaction segments, (c) extent and depth of coverage of the group task e.g., the semantic webs and range of contexts created via group discussion, (d) the range of cognitive processes engaged in by participants to solve the group problem, (e) the range of language created, e.g., vocabulary used and concepts expressed, and extra-verbal processes created by individuals to communicate with one another and (f) level of cooperation amongst participants e.g., willingness of participants to share ideas/information by listening to and accepting contributions expressed during discussion.

Analysis of the data at the individual level entails examination of each individual's engagement in the group interaction. This entails analysis of (a) each individual's contribution to the group interaction via conversation units and message elements e.g., initiating and

following in the discussion, (b) the quality of the individual's interaction e.g., relevant ideas/information expressed and the construction of contextual frames, (c) the range of cognitive processes engaged in by each individual to participate in the group interaction, (d) the range of language created by each individual, e.g., vocabulary used and concepts expressed, and extra-verbal processes created to communicate with other participants and (e) each individual's willingness to cooperate with other participants e.g., willingness to adopt roles in order to achieve the group task.

The following findings, at the group level of analysis, were derived from data shown in TABLE 5.8.

(1) The group learning provided a context for interaction which allowed participants to structure individual knowledge by (a) listening to and interpreting ideas/information presented by other participants and providing them with feedback, (b) presenting ideas/information and receiving feedback from other participants. During the interaction, participants explored the group problem by presenting a range of solutions for consideration and achieved some depth in coverage by seeking clarification of ideas/information presented.

The range of ideas/information expressed during the discussion indicated that the students were using background information to make inferences and structure knowledge to deal with the task. This resulted in the generation of a range of contextual frames, created by

participants at both the literal level and inferential level of processing, to link and explore ideas in order to solve the group problem via discussion.

(2) At the cognitive level of analysis, participants expressed relevant information and ideas in their participation in, and generation of, discussion. These ideas, which enriched the interaction, were shaped via participants' use of a range of cognitive strategies e.g., *explaining, hypothesising, clarifying and evaluating*. During the course of the discussion, the cognitive strategies employed by the participants indicated that they were thinking about the group problem and applying individual interpretations to it. These interpretations allowed the participants to examine the topic from their individual knowledge bases and to bring a range of perspectives to the discussion. Their individual perspectives thus provided potential for enriching the discussion. In this context, the quality of the interaction was further enhanced by the participants focusing on the topic, defending their ideas and responding to ideas expressed by other participants all of which were relevant to the topic.

The nature of the group task was reflected in the articulation of concepts related to the topic. In this particular segment, the interaction was generated around the topic of transportation of convicts at Port Arthur. Examples of these concepts included "transportation by carts," "walking through the bush" and "walking in bare feet". Incorporation of these concepts within contextual frames,

enhanced the quality of the discussion by supplying a range of ideas relevant to seeking solutions to the group problem.

(3) At the linguistic level of analysis, participants utilised a variety of linguistic functions and forms in which to embed ideas/information in context to create the language of group interaction. This was achieved via statements and questions and the use of fragmented forms e.g., 9 Jan (TABLE 5.8), simple forms e.g., 1 Tim (TABLE 5.8) and complex forms e.g., 3 Tim (TABLE 5.8). Participants also used body language to reinforce verbal language and enhance communication. This was achieved mainly by their engaging the attention of participants through eye contact and the use of pointing.

(4) Although this learning segment was not a structured, collaborative learning task, it provided an opportunity for participants to share ideas via group discussion during ongoing classroom learning/instruction. The task had potential for input by all group members thus allowing individuals to learn from each other by interacting with one another.

The following findings, at the individual level of analysis, were derived from data shown in TABLE 5.8.

(1) Jan contributed the most conversation units compared with the other students during the interaction and her continual participation stimulated input from other participants. Her expression of

ideas/information was achieved via the use of statements and questions

Although most of her discussion was with Tim, she followed the lead by other students. At times, she expressed disagreement with other students' ideas e.g., 2 Jan (TABLE 5.8) and sought clarification from them. Throughout the discussion, she drew attention to information in the reading extract and seemed unwilling to make inferences to answer the reading questions. During the discussion, she often pointed to the text and looked at the person to whom she was speaking. Even though she relied on textual information in the creation of contextual frames, she contributed significantly to the interaction by pursuing the textual point of view and responding to statements expressed by other participants.

(2) Tim also contributed extensively to the interaction indicated by the volume of conversation units expressed by him and his willingness to take up issues as they arose. The quality of the interaction was enhanced by his willingness to express and defend ideas as well as disagree with ideas expressed by other participants thus leading to exploration of the topic. He engaged a range of cognitive strategies via statements e.g., focusing, hypothesising and clarifying. He helped the group explore the topic at the inferential level of thinking by creating contextual frames at that level to complete the group task.

(3) Ray's main contribution consisted of his putting forward his own ideas via hypothesising and clarifying rather than participating in the discussion between Jan and Tim. The quality of the interaction was enhanced by his initiating a new idea at the inferential level of thinking e.g., 7 Ray (TABLE 5.8).

(4) Ann, Jill and Beth contributed little to the discussion. However, Beth did join in the discussion by seeking an explanation and evaluating Ray's statement e.g., 13 Beth (TABLE 5.8) and Ann initiated discussion on another topic via a question.

The derived structural map (exemplified in TABLE 5.8) from Trial System Four is a linear representation of the group interaction of the selected sample plus analytical statements. As demonstrated, it generates data with potential for analysing global communication processes via analysis of sequential events engaged in by participants in context to solve the group problem. The generated data is also discriminatory because of its sensitivity to individuals' contributions to the interaction via a series of analytical statements on each participant's sequential input to the group interaction.

A summary of evaluation of the four systems trialed is exemplified in TABLE 5.9. This table exemplifies the development and evaluation of the four systems trialled for the research.

TABLE 5.9
Analytical Systems: An Evaluation

Analytical Systems Trialled	Key Parameters of Analysis	Major Problems With the System	Major Strengths of the System
One	<ul style="list-style-type: none"> * Utterances * Comments on Utterances 	<ul style="list-style-type: none"> * Utterances not segmented for analysis * Descriptions of utterances rather than analysis * Linguistic and cognitive dimensions not articulated and analysed * Context not analysed 	Some potential for analysing each individual's input into the interaction
Two	<ul style="list-style-type: none"> * Utterances * Linguistic Functions * Social Roles * Cognitive Level * Body Language and Context 	<ul style="list-style-type: none"> * Descriptions of utterances lack evidence of analysis * Relationships between linguistic and cognitive dimensions not established * Relationships between linguistic form and linguistic function not established * Context not analysed in detail 	<ul style="list-style-type: none"> * Potential for a more detailed analysis of the interaction * Inclusion of a range of interaction dimensions provides focus on linguistic and cognitive dimensions of interaction * Some analysis of context established

Three	<ul style="list-style-type: none"> * Conversation Units and Embedded Message Elements * Cognitive Strategies and Cognitive Functions * Contextual Frames * Linguistic Forms and Linguistic Functions * Extra-Verbal Input 	<ul style="list-style-type: none"> * The transcription process did not fully reflect the oral structures * Analysis of linguistic form and linguistic function constrained by emphasis on sentences 	<ul style="list-style-type: none"> * Segmentation is detailed * Both linguistic form and linguistic function analysed * Cognitive strategies and cognitive functions analysed in context * Analysis of conceptual frames established * Body language analysed
Four	<ul style="list-style-type: none"> * Interaction Segments * Conversation Units and Embedded Messages * Cognitive Strategies and Cognitive Functions * Contextual Frames and Sources of information * Linguistic Forms and Linguistic Functions * Extra-Verbal Input 	A focused analysis of linguistic and cognitive dimensions of group interaction.	<p>Detailed transcription of utterances provide analytical descriptions of group interaction via analysis of:</p> <ul style="list-style-type: none"> * Themes/Topics introduced into the discussion; * Both linguistic form and linguistic function; * Cognitive strategies and cognitive functions in context; * Context and sources of information * Body language in context

After evaluation of Trial System Four it was concluded that it fulfilled criteria for acceptance on the basis of potential for generating analytical descriptive data on the communicative events of group discussion by deriving a structural map which is sensitive to:

- (a) segmentation of oral utterances for analysis;
- (b) each participant's contribution to the discussion;
- (d) the language created by participants during group discussion;
- (e) the cognitive processes engaged in by participants;
- (f) the contexts constructed by participants;
- (g) the extraverbal dimensions of communication adopted by participants;
- (h) both global-interaction events and micro-interaction events of group discussion.

Trial System Four resulted from trialling Systems One to Three and produced a sophisticated system for analysing data produced from group interaction. As demonstrated, the structural map derived from the system exemplifies descriptive data for analysing the interaction events that occur in group learning contexts in a sophisticated and original way. Therefore, Trial System Four was adopted as a system for analysing dimensions of group interaction in this study which focuses on the linguistic and cognitive dimensions of that interaction.

5.4.11 Managing the Research

During the implementation stage of the research, the researcher will be scheduled to take on the role of classroom teacher of the target group for the following reasons: (a) to locate the research within the overall context of ongoing classroom instruction, (b) to minimise classroom disruption by allowing the classroom teacher to continue normal classroom instruction during the implementation of the study and (c) to allow the researcher to observe the group interaction from a teacher's perspective. As the researcher is a registered teacher, there will be no ethical problems associated with this procedure. Therefore, the researcher will carry out both teacher and research tasks during the study.

Ongoing feedback will be given to the participants during the learning segments and the group learning sessions. At the conclusion of the group learning sessions, a feedback session will be provided by the classroom teacher and the participants to view the videotapes.

Ongoing feedback will also be given to the school and the Department of Education via a report on the progress of the research

CHAPTER 6 RESEARCH IMPLEMENTATION AND DATA TREATMENT

6.1 SELECTING THE SCHOOL AND YEAR LEVEL

This chapter describes the selection procedures employed to select the research site and sample. The selection process was designed to ensure the achievement of the requirements of school, year level and form of the sample as discussed in CHAPTER 5 (5.3.1 and 5.3.2).

Three schools were contacted and the general aims of the research discussed with each Principal to gauge interest in participating in the research. Although all Principals expressed general interest in participating in research per se, one expressed special interest in this particular research project. A comparison of responses from the three schools is exemplified in TABLE 6.1.

School number three was chosen as the research site based on the following characteristics: (a) its interest in this particular research project; (b) its desire to cooperate as a research school for the University; (c) its diverse population; and (d) its proximity to the University. It was a P-7 State Primary School with students from mixed socioeconomic and cultural backgrounds.

The researcher arranged a meeting with a Deputy Principal of the school who acted as liaison person within the school. At this meeting the

TABLE 6.1

Selecting the Research Site: A Comparison of Schools

School	Number of Teachers	Number of Students	Level of Interest in Research	Principals' Comments
1	27	700	* * *	The school has continued interest in current research on special needs students.
2	5	185	* *	The school is particularly interested in research on assessment forms.
3	35	905	* *	Although all teachers are not interested in research, some staff are very interested. The school is desirous of cooperating as a research school with the University.

* = medium interest * * = high interest * * * = very high interest

researcher described the general aims of the research and the year level required. The Deputy Principal agreed to consider the Year Six classrooms in the school and discuss the research with the appropriate Year Six teachers.

Subsequent to these discussions, she recommended approaching an experienced, male teacher, who had attended the University as a

honours student and was teaching Year Six at this time, thus providing a possible class site for the research. The selected teacher agreed to discuss the research with the researcher.

Next, the researcher arranged a meeting with the Deputy Principal and the selected Year Six teacher. At this meeting, the researcher described (a) the general aims of the research; (b) the strategies to be adopted for the research as well as the need for a withdrawal room for their implementation; (c) the participating requirements for the classroom teacher including the selection of the research sample; and (d) the form of the sample required. At the conclusion of the meeting, during which the researcher answered questions raised by the classroom teacher and the Deputy Principal, the classroom teacher agreed to participate in the research and fulfil the requirements for its implementation. The Deputy Principal agreed to report the outcomes of the meeting to the Principal of the school.

The selected Year Six class, from which the sample was chosen, consisted of fifteen females and sixteen males. The students had experienced working in friendship groups, heterogeneous groups and teacher chosen groups across all knowledge domains of the curriculum. In this context, the teacher indicated that the students tended to work more effectively in groups for mathematics and science than for other knowledge domains. The students' group experiences had included both structured learning and opportunities to participate in student initiated group tasks.

6.2 SELECTING THE RESEARCH SAMPLE

In order to select a sample that fulfilled the requirements discussed in 5.3.2, the students were rated by the teacher. Although the students had not undertaken any external tests, they had participated in a range of classroom assessments which included: (a) assessment grids; (b) anecdotal records; (c) samples of writing; (d) reports to parents; (e) students' self-assessment logs; and (f) individual conferences. The classroom teacher's ratings of the students were based on (a) each student's performance across these assessment forms, (b) his observation of their potential for learning and (c) each student's classroom performance in the knowledge domains of the curriculum. His ratings are shown in TABLE 6.2.

TABLE 6.2
Selected Year Six Student Ratings

Group	Student Grading	Females		Males		Total	
		N	%	N	%	N	%
1	Above-Average	6	19.4	3	9.7	9	29.1
2	Average	7	22.5	10	32.2	17	54.7
3	Below-Average	2	6.5	3	9.7	5	16.2
Total		15		16		31	

In order to select five students to form a heterogeneous group as described in 5.3.2, one male and one female were randomly selected from each of groups one and two and one student was randomly selected from the combined male and female, below-average students

which constituted the smallest percentage of students in the class. The below-average student thus selected was a male.

A brief profile of the sample group is provided in TABLE 6.3

TABLE 6.3
Profile of Student Sample

Group	Name	Age	Language Arts	Social Studies	Science
A/average	Con	11.8	* * *	* * *	* * *
A/average	Nola	11.4	* * *	* * *	* * *
Average	Rod	11.9	* *	* *	* *
Average	Kay	11.2	* *	* *	* *
B/average	Joe	12.2	*	*	*

* * * = above-average * * = average * = below-average

6.3 ESTABLISHING PROTOCOL FOR THE RESEARCH

Application to conduct the research was made both to the University Ethics Committee and the Department of Education. Permission to conduct the research was granted by both bodies (see APPENDIX G).

The classroom teacher obtained permission for the students' participation in the research from their parent/guardians (see APPENDIX H.1). Attached to this letter was a consent form for the parent/guardian to sign and return (see APPENDIX H.2).

6.4 DATA RECORDING PROCEDURES

The researcher arranged a meeting with a professional video operator, who had experience in schools, to discuss the video requirements of the research described in 5.4.8. At the conclusion of this meeting, the video operator agreed to operate two cameras to fulfil requirements for the videotaping.

6.5 RESEARCH FEEDBACK

Ongoing feedback to participants discussed in CHAPTER 5 (5.4.11) was planned for the research. Incidental feedback was given to the students during (a) the introductory session, (b) the implementation of the student questionnaire, (c) the three group learning segments and (d) the three group learning sessions. A final feedback session for the classroom teacher and the participants planned to take place after the research had been implemented was not conducted because of ongoing commitments of the classroom teacher and the participants.

A progress report on the research was sent to the classroom teacher, both the Deputy Principal and the Principal of the School and the Department of Education. This indicated (a) the research had been implemented, (b) data had been collected, (c) an analysis system had been derived and (d) analysis of data had commenced.

6.6 SOURCES OF RESEARCH DATA

Data were derived from four research sessions, which occurred in a withdrawal room from 11:00 a.m. - 12:30 p.m., Monday to Thursday in one week as negotiated with the classroom teacher. During these

sessions, the student questionnaire was administered and the guided group learning segments and the group learning sessions were implemented. The sources, nature and the focus of analysis of the data are shown in TABLE 6.4.

TABLE 6.4
Data Sources, Nature and Analytic Focus

Source Student Questionnaire Parts A, B and C (Ratings)	Nature of Data Student ratings of strategies for learning science, social studies and language arts.	Focus of Analysis Students' perceptions of the best ways to learn science, social studies and language arts
Student Questionnaire Part E (Written Questions) Student Questionnaire Part D (Interviews)	Pre and post group learning responses to four questions on group learning Interviews between the researcher and each student.	Students' perceptions of aspects of the group process and their effectiveness for learning Students' perceptions of the importance of learning science, social studies and language arts.
Three Group Learning Segments	Transcription of the interaction of teacher -led discussion on group learning guidelines	Students' perceptions of the significance of selected guidelines for enhancing the quality of group interaction
Three Group Learning Sessions	Level of differentiation of group interaction for group learning in science, social studies and language arts	Cognitive and linguistic dimensions of group interaction in learning the knowledge domains of the curriculum

6.7 RESEARCH QUESTIONNAIRE DATA

The research questionnaire was administered during session one (described in 5.4.4). Participant responses to this questionnaire provided data for examining their perceptions of learning the disciplines of the curriculum.

Individual responses to Parts A, B and C of the student questionnaire are shown in TABLE 6.5. In this table, initials are used for each student, the numeral indicates (a) that the student had used that strategy and (b) the ranking of that strategy by the student and a dash indicates that the student did not rank that strategy.

Students' responses to the written questions (Part E) are recorded in APPENDIX J (Participant Responses to Written Questions). The responses recorded are as the participants wrote them. These responses include both pregroup learning responses and postgroup learning responses. The follow-up (postgroup) questions were completed by the students at the conclusion of the group task on day four after they had a short break.

To complete the implementation of the questionnaire for session one, the researcher interviewed each participant (Part D). The transcribed audiotaped interviews are recorded in APPENDIX I (Researcher-Participant Interviews).

TABLE 6.5

Student Questionnaire: Student Ratings of Learning Strategies

		Students				
<i>Part A Science</i>		N	C	R	K	J
1	doing experiments	1	1	1	1	1
2	class discussion	5	6	9	8	4
3	group discussion	6	7	10	9	2
4	observing a life cycle	4	3	2	6	10
5	doing projects	10	9	3	5	5
6	reading about science	7	4	8	7	8
7	writing about science	8	10	7	4	9
8	drawing diagrams	3	5	5	3	3
9	researching in the library	9	8	4	10	7
10	watching television	2	2	6	2	6
<i>Part B Social Studies</i>		N	C	R	K	J
1	going on excursions	1	1	1	1	1
2	watching television	2	2	4	2	3
3	class discussions	6	3	9	9	5
4	group discussion	7	6	10	8	4
5	listening to guest speakers	3	5	2	10	6
6	reading about social studies	8	9	8	3	9
7	writing about social studies	9	10	7	4	10
8	drawing maps	4	4	6	6	2
9	researching in the library	5	8	5	7	7
10	doing projects	10	7	3	5	8
<i>Part C Language Arts</i>		N	C	R	K	J
1	class discussion	4	4	6	5	4
2	group discussion	5	5	7	3	3
3	watching television	-	-	5	-	1
4	reading	6	3	4	6	6
5	writing	7	7	3	8	7
6	using the computer	-	-	-	-	-
7	researching in the library	8	6	2	7	5
8	doing drama	3	2	1	-	2
9	delivering lecturettes	-	-	-	-	-
10	doing projects	9	9	-	4	-
11	debate	1	8	-	1	-
12	using tapes and writing	2	-	-	-	-
13	listening to tapes	-	1	-	2	-

6.8 FOREGROUNDING GROUP LEARNING DATA

The main purpose of the guided group learning segments, which were implemented during days two to four and preceded the group learning sessions, was to introduce students to a checklist that incorporated

guides for enhancing the quality of group learning (see APPENDIX E). These guides were introduced to the participants during guided group learning segments via teacher-led group discussion. All group learning segments and group learning sessions were videotaped as described in 5.4.8.

The videotaped data was then closely examined for each participant's input into the discussion and the guided group learning segments transcribed as described in 5.4.9. The transcribed data thus transformed the oral utterances of each individual into written language in context for examining the interaction of the guided group learning segments.

During the transcription process, it was noted that pauses in utterances by participants were minimal in almost all instances which indicated that participants created a flow of oral language that did not take account of pauses traditionally associated with written sentences. However, as the main purpose of the study was to examine the interaction amongst participants, the transcription process included punctuation of participants' input to facilitate examination of each participant's contribution to the discussion.

Following are the transcribed utterances for the three group learning segments (TABLE 6.6) to be examined for Teacher-participant interaction of these introductory segments of group interaction.

TABLE 6.6 Group Learning Segments Data

Group Learning Segment One
Pre-Science Session

1 Teacher	We're going to work on a science problem this morning as a group. Before we start, I would like you to give me some idea as a group why we discuss things.
2 Kay	It's easier to learn.
3 Teacher	Right, and with whom would you discuss things if you wanted to learn something at school?
4 Kay	Teacher.
5 Rod	Groups.
6 Teacher	Good, anyone else?
7 Kay	With groups.
8 Teacher	O.k. good. I'll give you this sheet (Hands a sheet to each group member.) I'll just read it with you at first. Number one says: "Examine the task or topic carefully. Ensure your discussion is related to the group task and do not be distracted by other issues." What do you think that means?
9 Kay	Don't talk about what you had last night for dinner.
10 Teacher	Good. Look at what you have to do. Don't think about other things. (Continues to read.) "This requires keeping the task in mind as you discuss what is required for its completion." So you're going to have a task this morning aren't you? So you've got to keep it in mind. What would be a distraction this morning around here?
11 Con	Talking
12 Kay	Talking about talking about what you did last weekend and all that.

13 Teacher	So you could be distracted couldn't you? Right, number two it says: "Listen to what other members of the group have to say." It's most important that we listen. "Look at the person speaking." Why do we look at the person speaking?
14 Kay	Because it's good manners.
15 Con	So they know you're listening.
16 Teacher	Good. That's a good idea so it's good manners and they know you're listening. Listen carefully and think about what he or she is saying. Then number three: "Form an opinion and express your ideas but take your turn." Why do you think we want everyone to express his ideas or her ideas?
17 Con	They might be part of the question.
18 Kay	Yeh.
19 Nola	They might have a good opinion.
20 Teacher	In other words they might think of something you forgot about, mightn't they?
21 Rod	Then you won't have the same ideas by the same person.
22 Teacher	Right, that's a good answer too. (Continues to read.) "So become involved in the discussion by expressing your ideas and opinions but ensure you take your turn." So don't all talk at once, right? So have a look at those three guidelines. Any questions on them? (No questions from the students) So what I'd like you to do, you can keep that sheet, bring it tomorrow and I'll give you another sheet with something else on it but keep those things in mind, right. (Teacher moves from the group and returns with the written problem for the science group task.)

Group Learning Segment Two
Pre-Social Studies Session

1 Teacher	Yesterday we talked about discussion and why we discussed things and we also looked at some of the things to keep in mind when we were discussing things. What were some of the things we talked about? (No response from the students) Remember we had to listen to the person who is speaking.
2 Kay	Listen to everyone's-
3 Rod	Comments.
4 Kay	Comments.
5 Teacher	Good and-?
6 Nola	Don't but people's ideas out.
7 Teacher	Good, and also keep our mind on the task.
8 Nola	Oh yeh that's right.

9 Teacher

Right, I'll give you another sheet today (Hands a sheet to each student.) to remind you of two or three other things to remember when you are doing group discussion as well. Yesterday you were good but I did notice one or two people tended to interrupt other people. Try to wait until they have finished speaking then-you don't have to agree with them but try to let them finish-then say whether you agree or disagree or something. Let's read this paper together. (Teacher reads aloud.)

"Number two, make sure your discussion is related to the topic or task. When you take your turn in the discussion, make sure what you say helps in achieving the group task." If we talk about other things it's not going to help us much, is it?

"Ask other members questions if you are not sure about something." Remember yesterday we decided we could ask people and one person we could ask is would be a member in the group so don't be afraid to ask someone. "If there is something you don't understand, ask one of the group members to explain it to you."

And number three: "Try to answer the questions raised by other members during the discussion." If somebody asks you a question-?

10 Kay

Answer it.

11 Teacher

Mm try to answer it. And some of you did that well yesterday, didn't you? You talked about things.

Listen to questions raised by the group members and try to answer them. These questions may be for you or they may just be for the group." It doesn't matter. If somebody asks a question-your part of the group-try to answer them.

Any questions on these guidelines? Remember the guides we had yesterday. Now we've got some more guides today. Keep those in front of you and remember them because that makes you a better group member. Any questions? Would you like to ask any questions about what we did yesterday before we start today? (No questions from the participants) Good. I think you're doing a good job. (The teacher prepares to introduce the social studies group learning task.)

Group Learning Segment Three

Pre-Language Arts Session

1 Teacher	(The group learning guidelines are written on the chalkboard behind the students.) Remember yesterday and the day before we talked about learning in groups. (Hands each student a sheet.) I'll give you another sheet this morning about learning in groups. Just read this one together.
2 Rod	Have you got one Joe?
3 Teacher	All got one?
4 Kay	Yes.
5 Teacher	We'll read it altogether. You follow it as I read it. "Think about what you have already learned about the topic or task. Your knowledge of the topic or task may help to complete the task." What do you think that means?
6 Con	You've like what you read might help you in your problem.

7 Teacher

Good. What you've read before you mean will help you with the present topic. Good. Number two, "See if you can add something new to the topic. If you have a new idea for completing the task, present this idea for the group to consider. See if you can add information to what other members of the group say. Listen to what other members of the group say about the topic or task and see if you can add some more information that has not been given."

Any questions on what that means? Good. So we're all trying to add something to it to make the topic well covered aren't we?

Next: "Express your ideas clearly." This is important. "When you are speaking during the discussion, try to express your ideas so that other members of the group understand you. Speak clearly, explain things clearly and do not speak too quickly."

And the last one: "Choose your words carefully when explaining something or writing about something during the group task. When you are discussing the topic or task, there will be words and ideas that are important for completing the group task." Remember Nola yesterday asked us about the word "hygiene" that she was trying to work out? That was important. So you think about the words and the words you use. "Think about the best words you can use in your discussion and take note of new words and ideas that are presented during the discussion." Okay. I'll leave that sheet with you so you will have another one. If you look up there on the chalkboard, you will see how I have written them all very briefly for you. (The Teacher reads from the chalkboard.)

"One, examine the topic or task carefully.
 Two, Listen to what other members of the group have to say.
 Three, form an opinion and express your ideas but take your turn in the discussion,
 Four, Make sure your discussion is related to the topic or task.
 Five, Try to answer the questions raised by the members during the discussion.
 Six, Think about what you have already learnt about the topic or task. Seven, express your ideas clearly. Eight, Choose your words carefully when explaining something or writing about it." Any questions? (No questions from the participants) Good. (The teacher prepares to introduce the language arts group learning task.)

6.9 GROUP LEARNING SESSIONS DATA

Each group learning session followed a guided group learning segment on days two to four of the negotiated sessions. In order to examine the research questions (5.1.3), the videotaped data for each group learning session were transcribed (see 5.4.8) and analysed according to the Data Analysis System described in 5.4.9.

The system applied for data treatment was derived from Data Analysis System Four adopted after the trialling process from trial research (5.4.10). Application of this system entailed segmentation of the interaction (described in 5.4.10) into *Conversation Units* exemplified in column two of TABLE 6.7. The derived *Conversation Units* provided the sequential input to the discussion by each

participant and formed the basis of segmentation of the interaction into *Interaction Segments* exemplifying the themes/topics considered during the interaction. Additionally, the segmentation of *Conversation Units* into *Message Elements* provided the basis of detailed analysis of the interaction for *Linguistic Forms* and *Linguistic Functions* presented in TABLES 7.1, 7.2, 7.3, 7.4 and 7.5.

Column three of TABLE 6.7 contains sequential descriptions of the *Conversation Units*. These descriptions focus on cognitive dimensions of the interaction potentially providing insights into the cognitive processes engaged in by participants during the interaction. In order to sustain discussion, the participants utilised a range of cognitive strategies to initiate ideas and respond to ideas. The description of cognitive strategies thus provided (a) insights into the range of cognitive strategies used by participants to sustain discussion, and (b) participants' establishment of conceptual frames during discussion.

During the group interaction, the participants adopted group interaction roles which generated the range of cognitive strategies to sustain discussion. Embedded in these cognitive strategies was a range of linguistic forms and linguistic functions through which the participants communicated.

However, as the data analysis system was applied to the data, it was progressively obvious that it was necessary to enhance the system's sensitivity to the language of the interaction, thus necessitating further

modifications to the linguistic dimension of the system. In the modified system, *form* focused on analysis of the structure of the language created by participants within conversation units and *function* focused on analysis of the primary functions of those structures in the context of ongoing interaction.

Analysis in the context of the linguistic dimensions of the interaction included consideration of (a) the relationship between the cognitive process engaged in by participants to structure ideas and the language they used to communicate their ideas and (b) choice of linguistic forms by participants. The nature of the treatment of data is exemplified in TABLE 6.7.

Column five of TABLE 6.7 contains the classification of the linguistic forms (the F Sub-column) of message elements and primary functions of those forms in context (Function Sub-column). In column five of this table, the following symbols are used in the Form Sub-column:

S =Statement, *I* = Imperative, *E* = Exclamation, *Q* = Question, *IU* = Incomplete utterance (e.g., If you think your getting near the end-), *EM* = Extraverbal Marker (e.g., maintaining conversation (e.g., Mm, um), *CR* = Conversation Ritual (e.g., Thanks, Excuse me). The adopted system also includes the coding of particular linguistic forms and functions generated by the interaction in context e.g., *RTA* = Reading Text Aloud (e.g., reading written material aloud) and *Sp* = Spelling a Word.

During the process of deriving descriptors of linguistic functions, individual messages generated in ongoing interaction for each

TABLE 6.7 Sample Group Learning Session in Science

Source	Interaction Segments Conversation Units Message Elements	Cognitive Strategies and Cognitive Functions	Contextual Frames and Sources of Information	Linguistic Forms and Functions		Extra/Non/ Verbal Input
				F	Function	
1 Teacher	Our task for the morning.	Focuses students' attention on task (Advance Organiser)	Written science problem	S	Focusing	Circulation of task sheet to students
2 Nola	Thank you.	Proffers courtesy response	Problem sheet	CR	Thanking	Accepts sheet from teacher.
3 Rod	Do we have an hour?	Seeks information on task time frame.	Task time frame	Q	Seeking information	Eye contact with Teacher
4 Kay	Do we have an hour?	Echoes Rod's question	Task time frame	Q	Seeking information	Eye contact with teacher
5 Teacher	Just under an hour now./Read through your problem/and see if you would like to ask any questions.	Provides time frame/guidelines. Seeks engagement with task.	Task time frame Eliciting questions	S I I	Informing Directing Directing	Gaze encompasses whole group. (Participants read task sheet)
6 Kay	Can you do you like have to write it down/or can you get up and act it out or something/or do you have to write it down?	Monitors ideas. Seeks clarification from Teacher on required mode of responding to the task.	Strategies and expectations for the group task	Q Q Q	Seeking clarification Seeking clarification Seeking clarification	Eye contact with Teacher

knowledge domain were examined in context. Examination of each message in context entailed examination of messages created by participants both before and after each message to be classified. That is, each message was classified on the basis of the "best fit" in the context of ongoing interaction.

This process was implemented by two researchers who examined independently the interaction generated in each knowledge domain for message segmentation and the classification of linguistic forms and linguistic functions for each message by applying the data analysis system to the interaction generated for each knowledge domain. After the initial, individual segmentation and classification, the two researchers met to compare their codings of the data. After comparing the suggested codings, instances of disagreement were reexamined in context and discussed. by the two researchers Through this joint examination process, agreement was reached on (a) message segmentation and (b) classification of linguistic forms and linguistic functions.

In some instances, the ultimate classification was not that initially suggested by either coder. The following example illustrates individual coders' initial classifications and the resolved classification. In the first conversation unit of the illustration, the coders had the same individual, suggested codings. In the second conversation unit, the coders agreed on the final classification which was different from either coder's original, suggested classification.

Con Rewrite that in order. (*Directing*) Joe will write it. (*Informing*)

Rod I'll write it on the sheet. (*Informing*) (coder 1)

(*Proffering*) (coder 2)

(*Volunteering*) (resolved classification)

During the group interaction, participants created messages that generated responses within a range of contexts. The following segments of interaction illustrate a range of messages created by participants (a) seeking and receiving information (Example 1), (b) seeking and receiving clarification (Example 2), (c) amending ideas based on information received (Example 3) (d) interacting without the development of ideas (Example 4), (e) refocusing ideas (Example 5) and (f) completing ideas presented during discussion (Example 6). The examples also illustrate how relationships are established by messages created by participants during the interaction thus emphasising the need to consider each message in context to determine its function that "best fits" each particular context.

Example 1

Nola What else do people need? (*Seeking information*)

Kay Shelter. (*Informing*)

Example 2

Rod How many have you got? (*Seeking information*)

Kay How many so far? (*Seeking clarification*) Eleven (*Informing*)

Example 3

Kay Get used to the heat. (*Informing*) Is it hot or cold up there?
(*Seeking clarification*).

Rod Cold. (*Informing*)

Kay Get used to the coldness then. (*Amending*)

Example 4

Rod You need a petrol station for transport if you've got trucks.
(*Specifying*)

Nola Yeh. (*Agreeing*)

Con That's right. (*Confirming*)

Example 5

Nola I thought I thought the language was very descriptive.
(*Evaluating*)

Kay We're up to Characters. (*Refocusing*)

Nola Sorry. (*Apologising*)

Example 6

Nola She slipped on the rock (*Describing*) and the camera fell out of her
hand (*Describing*) and the camera-- (*Describing*)

Kay And the camera went--(*Describing*)

Nola And the camera went splick. (*Completing*)

During the analyses, the following linguistic functions were derived for classifying each linguistic form (exemplified in TABLE 6.8) in the three knowledge domains. Each classified function provides for a range of

linguistic forms e.g., the function of clarification may be expressed differentially e.g., through a question or a statement. In the exemplars which follow the language context is included to highlight the nature of the function which is represented in italics.

TABLE 6.8 Classification of Linguistic Functions

Classification	Linguistic Function
Agreeing	expressing accord with e.g., T That's a long time, isn't it? K Yes.
Amending	modifying an utterance e.g., R Get used to the exercise equipment. K <i>Get used to exercise bikes.</i>
Apologising	proffering regret e.g., K <i>Oh sorry, there's only nine.</i>
Arguing	stating reasons for or against e.g., K Thirteen. T Good. N You don't really have thirteen <i>because getting used to lifestyle is getting used to things.</i>
Checking	verifying for correctness, truth and/or completion e.g., R <i>Have you finished the columns yet?</i> N I'll only be a minute.
Clarifying	making clear e.g., K Mr B. do we just write down the main points? T Yes/ <i>Make main points like they went up the hill/ broke her leg.</i>
Classifying	placing according to class or kind e.g., R Have your own stock like cattle and sheep. N <i>That would come under stock.</i>
Comparing	noting similarities and differences e.g., T That's a long time isn't it? <i>Not as long as some trips though is it?</i>

Completing	making complete and/or finishing e.g., C. Get prepared for all um- K <i>Get prepared for all emergencies.</i>
Concluding	bringing to an end e.g., R <i>That's the lot.</i> We've covered most of them.
Confirming	ratifying and/or strengthening e.g., C Learn communications. K <i>Yeh, learn communications.</i>
Correcting	setting right and/or pointing out the error e.g., K- learn how to survive for three weeks, get used to nongravity activities. Oh sorry, <i>there's only nine.</i>
Describing	giving an account of or defining e.g., K <i>On a TV show I saw something strange</i>
Dictating	saying and/or reading text aloud to be taken down e.g., N <i>Went to get a close picture of a bird and slipped on the rock. As she slipped,-- Have you got that?</i>
Directing	giving directions and/or instructions e.g., N <i>Put training for launch.</i>
Disagreeing	expressing lack of accord e.g., R Get used to controls. K I can do a hand stand in the water. N. <i>You can't.</i>
Elaborating	providing additional details e.g., C <i>Test ability. You give them the tests just to get started.</i>
Eliciting	encouraging further response e.g., T They prepare them for any other sorts of trips you know in the planning when they're preparing them. R <i>Any other ideas?</i>
Evaluating	gauging the value and/or measuring the impact e.g., C Learn how to fly a shuttle. K <i>That would be important.</i>
Exclaiming	cry out or speak suddenly and/or express emotion e.g. K How many astronauts were there? T Probably six or seven. K <i>Kew! That's makes it even harder.</i>

Explaining	providing explanatory details e.g., K <i>We didn't do it that way./We were going to write it down/and put it in four columns.</i>
Focusing	concentrating on something and/or bringing to attention e.g., R <i>Number one. C First one/the first one is test ability.</i>
Generalising	formulating a general notion from facts e.g., R <i>Get used to all the things you do.</i>
Hypothesising	speculating e.g., K <i>They'd probably hook it to an airconditioner or something.</i>
Incomplete	not finished e.g., K <i>They used to have--</i>
Informing	giving information e.g., R <i>They get fitted for their suit</i> K <i>Yeh.</i>
Listing	recording a series of names and/or words e.g., K <i>Just write about the characters./ R.Robert, John, Fred, Melissa and Jodie.</i>
Maintaining	keeping in existence e.g., R <i>Don't cry then./ Um/ That's about it.</i>
Negating	denying and/or nullifying e.g., K <i>Do we have to work out the times? C No / just what they do.</i>
Pleasing	requesting something and/or ideas/information by indulgence.g., K <i>May I have a sheet,/please ?</i>
Praising	expressing approval e.g., T <i>I think you have done a good job.</i>
Probing	searching into and/or interrogating closely e.g., N <i>Getting used to lifestyle is getting used to things. T So you think that covers a number of things?.</i>
Qualifying	to attribute some quality or qualities and/or modify. e.g., K <i>And sprained her ankle. N A badly sprained ankle.</i>
Reading aloud	reading aloud from written text e.g., R <i>Read them out. K The exam/and test ability/get people needed</i>

Refocusing	returning to an idea/topic e.g., R Get fitted for their suits. K How many are there? C Fifteen. R <i>Get fitted for their suits.</i>
Repeating	uttering again e.g., C <i>Test out foods, test out foods.</i>
Requesting	asking for something e.g., R I'll just have another read of them. T <i>Would you read them out?</i>
Seeking clarification	trying to acquire or searching for clarification e.g., T Read through your problem and see if you would like to ask any questions. K <i>Can you like do you have to write it down or can you get up and act it out?</i>
Seeking confirmation	trying to acquire or searching for confirmation e.g., T That's a long time <i>isn't it?</i>
Seeking direction	trying to acquire or searching for direction in doing something e.g., T Nola will write down the last part whether she thinks the story should be included/and why it should be included to add to Rod's report. N <i>Do you want me to read it out?</i>
Seeking information	trying to acquire or searching for information e.g., K <i>How many astronauts were there?</i> T Probably six or seven.
Solving	providing a solution e.g., N You'd also need supplies of water. K <i>They would have wells.</i>
Specifying	limiting and/or establishing conditions e.g., N <i>If you put a time schedule, you could see.</i>
Spelling	providing the letters of a word e.g., R Weightlessness? K <i>w-e-i-g-h-t-l-e-s-s-n-e-s-s.</i>
Suggesting	proposing something e.g., T <i>Now I suggest this is the way you do it.</i>
Synthesising	combining parts to make a whole e.g., R Get used to no gravity. K Get used to all the things you do. N <i>Get used to all the things you have to do in nongravity activities.</i>

Thanking	expressing gratitude and/or acknowledging a favour e.g. T <i>Thanks Rod./I think we'll finish up there.</i>
Volunteering	offering and/or volunteering to do something e.g., R <i>Use someone else's.</i> N <i>I'll do it.</i>

During both guided group learning segments and group learning sessions, the five participants and the teacher/researcher (when present) sat in the same position. for both guided group segments and group learning sessions Their location is shown in FIGURE 6.1

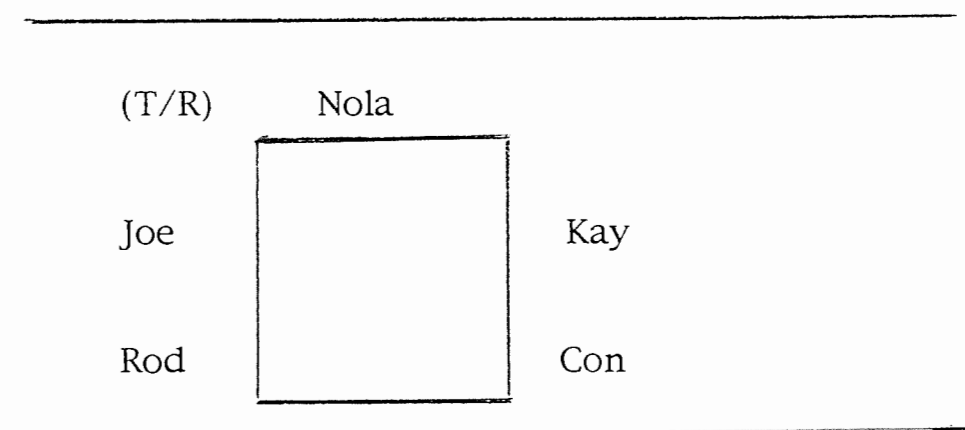


FIGURE 6.1 Physical Location of Participants

Data treatment included analyses of the global interaction for (a) linguistic forms and (b) linguistic functions generated by each participant in each of the knowledge domains.

CHAPTER 7

FRAMEWORKING GROUP INTERACTION

7.1 DATA ANALYSIS: PHASE ONE

Application of the data analysis system to the interaction generated by the group learning sessions produced a range of linguistic mapping devices of the group interaction in each curriculum area examined. FIGURE 7.1 articulates the interlocking dimensions of the group interaction (described in 6.9) and the framework for generation of Phase One data of this interaction.

At the Phase One stage of analysis, context is segmented as contextual frames generated by participants during the interaction. Context is perceived as basic to the participants' utilisation of sources of information and articulation of ideas/information during the interaction and was taken into account during the segmentation process (see 6.9).

The collaborative group interaction component of FIGURE 7.1, which includes the segmentation (described in 6.9), characterises the functions and strategies adopted by participants to sustain the interaction and provides base data for detailed analysis of the language created by the participants during the interaction.

The cognitive component of the figure hypothesise the link between language and cognitive processes (described in 6.9) achieved through analysis of the language into linguistic forms from which inferences are drawn to articulate the cognitive

dimension of the language created by participants during the interaction via linguistic functions.

The group dynamic component of FIGURE 7.1 develops a classification for roles adopted by participants and provides the basis for examining the role of each participant in the group interaction.

In order to analyse the interaction for Phase One data, the data analysis system was applied to the interaction generated for each learning task. These data were then synthesised to derive data to examine the contributions made by each participant in the interaction across the three knowledge domains examined.

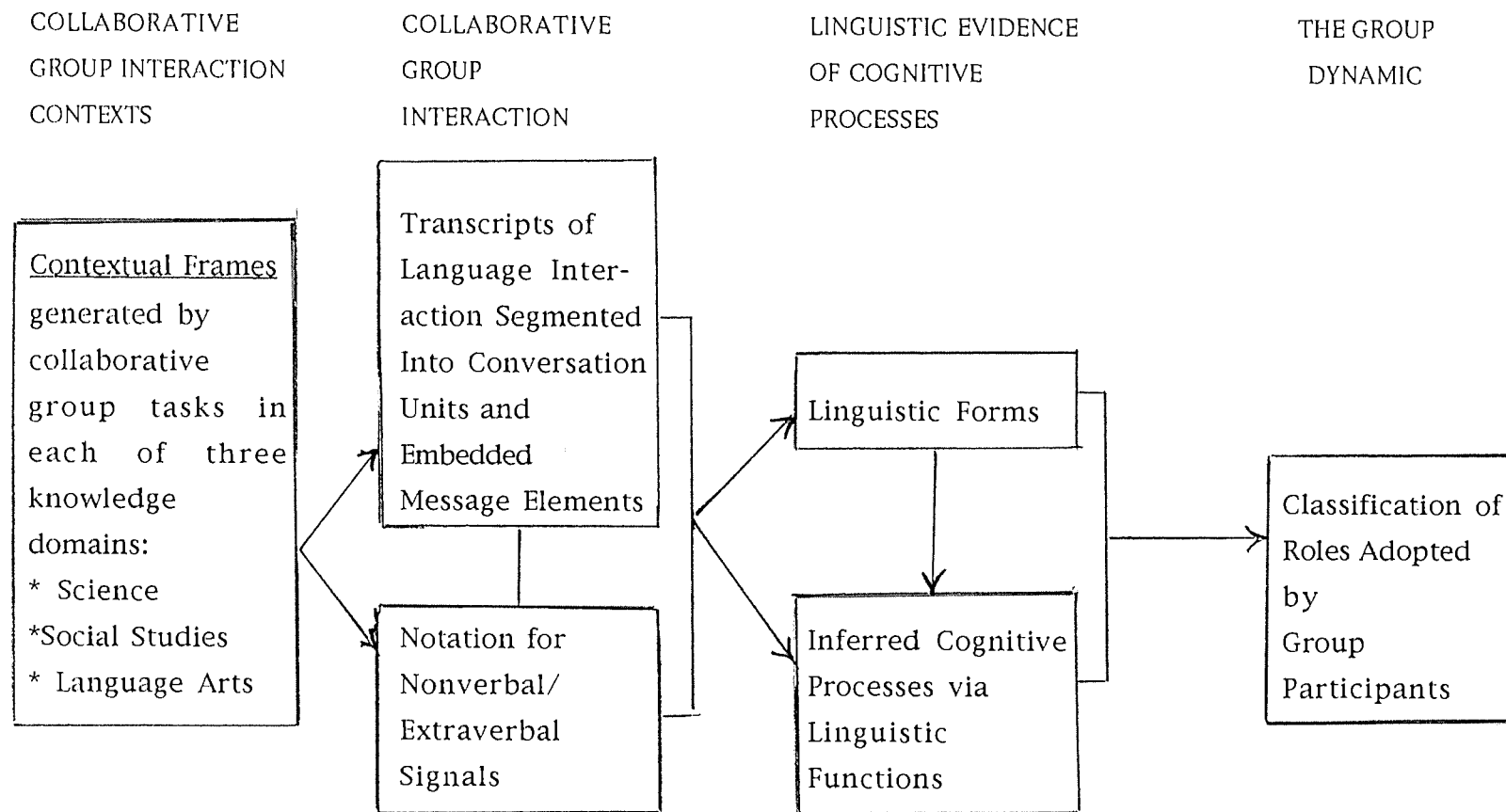


FIGURE 7.1 The Group Dynamic: Interlocking Dimensions of Group Interaction

7.2 GROUP LEARNING INTERACTION IN SCIENCE

The group learning session in science focused on a science problem which participants were to solve as a group through critical examination of the problem and use of background knowledge as a basis for discussion and development of activities appropriate for training astronauts (see APPENDIX F, Science). To fulfil this task, group members were asked to draw up a program to assist a group of people responsible for training astronauts to adjust to living in a space station for three weeks. A number of examples of living adjustments were listed for group members to consider to assist them in the task.

Phase One data derived from application of the data analysis system (described in 6.9) via the processes articulated in FIGURE 7.1 are presented in TABLE 7.1.

TABLE 7.1

Group Learning Session in Science

Source	Interaction Segments Conversation Units Message Elements	Cognitive Strategies and Cognitive Functions	Contextual Frames and Sources of Information	Linguistic Forms and Functions		Extra/Non/ Verbal Input
				F	Function	
1 Teacher	Our task for the morning.	Focuses students' attention on task (Advance Organiser)	Written science problem	S	Focusing	Circulation of task sheet to students
2 Nola	Thank you.	Proffers courtesy response	Problem sheet	CR	Thanking	Accepts sheet from Teacher.
3 Rod	Do we have an hour?	Seeks information on task time frame.	Task time frame	Q	Seeking information	Eye contact with Teacher
4 Kay	Do we have an hour?	Echoes Rod's question	Task time frame	Q	Seeking information	Eye contact with Teacher
5 Teacher	Just under an hour now./Read through your problem/and see if you would like to ask any questions.	Provides time frame/ guidelines. Seeks engagement with task.	Task time frame Eliciting questions	S I I	Informing Directing Directing	Gaze encompasses whole group. (Participants read task sheet)
6 Kay	Can you like do you have to write it down/or can you get up and act it out or something/or do you have to write it down?	Monitors ideas. Seeks clarification from teacher on required mode of responding to the task.	Acceptable response frame	Q Q Q	Seeking clarification Seeking clarification Seeking clarification	Eye contact with Teacher.

7 Teacher	Read it through first/and see what you come up with/and we'll come back to that question./Okay/let's have a look at your group task to draw up a training program to assist the people engaged in training astronauts./This means you have to draw up a program (so it answers your question/doesn't it Kay) which includes each of the foregoing adjustments for the people training/ so they can use this program to help the astronauts prepare for space.	Provides some initial strategies, and expectations for completing the task.	Strategies and expectations for the group task	I	Directing, Directing Informing Confirming Directing	Teacher addresses the whole group and establishes eye contact with individuals.
				I		
				S		
				S		
				I		
				S	Explaining	
				S	Explaining	
				Q	Seeking confirmation	
				S	Explaining	

	Now I suggest this is the way you do it/ you can work it out as a group./I suggest you discuss the training procedures you recommend for each of the adjustments/ and draw up the overall program as a group./You might want a sheet of paper or something to draw up their program with./If you want another one l e t m e know./Right./Any questions on what you have to do for your group problem?/I'm not going to/I'll be here to help you with any questions.	Focuses on group solutions to the task and related strategies. Encourages a cooperative group effort. Suggests various assistance scenarios.	Cooperative group approach to the problem. Willingness to assist participants.	S S S S S IU S	Suggesting Suggesting Suggesting Suggesting Explaining Explaining Confirming Eliciting Informing Informing	
8 Rod	Do we have to write to draw up what the astronauts do and stuff for their training?	Seeks clarification of limits of group task.	Strategy for completing the task	Q	Seeking clarification	Eye contact with Teacher
9 Teacher	Yes./As a group, you have to come up with a program/so you need to discuss it first/don't you?	Confirms Rod's interpretation of the task. Encourages group solution.	Rod's interpretation of task	S S S S	Agreeing Explaining Explaining Seeking confirmation	Eye contact with Rod/nods his head.
10 Kay	Yep	Agrees with Rod and teacher.	Fundamental of task	S	Agreeing	Eye contact with Rod.

11 Teacher	I'll just move around a little./If you want to ask any questions, just ask them./Make sure you speak clearly so that I can hear you./I'm sure you're going to come up with something interesting.	Informs participants of availability and intentions. Establishes rationale for clear speech. Inspires confidence.	Establishment of task context	S S I S	Informing Eliciting Directing Praising	Teacher begins to move away from the group.
12 Kay	Well there are four adjustments they have to get used to/so there's obviously going to be columns, obviously.	Focuses on stated task parameters and extrapolates to layout requirements.	Framework for recording task	S S	Informing Concluding	Looks around the group seeking a response.
13 Rod	Who's doing the writing?/Do we only write on one sheet the whole thing?	Seeks clarification of members' responsibilities and recording requirements.	Framework for recording task	Q Q	Seeking clarification Seeking clarification	Looks at Teacher for clarification.
14 Teacher	You can work it out as a group what you want to do/ but I think so.	Encourages group cooperation for task recording.	Framework for recording task	S S	Suggesting Suggesting	Eye contact with Rod.
15 Rod	I'll write it.	Informs group of his intentions.	Recording strategy	S	Informing	Prepares sheet for writing.
16 Kay	Firstly there's going to be four columns.	Confirms earlier statement re layout.	Layout format	S	Informing	Eye contact with Rod.
17 Nola	Don't rule it up yet Rod.	Advocates delaying strategy.	Delaying formatting	I	Directing	Looks at Rod.
18 Kay	Don't rule it up yet Rod.	Echoes instructions given by Nola.	Layout format	I	Directing	Looks at Rod.
19 Rod	I was ruling it up./I wasn't thinking about it.	Describes his actions apologetically to the group.	Preparing the sheet.	S S	Informing Apologising	Looks at Nola then Kay.
20 Nola	If there are four things,/then um-	States a condition/monitors ideas.	Conditional four things	IU EM	Concluding Maintaining	Eye contact with Kay.

21 Kay	How many people are there?/How many astronauts are there?	Seeks a hypothesis re number of astronauts.	Number of astronauts (Inferential)	Q Q	Seeking information Seeking information	Looks at Nola while tapping her sheet.
22 Rod	One	Hypothesises a number.	One astronaut (Inferential)	S	Hypothesising	Eye contact with Kay.
23 Kay	One astronaut?	Doubts Rod's Hypothesis.	Doubted hypothesis	Q	Seeking clarification	Looks at Rod.
24 Joe	A group.	Negates Rod's hypothesis with another one.	Group of astronauts (Inferential)	S	Hypothesising	Eye contact with Kay.
25 Kay	How many astronauts were there?	Repeats the question to Teacher in the room.	Number of astronauts	Q	Seeking information	Eye contact with Teacher.
26 Teacher	Probably six or seven.	Hypothesises probable number.	Six or seven astronauts (Inferential)	S	Hypothesising	Eye contact with Kay.
27 Kay	Kew!/that makes it even harder.	Expresses surprise.	Difficulty of task.	E S	Exclaiming Concluding	Eyes encompass the group.
28 Teacher	Don't forget to speak up so we can hear you on the mike./We can't hear you if you don't speak up.	Requests and explains need for clarity of voice by participants.	Clarity of voice for good interaction	I S	Directing Explaining	Eyes encompass the group.
29 Kay	So do we have to work out the times they use?/Do we have to work out the times?	Seeks clarification on group task.	Time aspect of the task (Inferential)	Q Q	Seeking clarification Seeking clarification	Eyes encompass the group.
30 Con	No/just what they do to help.	Negates hypothesis. Clarifies procedures.	Planners of the training program	S S	Negating Explaining	Eye contact with Kay.
31 Nola	Yes/ to help in their training.	Agrees with and elaborates on Con's explanation.	Planners of the training program	S S	Agreeing Confirming	Eye contact with Kay.
32 Con	What equipment they use.	Focuses on training equipment.	Planners' equipment	S	Informing	Eye contact with Con.
33 Rod	What they do to help.	Focuses on assistance by planners.	Planners' assistance	S	Explaining	Eye contact with Con

34 Nola	We have to draw up a program.	Refocuses on the task strategy.	Task strategy	S	Directing	Looks straight ahead.
35 Kay	We have to draw up a four list program.	Affirms Nola's statement and elaborates.	Task strategy	S	Specifying	Looks at Rod.
36 Nola	It doesn't mean we have to draw it in columns.	Negates Kay's strategy for the task.	Task Strategy	S	Disagreeing	Eye contact with Nola.
37 Kay	Does it matter what time they do it?	Seeks clarification on time for training.	Time for training	Q	Seeking clarification	Looks at Rod.
38 Rod	No/ I don't think so/what the astronauts do first when they're training to go to space.	Negates concept of time. Hypothesises on training sequence.	Training sequence (Inferential)	S S S	Negating Hypothesising Explaining	Looks up and establishes eye contact with Kay.
39 Kay	They probably go into a special machine/so that gets them ready for space for weightlessness.	Hypothesises on a special form of training and explains its outcomes.	Special machine for weightlessness (Inferential)	S S	Hypothesising Explaining	Eye contact with Rod.
40 Rod	They get fitted for their suit.	Focuses on an aspect of readiness.	Fitting for suits	S	Informing	Continues to write.
41 Kay	Yeh/ and then they get they get special things.	Agrees with Rod, monitors ideas and elaborates.	Fitting suits and special things	S S	Agreeing Explaining	Looks at Rod.
42 Joe	They take them up in a plane /and they have to go in the water.	Focuses on related aspects of training	Flying and water training	S S	Informing Informing	Eye contact with Kay.
43 Con	Yeh/ they go in the water./They have to get used to weightlessness.	Agrees with and confirms Joe's ideas. Focuses on weightlessness.	Water and weightlessness	S S S	Agreeing Confirming Explaining	Looks at Rod.
44 Nola	I'm going to draw up four columns.	Informs group of task recording (rejected earlier).	Task strategy	S	Informing	Begins to rule columns on her sheet.
45 Kay	Don't draw up columns yet.	Directs Nola to delay preparation.	Delaying preparation	I	Directing	Looks at Nola.

46 Rod	Weightlessness/then what do they do?	Confirms weightlessness. Seeks guidance on how to continue.	Guidance to continue	S Q	Confirming Seeking information	Continues writing.
47 Kay	Then they probably go up in an aeroplane/and drop them down in the water "cause it gets them used to weightlessness/ or go in a special machine.	Hypothesises activities and their purpose.	Ways of preparing for weightlessness (Inferential)	S S S	Hypothesising Hypothesising Hypothesising	Looks at Rod.
48 Con	They take them to a deep pool.	Elaborates on the concept of water training.	Location for training	S	Elaborating	Looks at Kay.
49 Kay	Yeh/they take them somewhere.	Supports Con's analysis.	Location for training	S	Agreeing	Taps her head with her hand.
50 Con	They go to a pool.	Refocuses on location for training.	Location for training	S S S	Informing Informing	Eye contact with Kay.
51 Joe	They go swimming.	Focuses on what they do.	Swimming in a pool	S	Informing	Eye contact with Kay.
52 Nola	You still have weight when you've been taken out of the water.	Analyses the concept of weightlessness.	Weightlessness and water	S	Explaining	Looks straight ahead.
53 Kay	I know.	Endorses Nola's ideas.	Nola's statement	S	Agreeing	Eye contact with Nola.
54 Nola	When you hit the water.	Establishes a condition.	Her earlier statement	IU	Specifying	Waves her hands in front of her.
55 Kay	You lose a lot of weight.	Informs Nola of an outcome	Weightlessness	S	Informing	Eye contact with Nola.
56 Nola	I can do it.	Informs Nola of achievement	Unclear.	S	Informing	Eye contact with Kay.
57 Kay	I can do a handstand in the water.	Focuses on personal achievement to outdo Nola.	Handstand in water	S	Explaining	Eye contact with Nola.
58 Nola	You can't.	Disagrees with Kay.	Handstand in water	S	Disagreeing	Looks at Kay.

59 Kay	My brother-	Begins to focus on her family achievements.	Her brother	IU	Focusing	Looks at Nola.
60 Nola	Well I'll just rule up four columns now.	Informs group of her intentions.	Task strategy	S	Informing	Continues to rule sheet.
61 Kay	Okay.	Endorses Nola's actions.	Nola's statement	S.	Agreeing	Looks at Nola.
62 Rod	Weightlessness?	Seeks assistance in spelling.	Spelling weightlessness	Q	Seeking information	Looks at Nola then Kay.
63 Kay	w-e-i-g-h-t-l-e-s-s-n-e-s-s	Spells the word.	Spelling "weightlessness"	Sp	Spelling	Looks at Rod as he writes.
64 Rod	Survive/ they probably train them to eat certain foods.	Focuses on a concept and hypothesises on an aspect of it.	Survival food (Inferential)	S	Focusing Hypothesising	Eye contact with Con.
65 Kay	That will do.	Confirms Rod's hypothesis.	Rod's statement (Inferential)	S	Confirming	Looks at Rod.
66 Con	Yes.	Agrees with Rod and Kay.	Rod's statement	S	Agreeing	Eye contact with Rod.
67 Joe	They get used to it.	Elaborates on Rod's statement.	Survival food	S	Explaining	Looks at Con.
68 Kay	And they probably like hook it up to an airconditioner or something so they can eat it/ and let it go all over the place so they're used to it when they go up there.	Hypothesises on simulation of space conditions.	Simulation for food in space (Inferential)	S S	Hypothesising Hypothesising	Twirls her pencil in the air as she speaks.
69 Con	Practise catching their fishing/practise catching their food in space.	Elaborates on fishing and food in space.	Catching food in space (Inferential)	S S	Explaining Explaining	Looks at Kay.
70 Rod	Yeh/ probably under water.	Agrees with Con and elaborates via a hypothesis.	Food under water (Inferential)	S S	Agreeing Hypothesising	Eye contact with Con.

71 Kay	They probably put it in a room where there is a fan or something blowing everywhere.	Elaborates via a hypothesis on simulation of conditions.	Simulating conditions for food (Inferential)	S	Hypothesising	Moves hands backwards and forwards.
72 Con	There is food floating around everywhere.	Describes a resultant scenario of Kay's hypothesis..	Food floating in space (Inferential)	S	Describing	Looks at Kay.
73 Rod	What was that thing they went in?	Seeks information re past event.	Past event	Q	Seeking information	Eye contact with Con.
74 Nola	A non-gravity room.	Provides requested information.	Nongravity room	S	Informing	Looks straight ahead.
75 Rod	They put it in.	Explains location..	Nongravity room	S	Explaining	Looks at sheet in front of him.
76 Kay	They put them in a non-gravity room like Nola said./They put them in a non-gravity room/and it goes up/and it goes right down here.	Agrees with Nola and explains what happens.	Non-gravity room activities	S S S S	Agreeing Repeating Explaining Explaining	Moves hands up and down as she speaks.
77 Con	They practise--	Begins to explain something.	Practise something	IU	Incomplete	Looks at Rod.
78 Joe	They practise emergency things.	Focuses on a general aspect of training.	Emergency things	S	Explaining	Eye contact with Con.
79 Con	They practise emergency escape.	Explains what they practise.	Emergency escape	S	Specifying	Eye contact with Joe.
80 Rod	What do they do?	Seeks information on escape activities.	Escape activities	Q	Seeking clarification	Writes as he speaks.
81 Con	They practise emergency escape from the/um--	Confirms his earlier statement/monitors ideas.	Emergency escape	IU EM	Explaining Maintaining	Looks at Rod.
82 Nola	They do their training in the water in pools and things.	Focuses on a specific kind of training.	Training in pools	S	Explaining	Looks straight ahead.
83 Kay	Because of its weightlessness.	Explains why they train in water.	Water/weightlessness	S	Explaining	Looks at Nola.

84 Con	Because it's the closest thing to weightlessness.	Amends Kay's/Nola's idea.	Water/weightlessness	S	Amending	Eye contact with Kay.
85 Kay	They probably have flying lessons too.	Hypothesises a scenario of flying lessons.	Flying lessons (Inferential)	S	Hypothesising	Looks at Rod.
86 Con	Yes/and they go in those things that spin around in case they go orbital.	Agrees with Kay and focuses on a form of training.	Training in spinning things	S S	Agreeing Explaining	Moves his hands around and around as he speaks. Looks at Rod.
87 Kay	Yes/that's what they do.	Agrees with and confirms Con's ideas.	Con's ideas	S S	Agreeing Confirming	Looks at Rod.
88 Joe	They practise what?	Seeks clarification from Kay.	Kay's ideas	Q	Seeking clarification	Eye contact with Kay.
89 Rod	I know how to spell it.	Informs Con of his spelling knowledge.	Spelling a word	S	Informing	Looks at Con.
90 Con	What?	Seeks information re the word	Spelling a word	Q	Seeking information	Looks at Rod.
91 Rod	Emergency	Provides requested information.	Spelling "emergency"	S	Informing	Eye contact with Rod.
92 Kay	e-m-e-r-g-e-n-c-y	Spells the word.	Spelling "emergency"	Sp	Spelling	Rod writes the word.
93 Rod	Emergency escape.	Reads aloud from sheet.	Emergency escape (Textual)	RTA	Reading aloud	Looks at the sheet.
94 Kay	They need to train in that special machine in case they have to go up orbit.	Focuses on a need in the training program and explains why.	Need to train in a special machine	S	Explaining	Looks at Rod.
95 Con	Yes/it's like the gyroscope thing that spins around in case the shuttle spins around.	Agrees with Kay and elaborates on her ideas.	Gyroscope type machine	S S	Agreeing Comparing	Eye contact with Kay.
96 Rod	What do I write?	Seeks clarification on recording.	Recording strategy	Q	Seeking information	Looks at Kay then Con.

97 Con	Practise um/learn the feeling of what it feels like when the shuttle goes out of control so you can get used to it so you can get it back into control.	Monitors ideas and focuses on shuttle control and associated feelings.	Writing on shuttle control and associated feelings	EM S	Maintaining Explaining	Looks at Rod who continues to write.
98 Nola	They have special diets because of special ice-creams and special chocolates and things.	Focuses on special diets and elaborates with examples.	Items of special diets	S	Explaining	Looks straight ahead.
99 Kay	They used to have--	Begins to focus on something.	Unclear	IU	Incomplete	Looks at Nola.
100 Nola	Special cereals and things.	Elaborates on her previous statement.	Items of special diets	S	Elaborating	Eye contact with Kay.
101 Kay	They used to have food in tubes.	Completes her previous statement.	Food in tubes	S	Informing	Looks at Rod.
102 Nola	They're not allowed any food.	Elaborates on the specialised nature of diet.	Special diets	S	Informing	Eye contact with Kay.
103 Kay	They're allowed to have any food now./They're even allowed food because it was on that packet we saw.	Disagrees with Nola and provides a rationale for disagreeing.	Rationale from past experience.	S S	Disagreeing Informing	Looks at Nola.
104 Nola	No it wasn't./They have special food in that.	Disagrees with Kay. Provides rationale for disagreeing.	Rationale from past experience.	S S	Disagreeing Informing	Eye contact with Kay.
105 Kay	In those packets?	Questions validity of Nola's rationale.	Nola's rationale	Q	Seeking clarification	Eye contact with Nola.
106 Nola	Yeh/it just wasn't in that.	Agrees. Confirms previous rationale.	Her previous rationale	S S	Agreeing Confirming	Eye contact with Kay.
107 Kay	It's like a Chinese packet.	Compares packet with Chinese packet.	Chinese packet	S	Comparing	Looks at Nola.
108 Nola	And when you cook it up, it just tastes like real food like I make.	Compares space food with her own cooking.	Taste of packet food	S	Comparing	Eye contact with Kay.

109 Kay	And they need to have exercise up there cause if they--	Focuses on the need for exercise.	Need for exercise	S	Informing	Looks at Rod.
110 Rod	They don't have to.	Disagrees with Kay.	Kay's ideas	S	Disagreeing	Eye contact with Kay.
111 Nola	They have to do special ones in zero gravity.	Elaborates on concept of exercise.	Exercise in zero gravity	S	Specifying	Looks at Rod.
112 Con	Yeh/learn how to fly in zero gravity.	Agrees with Nola. Focuses on flying in zero gravity.	Flying in zero gravity	S S	Agreeing Informing	Looks at Nola.
113 Kay	Mm/Yeh/there's also a--	Agrees with Con Begins to say something.	Con's statement	EM S IU	Maintaining Agreeing Incomplete	Looks at Con.
114 Joe	Learn to move around with zero gravity.	Focuses on moving in zero gravity.	Moving in zero gravity	S	Informing	Eye contact with Kay.
115 Kay	On a T.V. show I saw something strange./ It said you can/um/ they have a special room/that if you go near the sun, if you go pretty close to the sun, you just /um/go in this special room so that, if it gets blown out, you're not injured./So it's like a protective sun area, a sun room.	Recounts a past T.V. viewing experience. Describes the experience. Monitors ideas	Past T.V. experiences related to a special sun room	S S EM S S EM S S	Describing Describing Maintaining Describing Describing Maintaining Describing Describing	Looks at Rod.
116 Con	Know your way around in the shuttle.	Focuses on shuttle familiarity.	Knowing the shuttle	S	Informing	Eye contact with Kay.
117 Kay	That's another one./That one would be close to last./Um/ get used to the shuttle.	Evaluates Con's statement. Monitors ideas. Reinforces concept of shuttle familiarity.	Con's ideas	S S EM S	Evaluating Evaluating Maintaining Informing	Looks at Rod.

118Con	Get used to parts of the shuttle./Learn how to go through parts of the shuttle.	Elaborates on his and Kay's ideas.	Shuttle familiarity	S S	Specifying Specifying	Looks at Rod.
119Rod	Learn how to fly the shuttle.	Refocuses on flying the shuttle.	Flying the shuttle	S	Refocusing	Looks at Con.
120Con	Yeh/learn how to fly/ and find your way around in the shuttle.	Agrees with Rod. Refocuses on ideas expressed earlier.	Flying and getting used to shuttle.	S S S	Agreeing Confirming Confirming	Eye contact with Rod.
121Kay	Get used to the heat./Is it hot or cold up there?	Focuses on heat. Seeks clarification on temperature.	Adjusting to temperature	S Q	Informing Seeking clarification	Looks at Rod.
122Rod	Cold.	Clarifies Kay's question.	Coldness	S	Informing	Eye contact with Kay.
123Kay	Get used to the coldness then.	Clarifies her previous statement.	Getting used to coldness	S	Amending	Eye contact with Rod.
124Nola	Get used to the atmosphere.	Focuses on climatic adjustment.	Adjusting to atmosphere	S	Informing	Looks straight ahead.
125Kay	Get used to--.	Begins to focus on something.	Unclear	IU	Incomplete	Looks at Rod.
126Nola	Why doesn't Rod suggest something?	Seeks reason for Rod not contributing.	Rod's contribution	Q	Eliciting	Looks at Rod.
127Con	Test out foods./Test out foods.	Focuses on food testing.	Testing food	S S	Informing Repeating	Looks at Rod.
128Kay	Test out foods./They would have to have training/uh/all the procedures they would have to do like if something happened.	Confirms Con's ideas. Focuses on training. Monitors ideas and elaborates on them.	Procedures for testing food	S S EM S	Confirming Informing Maintaining Explaining	Moves her pencil around in front of her.
129Nola	They can take food up there like M and M's and things/but they would try to get them to each other's mouth.	Focuses on and compares foods. Explains procedures for eating.	Preparing and eating food	S S	Comparing Explaining	Eye contact with Kay.
130Con	They have to take solid food.	Elaborates on food preparation.	Taking solid food	S	Explaining	Looks at Rod.

131 Rod	Get used to the solid food.	Elaborates further on food preparation.	Getting used to solid food	S	Elaborating	Looks at Con.
132 Nola	It all has to be packaged.	Explains the preparation process.	Packaging food	S	Explaining	Looks at Rod.
133 Kay	Yes.	Agrees with Nola's idea.	Nola's statement	S	Agreeing	Looks at Rod.
134 Nola	It can't be in cans or anything I think.	Hypothesises on packaging food.	Packaging food (Inferential)	S	Hypothesising	Looks straight ahead.
135 Kay	They have to get used to the atmosphere if it's cold up there./They've got to get used to the cold.	Refocuses on ideas in earlier statements.	Adjustment to cold and atmosphere	S S	Explaining Confirming	Eye contact with Nola.
136 Rod	They have suits./They are warm./Learn how to--	Focuses on items of clothing. Begins to say something.	Suits for warmth	S S IU	Informing Informing Incomplete	Eye contact with Kay.
137 Con	They have to fix satellites shuttles.	Focuses on repairing shuttles and satellites.	Fixing shuttles and satellites	S	Informing	Eye contact with Rod.
138 Nola	And if anything goes wrong in the shuttle while you're up there you have to--	Focuses on potential problems.	Problems in shuttles and satellites	IU	Explaining	Eye contact with Con.
139 Kay	Learn how to use a face suit space suit.	Focuses on using space suits.	Using a space suit	S	Informing	Eye contact with Nola.
140 Con	Learn the gadgets.	Focuses on gadgets in shuttle.	Learning the gadgets	S	Informing	Looks at Rod.
141 Nola	Learn how to fly a shuttle like in--	Confirms an earlier idea by Rod and begins to explain it.	Learning to fly a shuttle	IU	Confirming	Eye contact with Rod.
142 Con	Learn how to fly a shuttle.	Confirms Nola's statement.	Learning to fly a shuttle.	S	Confirming	Looks at Rod.
143 Nola	That would be important.	Evaluates Nola's/Con's statement.	Nola's/Con's statement	S	Evaluating	Looks at Rod.
144 Rod	Get used to fixing the satellites and shuttles.	Refocuses on ideas expressed earlier.	Fixing satellites and shuttles	S	Refocusing	Eye contact with Con.

145 Kay	Know how to operate your suit./It's got gas and oxygen.	Focuses on suits and explains their nature.	Operating a suit.	S S	Informing Explaining	Looks at Rod.
146 Con	Yes/learn how to operate your suit and other equipment in the shuttle./You need an "r".	Agrees with Kay, and elaborates. Directs Rod on spelling.	Operating equipment and spelling a word	S S I	Agreeing Elaborating Directing	Looks at Rod's writing and points to a word.
147 Rod	Mm.	Agrees with Con.	Con's directions	EM	Agreeing	Looks at the word.
148 Con	You need an "r"/Learn how to use your suit and the equipment in the shuttle.	Directs Rod's attention to spelling. Refocuses on ideas in previous statement.	Spelling a word and operating a suit	S S	Directing Refocusing	Looks at Rod and points to a word.
149 Kay	They have to be able to relax.	Focuses on relaxation.	Being able to relax	S	Informing	Looks at Rod.
150 Nola	Relax?	Seeks clarification of concept of relaxation.	Kay's idea	Q	Seeking clarification	Looks at Kay.
151 Con	Get used to the beds in the thing.	Focuses on sleeping.	Getting used to beds	S	Informing	Looks at Nola.
152 Joe	Get used to the straight beds.	Elaborates on Con's idea.	Straight beds	S	Specifying	Looks at Con.
153 Kay	Yes/get used to the straight beds.	Agrees with Joe. Confirms his ideas.	Getting used to straight beds	S S	Agreeing Confirming	Eye contact with Joe.
154 Rod	Get used to the lifestyle.	Focuses on general concept of lifestyle	Getting used to lifestyle	S	Generalising	Looks at Con.
155 Kay	Yeh.	Agrees.	Rod's statement	S	Agreeing	Looks at Rod.
156 Con	Get used to life in the shuttle./Get used to weightlessness in the shuttle.	Confirms concept of life in the shuttle and focuses on weightlessness.	Lifestyle and weightlessness	S S	Confirming Informing	Eye contact with Rod.
157 Nola	You have to get used to weightlessness./It's different.	Confirms concept of weightlessness and elaborates.	Weightlessness	S S	Confirming Explaining	Eye contact with Con.
158 Con	Lifestyle in the shuttle.	Confirms concept of lifestyle.	Lifestyle in the shuttle	S	Confirming	Eye contact with Nola.

159 Kay	They need to exercise because up there it's /um-	Refocuses on exercise and begins to explain.	Exercise	S EM	Explaining Maintaining	Looks at Rod.
160 Joe	Yes/they don't have exercise bikes or something.	Agrees with Kay and elaborates on her idea.	Lack of exercise bikes	S S	Agreeing Explaining	Eye contact with Kay.
161 Kay	Yeh/they have special bikes.	Agrees with Joe and elaborates on his idea.	Special bikes	S S	Agreeing Explaining	Eye contact with Joe.
162 Joe	Down on the ground.	Explains bike location.	Location of bikes	S	Explaining	Eye contact with Kay.
163 Nola	Exercise bikes?	Seeks clarification on exercise bikes.	Exercise bikes	Q	Seeking clarification	Looks at Joe.
164 Joe	They have these strap bikes/and they just--	Clarifies concept of exercise bike and begins to explain.	Strap bikes	S IU	Informing Explaining	Moves his arms backwards and forwards.
165 Kay	Yeh/they're like strap bikes.	Agrees with Joe and compares bikes.	Strap bikes	S S	Agreeing Comparing	Eye contact with Joe.
166 Rod	Get used to using the exercise equipment.	Generalises concept of equipment.	Exercise equipment	S	Generalising	Eye contact with Kay.
167 Nola	Get used to the equipment./Have you got used to strapped into a lot of things?	Confirms concept of equipment use. Seeks clarification on item recorded	Equipment and being strapped into things	S Q	Confirming Seeking information	Eye contact with Rod.
168 Kay	Get used to the amount of danger that could be up there.	Explains the presence of danger.	Getting used to danger in space (Inferential)	S	Explaining	Looks at Rod.
169 Nola	What do you mean get used to the danger that could be up there?	Seeks clarification of possible danger in space from Kay.	Danger in space (Inferential)	Q	Seeking clarification	Eye contact with Kay.

170 Kay	"Cause the person may say/or your boss may say: "Go up there for thirty days."/ Okay? /And you end up coming back after thirty-nine or something./He has to give them something.	Explains dimensions of danger via possible scenarios.	Danger in space (Inferential)	S S S S S	Explaining Explaining Explaining Seeking confirmation Explaining Explaining	Eye contact with Nola.
171 Joe	You have to learn to survive	Focuses on general concept of survival.	Learning to survive	S	Generalising	Looks at Kay.
172 Nola	Get used to living in space.	Focuses on living in space.	Living in space	S	Generalising	Looks at Rod.
173 Con	Learn how to survive.	Confirms Joe's concept of survival.	Learning to survive	S	Confirming	Looks at Rod.
174 Joe	You get used to taking these pills and things.	Focuses on taking pills.	Getting used to taking pills	S	Explaining	Eye contact with Con.
175 Kay	Yeh.	Agrees with Joe.	Joe's statement	S	Agreeing	Looks at Rod.
176 Joe	They take them for a month or more/two years may be.	Elaborates on taking pills. Hypothesises on time frame.	Taking pills (Inferential)	S S	Elaborating Elaborating	Eye contact with Kay
177 Nola	Get used to all the vitamins you're going to have to have.	Focuses on the need for vitamins.	Getting used to needed vitamins	S	Generalising	Eye contact with Joe.
178 Rod	All the what?	Seeks clarification from Nola.	Nola's statement	Q	Seeking clarification	Looks at Nola.
179 Kay	Vitamin tablets.	Clarifies Rod's question for Nola.	Vitamin tablets	S	Informing	Eye contact with Rod.
180 Rod	Tablets.	Confirms part of Kay's statement.	Tablets	S	Confirming	Continues to write.
181 Con	Are you getting ready to draw up the table?	Seeks clarification on strategy procedures.	Drawing the table	Q	Checking	Eye contact with Nola.
182 Nola	Yep	Clarifies Con's question.	Con's question	S	Agreeing	Leans forward and picks up a biro.

183 Rod	Use someone else's.	Directs Nola's actions.	Nola's actions	I	Directing	Takes the biro back.
184 Nola	I'll do it.	Volunteers to draw the table.	Drawing the table	S	Volunteering	Lifts up a sheet of paper.
185 Rod	That's about it/ eh?	Concludes task completion. Seeks endorsement	Seeking confirmation	S Q	Concluding Seeking confirmation	Teacher joins the group.
186 Teacher	How is it going?	Seeks clarification on progress from group.	Progress of task	Q	Checking	Looks around the group.
187 Kay	They're living in a space ship for three weeks./ It says here/ adjust to living in a space shuttle sorry-for three weeks.	Ignores teacher's question. Focuses on information on the task sheet. Corrects error.	Information on the task sheet (Textual)	S S S	Informing Informing Informing	Points at sheet in front of her.
188 Teacher	That's a long time/isn't it?/Not as long as some trips though/is it? Some trips--	Evaluates Kay's statement. Seeks confirmation. Compares trips. Begins to elaborate.	Kay's statement	S Q S Q	Evaluating Seeking confirmation Comparing Seeking confirmation	Looks around the group for a response.
189 Con	Do they have other trips?	Seeks information re trips undertaken	Other trips	IU Q	Elaborating Seeking information	Looks at the Teacher.
190 Teacher	I don't know./ They prepare them for any other sorts of trips you know/in the planning when they're preparing them.	Clarifies his state of knowledge related to the question. Elaborates on the concept of planning.	Con's question	S S S	Informing Explaining Explaining	Eye contact with Con.
191 Rod	Any other ideas?	Seeks additional ideas from the group.	Seeking ideas	Q	Eliciting	Looks around the group.
192 Kay	Get used to that net./You know that net when we came forward to it.	Focuses on object from past experience. Describes the experience.	Training net (Past experience)	S S	Informing Describing	Eye contact with Rod.

193 Con	Yes.	Agrees with Kay's idea.	Kay's statement	S	Agreeing	Looks at Rod.
194 Kay	And it came back.	Elaborates on past experience.	Her previous statement	S	Explaining	Looks at Rod.
195 Joe	Oh yes!/That's escaping.	Agrees with Kay and explains the concept.	Kay's statement	E S	Agreeing Explaining	Eye contact with Kay.
196 Kay	Get used to escaping./Have you got the net?	Refocuses on escaping. Seeks clarification on task recording.	Escaping and recording strategy	S Q	Refocusing Seeking clarification	Eye contact with Rod.
197 Rod	We've got escaping.	Clarifies Kay's question.	Kay's question	S	Informing	Looks up from writing.
198 Kay	The net?	Refocuses on task recording.	The net	Q	Seeking confirmation	Looks at Rod.
199 Teacher	If you think you're getting near the end-	Focuses on task strategy.	Task progress	IU	Checking	Looks around the group.
200 Con	Get used to landing.	Focuses on landing.	Landing	S	Informing	Looks at Rod.
201 Nola	Connect up the cable.	Focuses on cable.	Connecting the cable	S	Informing	Looks at Con.
202 Con	Get used to landing.	Refocuses on landing.	Landing	S	Confirming	Looks at Rod.
203 Kay	Yes/get used to landing./No/learn how to control the ship/Learn how to control it.	Agrees. Focuses on landing then changes focus to controlling the ship.	Landing and controlling the ship	S S S S	Agreeing Confirming Negating Informing Confirming	Eye contact with Rod.
204 Joe	You've got to learn how to land.	Refocuses on learning to land.	Learning to land	I	Explaining	Looks at Kay.
205 Con	Learn how to glide./ Learn how to glide in.	Focuses on gliding.	Learning to glide in	S S	Informing Confirming	Looks at Rod.
206 Rod	Learn to guide the ship.	Focuses on guiding the ship.	Guiding the ship	S	Informing	Eye contact with Con
207 Con	Learn how to glide into an airport.	Confirms concept of gliding and elaborates.	Gliding into an airport	S	Confirming	Eye contact with Rod
208 Rod	Only some./ They used to land in the water.	Sets limits. Describes what happened.	Gliding and landing in the water	S S	Informing Describing	Eye contact with Con
209 Con	Learn how to land.	Refocuses on landing.	Learning to land	S	Confirming	Eye contact with Rod

210 Kay	Learn how to/no/you have to learn how to get rid of the ship./You know how they learn to move about in the rocket.	Monitors ideas. Focuses on aspects of ship/rocket control.	Getting rid of the ship and moving about the rocket	IU S S S	Informing Negating Explaining Explaining	Looks at Rod.
211 Con	Learn how to get off it.	Focuses on disembarking.	Getting off the rocket	S	Informing	Looks at Rod.
212 Kay	Yeh.	Agrees with Con's idea.	Con's ideas	S	Agreeing	Eye contact with Con
213 Con	Is there a control station?	Seeks information re control station	Existence of c/station	Q	Seeking information	Eye contact with Con
214 Joe	Yes.	Verifies existence of a control station.	Rod's question	S	Confirming	Eye contact with Con
215 Kay	Learn how to send messages./You've got to be able to send messages back to keep in touch if you don't have special T.V.	Focuses on sending messages and explains its purpose.	Sending messages back.	S S	Informing Explaining	Waves right hand in front of her.
216 Joe	We know.	Confirms group's knowledge.	Kay's ideas	S	Confirming	Looks at Kay.
217 Kay	Are you just going to shout out/and say "Hi"?	Seeks confirmation of ideas via an example.	Close communication	Q Q	Seeking clarification Seeking clarification	Eye contact with Rod
218 Con	Yeh/correct language on the radio.	Agrees. Focuses on radio language.	Correct radio language	S S	Agreeing Informing	Looks at Rod.
219 Kay	Yeh.	Agrees with Con's idea.	Con's ideas	S	Agreeing	Looks at Rod.
220 Teacher	Do you think they've got special language for moon travel?/ You're going well there./Have you got anything else to do in your task?	Seeks hypothesis on special language. Praises participants. Seeks clarification of task progress.	Language knowledge. (Inferential)P raise. Task strategy progress	Q S Q	Probing Praising Checking	Teacher begins to move away from the group.

221 Rod	Draw a program. /We've got to draw what they did first/ and then-	Clarifies sequence for task strategy. Begins to say something else.	Sequence for task strategy	S	Directing	Eye contact with Kay
222 Kay	Yes/in order.	Agrees. Confirms the idea of sequence.	Sequence for the program	S	Informing	Eye contact with Rod
223 Rod	What they do first/try and sign on./They check first./They have a test to know what their--	Elaborates on sequence of events for selection.	Signing on and checking for selection	S	Confirming	Eye contact with Kay
224 Con	Yeh.	Agrees with Rod .	Rod's ideas	S	Explaining	Looks at Rod
225 Rod	Who's drawing up the table.	Requests information on participants' roles.	Drawing up the table	Q	Explaining	Looks at Kay.
226 Nola	I am.	Inform Rod of her intentions.	Rod's question	S	Seeking information	Eye contact with Rod
227 Kay	Nola is.	Confirms Nola's reply.	Nola's reply	S	Informing	Looks at Rod.
228 Nola	You can read mine.	Inform Joe of his privilege.	Nola's text	S	Confirming	Eye contact with Joe
229 Joe	They have tests.	Focuses on entry criteria.	Entry tests	S	Informing	Looks at Rod.
230 Kay	First they have to test.	Confirms Joe's ideas.	Entry tests	S	Confirming	Looks at Con.
231 Con	Test their ability to go into space.	Elaborates on concept of testing.	Entry tests	S	Explaining	Looks at Rod.
232 Rod	Yes/what they know already.	Agrees and continues to elaborate.	Entry tests	S	Agreeing	Eye contact with Con
233 Kay	First they have to sign up.	Hypothesises an alternative sequence.	Signing up (Inferential)	S	Explaining	Eye contact with Rod
234 Rod	Yeh./They go into a training program.	Agrees with Kay's idea and elaborates on initial training.	Training program	S	Agreeing	Eye contact with Kay
235 Con	Test their ability to go into space.	Focuses on tests of ability.	Ability to go into space	S	Explaining	Looks at Rod.
236 Kay	Yeh	Agrees with Con's idea.	Con's ideas.	S	Informing	Looks at Con.
237 Rod	Have you finished the columns yet?	Requests clarification on task strategy.	Drawing columns	Q	Checking	Looks at Nola.

238 Nola	I'll only be a minute.	Clarifies state of preparation.	Rod's question	S	Informing	Continues to rule a sheet.
239 Joe	That's the second one.	Informs Nola of sequence of columns.	Sequence of columns	S	Informing	Points to column on Nola's sheet.
240 Teacher	What are you going to do/put it in--?	Seeks clarification on task strategy.	Task strategy	Q	Seeking clarification	Eye contact with Nola
241 Joe	Separate columns.	Clarifies teacher's question.	Separate columns	IU	Seeking clarification	
242 Teacher	In separate columns?/First and last did you say?	Seeks clarification on task strategy.	Task strategy layout	S	Informing	Looks at the Teacher.
243 Rod	The order.	Clarifies teacher's question.	Order	Q	Seeking clarification	Eye contact with Rod
244 Teacher	So you want the order now?/Right?/What are you going to do?/Read them out?	Seeks clarification of the stage reached in the group strategy.	Strategy procedures	Q	Seeking clarification	Eye contact with Rod
245 Kay	Read them out in the order.	Clarifies teacher's question	Reading aloud	Q	Seeking clarification	
246 Rod	The first one--	Begins to read aloud from the sheet	The first one	Q	Seeking clarification	
247 Kay	Let me see the sheet.	Directs Rod's actions.	Recording sheet	Q	Seeking clarification	
248 Rod	That's not in there./The first one they have to test their ability.	Focuses on content of the sheet and the first item.	Content of recording sheet	I	Informing	Directing
249 Con	Yeh.	Agrees with Rod.	Rod's ideas.	S	Informing	Informing
250 Rod	Test their ability.	Confirms item one.	Item one	S	Agreeing Confirming	Eye contact with Kay

251 Kay	Have an exam.	Confirms testing as item one.	Having an exam	S	Confirming	Eye contact with Rod
252 Rod	Of their knowledge./ Yeh/have an exam.	Elaborates form of exam. Agrees with Kay. Confirms concept of exam.	Examining knowledge	S S S	Explaining Agreeing Confirming	Eye contact with Kay
253 Kay	How do you read this?	Seeks guidance.	Reading the sheet	Q	Seeking information	Looks at Rod's recording sheet.
254 Rod	I wrote it.	Justifies his recording method.	Recording method	S	Explaining	Looks at Kay
255 Teacher	I don't think Nola is ready.	Delays group's progress.	Readiness to record	S	Informing	Looks around the group.
256 Rod	We'll think about separate columns later.	Advances solution for group's task strategy procedures.	Task strategy procedures	S	Solving	Looks at Nola.
257 Kay	Get fitted for their suits.	Focuses on an item to record.	Item two	S	Informing	Looks at Rod
258 Rod	No./The've got to get space people that work well./To pick them, mark the--	Disagrees with Kay. Refocuses on testing procedures. Begins to explain.	Sequence of recording items	S S IU	Negating Explaining Explaining	Eye contact with Kay
259 Kay	Get dropped in the pool to get used to weightlessness.	Focuses on an item to record.	The pool and weightlessness	S	Explaining	Eye contact with Rod
260 Rod	Mark the tests/ they've got to mark the tests/ and they've got to get rid of the people that don't know enough.	Completes previous statement and confirms ideas expressed. Explains consequences of testing.	Marking tests and its implications	S S S	Informing Confirming Explaining	Eye contact with Kay
261 Con	Get all the equipment.	Focuses on preparation.	Getting the equipment	S	Refocusing	Looks at Rod.
262 Nola	I'm ready./What are we starting with/I mean which topic?	Informs group of her readiness. Seeks clarification on initial topic.	Readiness to initiate recording	S Q S	Informing Seeking clarification Seeking clarification	Looks at Kay.

263 Kay	Have an exam.	Clarifies Nola's question.	Having an exam	S	Informing	Eye contact with Kay
264 Nola	No/ which topic?	Rejects Kay's response. Seeks further clarification.	Initial topic	S Q	Negating Seeking clarification	Eye contact with Kay
265 Con	Test ability/and have an exam.	Clarifies Nola's question.	Testing	S S	Informing Informing	Looks at Nola.
266 Nola	Like they need exercise.	Pursues clarification of topic via example.	Initial topic	S	Explaining	Eye contact with Kay
267 Con	Test ability/and have an exam.	Confirms his previous statement.	Previous statement	S S	Confirming Confirming	Eye contact with Nola
268 Nola	Putting it into four columns.	Pursues clarification on topic via example.	Initial topic	S	Explaining	Eye contact with Con
269 Kay	We didn't do it that way./We were going to write it down/and put it in four columns.	Clarifies Nola's earlier question on task strategy. Explains intended strategy.	Sequence for task strategy	S S S	Informing Explaining Explaining	Eye contact with Nola
270 Rod	Just write.	Directs Nola to write.	Directive for Nola	I	Directing	Eye contact with Nola
271 Kay	Just write it down.	Confirms Rod's directive	Directive for Nola	I	Directing	Eye contact with Nola
272 Rod	One, two, three, four./Just put the page or something./ Ah/what is the second one?	Confirms his directive via examples. Monitors ideas. Seeks information.	Sequence for task strategy	S I EM Q	Directing Directing Maintaining Seeking information	Continues writing on the sheet.
273 Kay	Get rid of the people.	Focuses on an item to record.	Rejecting people	S	Informing	Looks at Con
274 Rod	Get rid of the people who don't qualify.	Elaborates on Kay's ideas.	Rejecting unqualified people	S	Explaining	Looks at Nola
275 Nola	Keep the people that qualify.	Amends Rod's/Kay's ideas.	Keeping qualified people	S	Amending	Continues to write.
276 Rod	Tell the people if they don't qualify.	Elaborates on his previous statement.	Informing unqualified people	S	Explaining	Looks at Nola.

277 Nola	If you put a time schedule, you could see.	Hypothesises a conditional scenario.	Time schedule (Inferential)	S	Hypothesising	Eye contact with Rod.
278 Con	Put down all the things one, two, three, four, five, six.	Directs Nola to record items consecutively.	Recording items cosecutively	I	Directing	Eye contact with Nola.
279 Nola	How many are there?	Seeks clarification on number of items.	Number of items.	Q	Seeking clarification	Eye contact with Con
280 Con	Thirteen.	Clarifies Nola's question.	Nola's question	S	Informing	Eye contact with Nola
281 Joe	There are others.	Amends Con's statement.	Other items	S	Informing	Eye contact with Con
282 Rod	You give them the tests just to get started.	Elaborates on testing procedures.	Initial procedures	S	Explaining	Eye contact with Nola
283 Nola	Group the people, isolation from the rest of the world, weightlessness, surviving on a special diet, engaging in forms of relaxation, the need for exercise.	Reads aloud from the sheet in front of her.	List of recorded items (Textual)	RTA	Reading aloud	Reads out the items from Rod's sheet one at the time to the group as she writes them.
284 Kay	It doesn't say/it says some of the adjustments you have to get used to./It doesn't say all./Use these as subtitles./ Okay?/What do you want to put in?	Focuses attention on the task guidelines. Gives directions for task strategy. Seeks clarification on what is to be included in Nola's recording.	Written record of training adjustments (Textual))	IU S S I Q Q	Disagreeing Informing Informing Directing Seeking confirmation Seeking information	Points to the table with her finger.
285 Rod	Number one.	Focuses on first item.	Item one	S	Focusing	Looks at Nola.
286 Con	First one/the first one is test ability.	Focuses on item one. Confirms testing.	Item one, testing	S S	Focusing Informing	Eye contact with Rod
287 Rod	Test ability for all./There's not going to be enough room.	Confirms item one. Informs group of task strategy problem.	Testing Task problem	S S	Confirming Informing	Looks at Con

288 Con	Rewrite that in order. /Joe will write it.	Directs Rod then informs him Joe will write it.	Task strategy	I S	Directing Informing	Joe smiles when he hears his name.
289 Rod	I'll write it on the sheet.	Volunteers to write items.	Task strategy	S	Volunteering	Takes a sheet from his pad.
290 Kay	No/ you guys you guys read it out to me/and I'll write it.	Disagrees with Rod and informs group of her intentions.	Task strategy	S I S	Negating Directing Informing	Takes a sheet from her pad.
291 Rod	Okay	Endorses Kay's intentions.	Kay's intentions	S.	Agreeing	Hands his sheet to Kay.
292 Kay	Write it out in the right order though./Read it to me in the right order.	Directs group to read and write the items in the right order.	Recording task strategy in right order.	I I	Directing Directing	Looks at Rod then Con.
293 Con	Test ability/and have an exam.	Informs Kay what to write.	Testing ability	S S	Informing Informing	Eye contact with Kay
294 Rod	A knowledge of space travel./Do you want a pen?	Informs Kay what to write. Inquires of her needs.	Space travel Kay's needs	S Q	Informing Checking	Passes a biro to Kay.
295 Con	Test ability.	Refocuses on item one.	Testing ability	S	Informing	Looks at Kay.
296 Kay	The one here is good enough.	Informs Rod of biro's adequacy.	Biro	S	Evaluating	Eye contact with Rod.
297 Rod	The second one, get the people that are needed/are needed for the job./The third one, get fitted for their suit.	Focuses on second and third items.	Needed people Fitting for suits	S S S	Focusing Explaining Focusing	Kay writes as Rod informs her.
298 Kay	Do the people get fitted for their suits?	Seeks clarification on fitting suits.	Fitting for suits	Q	Seeking clarification	Eye contact with Rod
299 Rod	Yeh/ get fitted for their suits.	Clarifies Kay's quest- ion. Confirms item.	Fitting for suits	S S	Agreeing Confirming	Eye contact with Kay
300 Con	Tick them off on the page so we don't redo them.	Directs Rod on task strategy	Ticking recorded items	I	Directing	Eye contact with Rod
301 Rod	I'll do that./Get fitted for their suit.	Volunteers to tick them off. Reads from the sheet.	Rod's intentions	S RTA	Volunteering Reading aloud	Picks up the sheet and reads aloud.

302 Kay	How many are there?	Seeks clarification on task strategy.	Number of items	Q	Seeking information	Looks around the group
303 Joe	About fifteen.	Estimates number of items.	Fifteen items	S	Informing	Eye contact with Kay
304 Rod	Fitted for their suits./Ah/get used to weightlessness.	Refocuses on item to be recorded and focuses on a new item.	Fitting for suit. Weightlessness (Textual)	S EM S	Informing Maintaining Informing	Examines sheet in front of him.
305 Kay	Next?	Seeks information re task strategy	Next item	Q	Eliciting	Looks up from writing.
306 Rod	Get used to controls.	Focuses on an item to record.	Getting used to controls	S	Informing	Looks at Con.
307 Kay	No/wouldn't you say get used to all your gadgets on your suit?	Disagrees. Hypothesises an alternative item	Getting used to gadgets (Inferential)	S Q	Negating Hypothesising	Eye contact with Rod
308 Con	Training/training/do training.	Focuses on next item to record.	Training	S S S	Informing Repeating Confirming	Eye contact with Rod
309 Rod	Get used to the suit./ Get used to the suit	Refocuses on next item and confirms it	Getting used to suits	S	Informing	Eye contact with Con
310 Con	Training for/get used to your suit/ and do training.	Confirms Rod's ideas and focuses on training.	Getting used to suits.	IU S	Incomplete Confirming	Eye contact with Rod
311 Kay	You've got to get fitted for your suit./ Get used to weightlessness.	Confirms concept of fitting for suits. Refocuses on weightlessness.	Training Fitting for suits Weightlessness	S S S	Informing Explaining Confirming	Eye contact with Con
312 Rod	Um/get used to gadgets and stuff on your suit.	Monitors ideas. Focuses on gadgets on suits.	Getting used to gadgets on suits	EM S	Maintaining Generalising	Eye contact with Kay
313 Con	Get used to equipment on your suit.	Amends Rod's statement.	Rod's statement	S	Amending	Eye contact with Kay
314 Rod	The fourth one would probably be--	Hypothesises fourth item unclearly.	Item four (Inferential)	IU	Hypothesising	Eye contact with Con
315 Kay	Get used to equipment on your suit./Next?	Confirms item for recording. Seeks guidance re task strategy	Equipment on suits Next item	S Q	Confirming Seeking information	Continues to write as she speaks.

316 Rod	Get taught to fix shuttles.	Focuses on an item to record.	Fixing shuttles	S	Informing	Eye contact with Kay
317 Con	Yes/learn how to fix shuttles.	Agrees with and confirms Rod's ideas	Fixing shuttles	S	Agreeing	Eye contact with Rod
318 Rod	Fix shuttles and satellites.	Combines ideas expressed earlier.	Fixing shuttles and satellites	S	Confirming Elaborating	Eye contact with Con
319 Kay	Learn how to fix shuttles.	Confirms ideas for recording.	Fixing shuttles	S	Confirming	Writes on the sheet.
320 Con	And satellites.	Elaborates on Kay's ideas.	Satellites	S	Elaborating	Looks at Kay.
321 Rod	Um/get used to the exercise equipment.	Monitors ideas. Focus -es on another item.	Exercise equipment	EM S	Maintaining Informing	Looks at Kay.
322 Kay	Get used to exercise bikes.	Focuses on an item of equipment.	Exercise bikes	S	Specifying	Eye contact with Rod
323 Rod	Get used to the lifestyle you have.	Generalises ideas expressed.	Getting used to Lifestyle	S	Generalising	Eye contact with Kay
324 Con	Exercise for trip.	Refocuses on exercise.	Exercise	S	Refocusing	Looks at Kay.
325 Nola	Instead of putting get used to/um/ everything./why don't you put getting used to lifestyle?	Amends and synthesises ideas expressed for recording purposes. Monitors ideas.	Getting used to lifestyle	S EM Q	Amending Maintaining Synthesising	Eye contact with Kay
326 Kay	We did.	Confirms record of ideas.	Getting used to lifestyle	S	Agreeing	Eye contact with Nola.
327 Nola	Yeh/well you can cut out all those.	Agrees with and directs Kay's recording.	Kay's recording	S S	Agreeing Directing	Continues writing.
328 Rod	Yeh/the next one probably/um/What was the last one you had?	Agrees. Focuses on another item. Monitors ideas. Seeks clarification on previous item.	Previous item	S S EM Q	Agreeing Hypothesising Maintaining Seeking information	Eye contact with Kay
329 Kay	Um/get used to lifestyle.	Monitors ideas. Reads from the sheet.	Getting used to lifestyle	EM RTA	Maintaining Reading aloud	Looks at sheet.
330 Con	Ah/do training./Do training for the launch.	Monitors ideas. Focuses on item to record. Elaborates.	Training for launch	EM S S	Maintaining Informing Elaborating	Looks at Kay

331 Kay	Training for landing and launch.	Amends Con's ideas for recording.	Training for landing and launch	S	Specifying	Eye contact with Con
332 Con	Training for landing.	Confirms concept of planning for landing.	Training for landing	S	Confirming	Eye contact with Rod
333 Rod	Training for launch.	Confirms concept of training for launch.	Training for launch	S	Confirming	Eye contact with Con
334 Nola	Training for trip.	Amends ideas to cover whole trip.	Training for trip	S	Generalising	Eye contact with Rod
335 Con	Training for trip.	Confirms Nola's ideas.	Nola's ideas	S	Confirming	Eye contact with Kay
336 Kay	Training for trip	Confirms Nola's ideas.	Nola's Ideas	S	Confirming	Eye contact with Con
337 Rod	Training for trip.	Confirms Nola's ideas.	Nola's ideas	S	Confirming	Eye contact with Kay
338 Nola	Training for departure.	Focuses on departure.	Training for departure	S	Specifying	Eye contact with Kay
339 Kay	If you like, I'll put a dart that says-	Proffers solution for recording an item.	Task recording	IU	Solving	Eye contact with Nola
340 Nola	Put training for launch/then put trip.	Directs Kay how to record the item	Task recording	I	Directing	Eye contact with Kay
341 Con	Put training for trip.	Proffers an alternative directive.	Task recording	I	Directing	Eye contact with Kay
342 Rod	Get used to the emergency hatch.	Focuses on emergency procedures.	Emergency hatch	S	Informing	Eye contact with Kay
343 Joe	Learn how to use the escape hatch.	Amends Rod's ideas on emergency.	Escape hatch	S	Amending	Eye contact with Kay
344 Con	Learn to escape.	Focuses on escaping.	Escaping	S	Generalising	Looks at Kay.
345 Kay	What was that?	Seeks clarification from Con.	Con's statement	Q	Seeking clarification	Eye contact with Con
346 Rod	Get used to the emergency escapes.	Clarifies via elaboration of Con's ideas.	Emergency escape	S	Clarifying	Looks at Kay.
347 Con	Learn how to use emergency escapes./ Learn how to survive.	Confirms concept of escape. Focuses on survival.	Escaping and survival	S S	Confirming Informing	Eye contact with Kay.

348 Rod	Yes.	Agrees with Con's ideas.	Con's statement	S	Agreeing	Eye contact with Kay
349 Joe	For three weeks.	Elaborates on Con's ideas.	Three weeks	S	Specifying	Looks at Kay.
350 Con	Learn how to survive for three weeks.	Synthesises concepts of survival.	Survival for three weeks	S	Synthesising	Eye contact with Kay
351 Rod	Um/have you got-?	Monitors ideas. Seeks information.	Unclear	EM IU	Maintaining Seeking information	Looks at Kay.
352 Kay	What is it Rod?	Seeks clarification on ideas from Rod.	Rod's utterance	Q	Seeking clarification	Eye contact with Rod
353 Rod	Gravity.	Clarifies question for Kay.	Gravity	S	Informing	Eye contact with Kay
354 Kay	No.	Clarifies Rod's enquiry.	Negation	S	Negating	Eye contact with Rod.
355 Rod	No gravity?	Seeks clarification re gravity.	No gravity	Q	Seeking clarification	Eye contact with Kay
356 Kay	I haven't got it yet.	Clarifies Rod's inquiry.	Rod's question	S	Clarifying	Eye contact with Rod
357 Rod	Get used to moving around with no gravity.	Focuses on non-gravity by reading from his sheet.	Nongravity environment (Textual)	RTA	Explaining by reading aloud	Reads from his sheet.
358 Kay	Get used to moving around in zero gravity.	Amends Rod's ideas.	Zero gravity	S	Amending	Looks at Rod.
359 Rod	With no gravity.	Confirms his own ideas.	Nongravity environment	S	Confirming	Eye contact with Kay
360 Con	In special machines.	Elaborates on Kay's/Rod's ideas.	Special machines	S	Specifying	Eye contact with Kay
361 Rod	Get used to food floating and stuff.	Focuses on another item to record.	Floating food	S	Informing	Eye contact with Con.
362 Kay	Get used to no gravity.	Confirms Rod's ideas expressed earlier.	Nongravity environment	S	Confirming	Eye contact with Rod
363 Nola	It will come under getting organised.	Explains organisation of recording.	Task strategy	S	Classifying	Eye contact with Kay
364 Con	Get used to emergency equipment.	Refocuses on emergency equipment.	Emergency equipment	S	Refocusing	Eye contact with Rod

365 Rod	We've already got that.	Informs Rod on state of the recording.	Task strategy	S	Informing	Eye contact with Con
366 Kay	Get used to no gravity.	Refocuses on ideas expressed by Rod.	No gravity	S	Refocusing	Eye contact with Rod
367 Con	Getting used to using the equipment.	Elaborates on ideas expressed earlier.	Using the equipment	S	Elaborating	Eye contact with Kay
368 Rod	Get used to no gravity.	Confirms his earlier ideas.	No gravity	S	Confirming	Eye contact with Kay
369 Nola	Getting used to stocking food and things would be getting used to lifestyle.	Explains relationships between ideas for recording.	Getting used to lifestyle	S	Explaining	Eye contact with Rod
370 Kay	Would you say that again.	Requests Rod to repeat ideas.	Rod's statement	I	Eliciting	Eye contact with Rod
371 Rod	Get used to no gravity./Get used to-	Repeats statement for Kay.	No gravity	S	Repeating	Eye contact with Kay
372 Kay	Make up your mind.	Requests clarity of ideas.	Rod's statement	IU I	Repeating Directing	Eye contact with Rod
373 Rod	Get used to all the things you do.	Generalises ideas for recording.	Getting used to things	S	Generalising	Eye contact with Kay
374 Con	All the things you do in nongravity.	Elaborates on Rod's ideas.	Nongravity activities	S	Specifying	Eye contact with Rod
375 Kay	Get used to all the things you have to do in nongravity activities.	Synthesises ideas expressed by Rod and Con.	Getting used to nongravity activities	S	Synthesising	Looks at Rod then Con.
376 Nola	Get used to nongravity activities.	Amends Kay's statement.	Kay's statement	S	Amending	Eye contact with Rod
377 Kay	Yes./Oh come on.	Requests agreement on ideas to record.	Previous statements	S I	Agreeing Directing	Eye Looks at Rod then Con
378 Rod	Don't cry then./Um/that's about it./How many have you got?	Requests Kay not to complain. Monitors ideas. Signifies finality. Seeks information re number	Kay's statement	I EM S Q	Directing Maintaining Concluding Seeking information	Eye contact with Kay.
379 Kay	How many so far? Eleven.	Seeks confirmation of Rod's question. Informs him re number completed.	Number completed	Q S	Seeking confirmation Informing	Examines sheet then looks up.

380 Rod	Read them out.	Directs Kay to read.	Listed items	I	Directing	Looks at Kay.
381 Kay	The exam/and test ability,/get people needed.	Reads from the recording sheet.	Listed items (Textual)	RTA	Reading aloud	Looks at the sheet.
382 Nola	Examine test ability.	Amends item listed via interruption.	Listed items	S	Amending	Looks at Kay.
383 Kay	Getting fitted for their suits.	Reads from the sheet.	Listed items (Textual)	RTA	Reading aloud	Looks at the sheet.
384 Rod	Mm	Confirms items read.	Listed items	EM	Confirming	Looks at Kay.
385 Kay	Get used to weightlessness.	Continues to read from the sheet.	Listed items (Textual)	RTA	Reading aloud	Looks at sheet.
386 Rod	Yeh.	Confirms items read.	Listed items	S	Agreeing	Looks at Kay.
387 Kay	Get used to how the gadgets on your suit on your suit work/and in the shuttle.	Continues to read from the sheet.	Listed items (Textual)	RTA	Reading aloud	Looks at sheet.
388 Rod	Yeh.	Confirms items read.	Listed items	S	Agreeing	Looks at Kay.
389 Kay	Um/learn how to repair shuttle and satellites,/get used to lifestyle,/um/training for the trip,/learn how to use emergency escapes,/ learn how to survive for three weeks,/get used to nongravity activities./Oh sorry/ there's only nine.	Prepares to read Reads from the sheet	Listed items Listed items Number of items (Textual)	EM RTA EM RTA	Maintaining Reading aloud Maintaining Reading aloud	Looks at the sheet. Counts the items. Looks around the group.
390 Rod	That's the lot/eh?/ We've covered most of them.	Apologises Informs group of number of items Seeks confirmation. Concludes completion of list	Completed list of items	CR S S S S	Apologising Correcting Concluding Concluding	Eye contact with Kay
391 Kay	Okay/that's right.	Endorses Rod's conclusions.	Rod's conclusions	S	Confirming	Eye contact with Rod
392 Rod	Read that and see what you think.	Directs Con to read the sheet.	List of items	I	Directing	Takes sheet from Kay and passes it to Con.

393 Nola	Well what's the first one/test ability?	Seeks ratification of first item for her recording.	Item one	Q Q	Seeking confirmation Seeking confirmation	Looks at Kay
394 Kay	No/there's eleven.	Negates expressed number of items.	Number of items	S S	Negating Informing	Eye contact with Nola
395 Rod	You don't have to write them down.	Informs Nola re recording items.	Recording items	S	Informing	Eye contact with Nola
396 Con	Learn communications	Focuses on an item to record.	Communications	S	Informing	Passes sheet to Kay.
397 Rod	Yeh./Learn communications.	Agrees. Confirms Con's idea.	Communications	S S	Agreeing Confirming	Eye contact with Kay
398 Kay	Learn communications.	Confirms Con's idea.	Communications	S	Repeating	Writes in the item. Teacher joins the group.
399 Teacher	How's it going now?/Getting near the end?	Requests information on progress of task strategy.	Progress of task strategy	Q Q	Checking Checking	Looks around the group for a response.
400 Rod	Yeh.	Confirms near completion of task.	Teacher's questions	S	Agreeing	Eye contact with Teacher
401 Kay	About three more/then we've got fifteen of them.	Informs Teacher of progress.	Teacher's questions	S S	Informing Informing	Eye contact with Teacher
402 Con	Get used to solid food.	Focuses on an item to record.	Solid food	S	Informing	Eye contact with Kay
403 Kay	Yeh	Agrees with Con's idea.	Con's statement	S	Agreeing	Eye contact with Con
404 Rod	There's no more./Lifestyle covers that.	Disagrees with Kay/Con and explains why.	Con's statement	S S	Disagreeing Explaining	Eye contact with Kay
405 Teacher	So you've got your program./What did you end up with?/How many things in your program?	Confirms group's completion of task. Seeks information re number of items recorded.	Number of items in the completed task (Textual)	S Q Q	Confirming Seeking information Seeking information	Looks around group then establishes eye contact with Kay.
406 Kay	Thirteen.	Provides requested information.	Number of items	S	Informing	Eye contact with Teacher

407 Teacher	Good.	Praises the group.	Teacher praise	S	Praising	Looks around the group.
408 Nola	You don't really have thirteen/because getting used to lifestyle is getting used to things.	Disagrees with Kay's response and explains why.	Number of items (Textual)	S S	Disagreeing Arguing	Eye contact with Kay
409 Teacher	So you think that covers a number of things.	Probes for more details from Nola.	Number of items	S	Probing	Eye contact with Nola
410 Con	Get prepared for/um-	Begins to focus on a new item.	Prepared for something	IU EM	Incomplete Maintaining	Eye contact with Kay
411 Kay	Get prepared for all emergencies.	Completes Con's statement.	Con's statement	S	Completing	Eye contact with Con
412 Con	Yes/in case the shuttle gets out of control.	Agrees with Kay's idea and explains its importance.	Control of shuttle	S S	Agreeing Explaining	Eye contact with Kay
413 Kay	Get prepared-	Reads as she writes.	Preparation (Textual)	RTA	Reading aloud	Writes on the sheet.
414 Con	Get used to the feeling of the spinning of the shuttle.	Focuses on an item to record.	Getting used to spinning shuttle	S	Informing	Looks at Kay.
415 Kay	Get prepared--	Reads as she writes	Preparation (Textual)	RTA	Reading aloud	Writes on the sheet.
416 Con	Get prepared for a spinning shuttle emergency./That's all.	Synthesises previous ideas for recording. Concludes completion of recorded list.	Spinning shuttle emergency	S S	Synthesising Concluding	Eye contact with Rod.
417 Teacher	C h e c k y o u r program/and make sure your task is completed./Do you think it is?	Directs group to check task strategy. Requests their conclusions on its completion.	Checking completion of task strategy	I I Q	Directing Directing Directing	Looks around the group.
418 Kay	Yeh.	Clarifies Teacher's question.	Teacher's question	S	Agreeing	Eye contact with Teacher
419 Teacher	Do you think you have forgotten anything important /important things?	Requests examination of task strategy. Confirms concept of important things.	Completion of task strategy	Q S	Seeking clarification Confirming	Looks at Kay then Rod.

420 Kay	Oh ring parents!	Focuses on a new item.	Ringling parents	E	Informing	Eye contact with Teacher
421 Con	And suppliers.	Elaborates on Kay's idea.	Ringling suppliers	S	Elaborating	Eye contact with Kay
422 Nola	Send postcards.	Focuses on a new item.	Sending postcards	S	Informing	Laughs as she speaks.
423 Con	Advise suppliers.	Focuses on a new item.	Advising suppliers	S	Informing	Eye contact with Kay
424 Teacher	What was that Con?	Seeks clarification from Con.	Con's statement	Q	Seeking clarification	Eye contact with Con
425 Nola	Air supplier.	Focuses on a new item.	Air supplier	S	Informing	Looks at Rod
426 Rod	See that you didn't run out of supplies.	Elaborates on concept of supplies.	Supplies	I	Explaining	Eye contact with Kay
427 Con	Advise suppliers/or something	Confirms idea of advising suppliers.	Advising suppliers (Inferential)	S S	Confirming Hypothesising	Eye contact with Rod
428 Kay	Get lots of air supplies?	Seeks confirmation of ideas.	Air supplies	Q	Seeking confirmation	Looks at Con then Rod.
429 Rod	Yes.	Confirms Kay's ideas.	Kay's question	S	Agreeing	Eye contact with Kay
430 Kay	Get a number of air supplies?/Get heaps of air supplies?	Seeks confirmation of amended ideas.	Air supplies	Q Q	Seeking confirmation Seeking confirmation	Eye contact with Rod
431 Rod	Yeh.	Agrees with Kay's ideas.	Kay's questions	S	Agreeing	Eye contact with Kay.
432 Kay	Get needed amount of air supplies?	Seeks confirmation of amended ideas.	Needed supplies	Q	Seeking confirmation	Eye contact with Rod
433 Rod	Get enough in case you run out.	Elaborates on concept of air supplies.	Air supplies	S	Directing	Eye contact with Kay
434 Con	Yeh.	Agrees with Rod's idea.	Rod's statement	S	Agreeing	Eye contact with Rod
435 Rod	Um-	Monitors ideas	Unclear	EM	Maintaining	Looks at Con.
436 Kay	Needed amount.	Reads aloud from record.	Text item (Textual)	RTA	Reading aloud	Reads as she writes.

437 Rod	They would have to have a doctor up there wouldn't they?	Seeks clarification on existence of a doctor.	Doctor in space (Inferential)	Q	Hypothesising	Looks at Teacher.
438 Teacher	I beg your pardon.	Seeks clarification from Rod.	Rod's question	CR	Seeking clarification	Eye contact with Rod
439 Con	They'd need a first aid person.	Hypothesises inclusion of a first aid person.	First aid person (Inferential)	S	Hypothesising	Eye contact with Teacher
440 Teacher	Yes./It would be part of your emergency procedure wouldn't it to administer first aid?/It's important though isn't it?	Agrees with Con. Hypothesises the role of first aid emergencies. Confirms the idea	First aid emergencies	S Q	Agreeing Seeking clarification Evaluating Seeking confirmation	Eye contact with Con
441 Rod	Learn medical-	Focuses on a new item.	Unclear	IU	Incomplete	Eye contact with Con
442 Con	First aid.	Completes Rod's ideas	First aid	S	Completing	Looks at Rod.
443 Rod	Yeh.	Agrees with Con's idea.	First aid	S	Agreeing	Eye contact with Con
444 Con	That's part of emergency.	Explains location of first aid.	First aid	S	Explaining	Eye contact with Rod
445 Kay	Seventeen.	Informs group of number of items.	Number of items	S	Informing	Eye contact with Rod
446 Con	That's it.	Concludes task completion.	Task completion (Inferential)	S	Concluding	Eye contact with Kay
447 Kay	That's all I can think of.	Endorses completion of task.	Kay's contributions	S	Confirming	Eye contact with Rod
448 Rod	Yeh/we only had thirteen.	Agrees. Informs group of number of items.	Number of items (Textual)	S S	Agreeing Informing	Eye contact with Con
449 Con	Rewrite that with no mistakes in it.	Directs Kay on task strategy.	Task strategy	I	Directing	Eye contact with Kay
450 Kay	I'll need another sheet.	Informs Con of her need.	Kay's need	S	Informing	Con hands her a sheet of paper.
451 Rod	Con can write this one.	Informs Kay/Con on writing	List of items	S	Informing	Looks at Con.

452 Kay	Are you going to write it?	Seeks clarification on writing.	Recording	Q	Seeking clarification	Hands sheet to Rod.
453 Rod	No/let Con write it.	Negates the idea. Informs Kay of his expectations.	Recording	S I	Negating Directing	Eye contact with Rod
454 Kay	That's right.	Confirms Rod's ideas.	Recording	S	Confirming	Eye contact with Rod
455 Rod	I'll just have another read of them.	Informs Kay of his intentions.	Reading the list (Textual)	S	Informing	Looks at the sheet.
456 Teacher	Would you read them out?	Requests Rod to read the list.	List of items	Q	Requesting	Eye contact with Rod
457 Nola	Did you get another sheet?	Seeks information re recording	Recording	Q	Seeking information	Eye contact with Kay
458 Teacher	Would you listen for a moment while Rod reads them loudly/so we can hear them?	Requests group to listen. Explains why list should be read loudly.	Group attention	Q S	Requesting Explaining	Looks around the group as he speaks.

459Rod	<p>One, examine and test ability.</p> <p>Two, get people needed.</p> <p>Three, get fitted for their suit.</p> <p>Four, get used to weightlessness.</p> <p>Five, get used to gadgets on your suit and in the shuttle.</p> <p>Six, learn how to repair shuttle and satellite.</p> <p>Seven, Get used to lifestyle.</p> <p>Eight, train for trip.</p> <p>Nine, learn how to use emergency escapes.</p> <p>Ten, learn how to survive for three weeks.</p> <p>Eleven, get used to nongravity activities.</p> <p>Twelve, learn communications.</p> <p>Thirteen, get used to solitude.</p> <p>Fourteen, get prepared for a spinning shuttle when they go out of orbit.</p> <p>Fifteen, get needed amount and more of oxygen.</p> <p>Sixteen, first aid.</p>	<p>Reads aloud from the sheet on which considerations are recorded.</p>	<p>the Written record the (Textual) are</p>	RTA	Reading aloud	<p>Reads from the written record while the group listens.</p>
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460 Teacher	Thanks Rod./I think we'll finish up there./You may want to rewrite it to give me a final draft/so you can if you like /but I think you have done a good job./ You've got some good ideas there/so we'll finish up grade six.	Thanks the group. Informs them it is time to finish the task. Suggests they may want to rewrite the written record. Praises group for their work. Informs them again it is time to finish the task.	The completed record of considerations for training astronauts for space travel.	CR S S S S S	Thanking Informing Suggesting Suggesting Praising Praising Informing	Looks around the group and establishes eye contact with each group member.
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7.3 GROUP LEARNING INTERACTION IN SOCIAL STUDIES

The group learning session in social studies focused on a social studies problem related to planning a mining village (see APPENDIX F, Social Studies). This task cast group members as assistants to help a mining company establish a mining village in the north of Australia. As a group participants were requested to discuss-then list and classify-important considerations the company needed to examine in planning the village.

Phase One data derived from application of the data analysis system (described in 6.9) to the group interaction in social studies via the processes articulated in FIGURE 7.1 are presented in TABLE 7.2.

TABLE 7.2
Group Learning Session
in Social Studies

Source	Interaction Segments Conversation Units Message Elements	Cognitive Strategies and Cognitive Functions	Contextual Frames and Sources of Information	Linguistic Forms and Functions		Extra/Nonverbal Input
				F	Function	
1 Teacher	I'll give you your problem for today.	Focuses students' attention on group task (Advance Organiser)	Written social studies problem	S	Focusing	Hands a sheet to each student.
2 Nola	May I read it out?	Requests permission to read the task sheet.	Reading task sheet	Q	Requesting	Eye contact with Teacher
3 Teacher	Do you want to read it out, Nola?/Why don't you when you come to those group tasks?/Nola wants to read it out./The important thing is when you get down to the group task at the bottom./Study it carefully to make sure that what you do this morning is what you are asked to do on the sheet.	Seeks clarification of Nola's request. Informs her of appropriate time to read the text Informs group of her request. Focuses on important aspects of the task. Directs group to ensure their strategy is relevant to the task.	Establishment of an appropriate response frame	Q	Seeking clarification	Establishes eye contact with Nola then looks around the group.
				Q	Directing	
				S	Informing	
				S	Focusing	
				I	Directing	
4 Kay	May I have a sheet, /please?	Requests a task sheet.	Task sheet	Q CR	Requesting Seeking pleasure	Eye contact with Teacher

5 Teacher	<p>Didn't you get one?/We'll let Nola read it out in a moment./She is going to read this./Wait until they read it all Nola./They'll read this then you read out the task./Right/before Nola reads it, remember Silver Lakes 140 kilometres/ the site Helen's Town 180 kilometres./</p> <p>You're group advisors to set up this settlement./Right/ you read the task for us, Nola /so we know exactly what we're doing this morning./Just a moment till we fix the film./Okay/ thanks Nola.</p>	<p>Confirms Kay's request. Informs Group Nola has permission to read sheet. Directs Nola re what /when to read. Endorses instructions. Focuses on important information on the sheet.</p> <p>Informs group of its role in the task. Endorses Nola's reading of the task. Instructs Nola to read aloud from sheet. Focuses on relevance of task strategy. Holds up proceedings until film is adjusted. Directs Nola to start reading.</p>	<p>Establish-ment of an appropriate task frame</p> <p>Establish-ment of an appropriate task frame</p>	<p>Q S S I I S S S S S S S S S S I S CR</p>	<p>Confirming Informing Informing Directing Directing Confirming Focusing Focusing Informing Confirming Directing Focusing Directing Confirming Thanking</p>	<p>Smiles at Kay and hands her a sheet. Group reads the sheet silently. Looks at Joe and points to the sheet.</p> <p>Looks around the group then establishes eye contact with Nola. Looks at the video operator until the camera is adjusted.</p>
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6 Nola	Group Task. As a group discuss, then list and classify the important things the mining company needs to consider to plan the village successfully for the mine workers to live in. Write your classification on the paper supplied. Write only one draft of the classification based on your discussion.	Nola reads aloud from the task sheet.	Task sheet (Textual)	RTA	Reading aloud	Nola reads aloud from the task sheet while group members listen and follow the reading on their sheets.
7 Teacher	Thanks Nola./So what do we have to do?/Number one read it,/discuss,/list/ and -	Thanks Nola. Clarifies and focuses on the steps to follow for the task strategy. Begins to confirm each step.	Task strategy	CR Q S S S IU	Thanking Seeking clarification Focusing Confirming Confirming Confirming	Looks around the group.
8 Nola	Classify.	Confirms a step in task strategy.	Task strategy	S	Confirming	Eye contact with Teacher
9 Teacher	Then list and-	Begins to continue to confirm steps.	Task strategy	S	Confirming	Eye contact with Nola
10 Rod	Classify the important things they need to consider.	Confirms step in task strategy.	Task strategy	S	Confirming	Eye contact with Teacher
11 Teacher	Good./That was nicely read Nola./Any questions on your task?/Thank you./ You work it out now as a group/and see how well you plan the village.	Praises group and Nola individually. Probes for questions. Proffers courtesy response. Encourages cooperative group solution to task.	Group praise and task strategy	S S Q CR I I	Praising Praising Probing Thanking Directing Directing	Establishes eye contact with Nola then looks around the group. Leaves the group.

12 Nola	I'm going to do the writing.	Establishes her group role.	Writing role	S	Informing	Whispers and points to herself.
13 Kay	Well if the miners are going to live there, they will have to have houses.	Focuses on a housing consideration.	Miners' houses	S	Informing	Looks around the group.
14 Nola	Yes./They'd have to plan the building sites.	Agrees with Kay's idea. Focuses on planning houses.	Planning sites	S S	Agreeing Informing	Eye contact with Nola
15 Kay	Yes.	Agrees with Nola's idea.	Nola's statement	S	Agreeing	Eye contact with Nola
16 Con	They'd have vibration and noise.	Hypothesises possible problem.	Vibration and noise (Inferential)	S	Hypothesising	Eye contact with Nola
17 Nola	Pardon?	Seeks clarification re Con's ideas.	Pardon	CR	Seeking clarification	Eye contact with Con
18 Con	They'd have vibration and noise.	Repeats his ideas.	Vibration and noise (Inferential)	S	Hypothesising	Eye contact with Nola
19 Nola	Yeh.	Agrees with Con's ideas.	Con's statement	S	Agreeing	Eye contact with Con
20 Joe	It would depend on where the places are./There would be noise.	Hypothesises re conditions. Confirms concept of noise.	Conditions of siting (Inferential)	S S	Hypothesising Confirming	Eye contact with Kay
21 Kay	Well you'd have to protect that.	Proffers a solution.	Solution to noise	S	Solving	Eye contact with Joe
22 Nola	You'd also need supplies of water.	Focuses on need for water.	Water supply	S	Informing	Eye contact with Kay
23 Kay	They would have wells.	Proffers solution re water supply.	Wells	S	Solving	Eye contact with Nola
24 Nola	Yes.	Agrees with Kay's ideas.	Kay's statement	S	Agreeing	Eye contact with Kay

25 Kay	They'd need wells unless they've got water taps/Okay./ Silver Lakes there are sites there/so people could just walk 140 kilometres up to Silver Lakes/ or they could get trucks/and the trucks could go up to get buckets of water.	Explains conditions for water supply. Seeks endorsement of explanation. Hypothesises alternative methods of water supply.	Conditions for water supply and alternative methods (Inferential)	S S S S	Explaining Confirming Informing Hypothesising Hypothesising Hypothesising	Waves her right hand around in front of her.
26 Rod	You'd need pumps.	Elaborates on Kay's ideas.	Water pumps	S	Elaborating	Eye contact with Kay
27 Con	Or you could have pumps.	Confirms Rod's ideas.	Water pumps (Inferential)	S	Confirming	Eye contact with Con
28 Con	They could have pumps to transport it.	Elaborates on Rod's /Kay's ideas.	Water transport (Inferential)	S	Elaborating	Eye contact with Kay
29 Kay	Or have a pump going to the village.	Elaborates on Con's ideas.	Water transport (Inferential)	S	Elaborating	Eye contact with Con
30 Nola	Or you could have water pipes going from Silver Lakes through the village./ That would be okay.	Proffers an alternative hypothesis. Evaluates it.	Water supply via pipes (Inferential)	S S	Hypothesising Evaluating	Establishes eye contact with Kay then writes.
31 Kay	Water.	Confirms the concept.	Water	S	Confirming	Eye contact with Rod
32 Nola	So do I write water pipes?	Seeks guidance on recording	Water pipes	Q	Seeking clarification	Eye contact with Kay
33 Joe	Yeh	Ratifies Nola's suggestion.	Nola's question	S	Agreeing	Writes on the sheet.

34 Nola	So they need to consider where the houses were built/and how much the village is actually going to cost.	Refocuses on site location. Focuses on cost of village.	Site location and village cost	S S	Informing Informing	Eye contact with Kay
35 Kay	Yes cost.	Agrees with Nola's ideas.	Cost of village.	S	Agreeing	Writes on her sheet.
36 Nola	I'm doing it/okay.	Informs Kay of her intentions.	Recording items	S S	Informing Confirming	Lifts Kay's arm from sheet.
37 Con	Protective precautions	Focuses on precautions.	Protective precautions	S	Informing	Eye contact with Nola
38 Rod	Where?	Requests information from Con.	Con's statement	Q	Seeking information	Eye contact with Con
39 Con	Protective rafters to prevent caveins.	Explains protective rafters.	Rod's question	S	Explaining	Eye contact with Rod
40 Rod	What about food?	Focuses on food.	Food	Q	Focusing	Eye contact with Con
41 Con	And exercise?	Focuses on exercise	Exercise	Q	Focusing	Looks at Nola.
42 Rod	They'd need a shop.	Focuses on shop.	Shop	S	Informing	Looks at Nola
43 Con	A convenience store.	Elaborates on concept of shop.	Convenience store	S	Specifying	Eye contact with Rod
44 Kay	What about-?	Begins to focus on an item to consider.	Unclear	IU	Focusing	Eye contact with Rod
45 Rod	What about the people there?	Focuses on people of the village.	Village people	Q	Focusing	Eye contact with Kay
46 Kay	What about-?/They'd have to have a certain amount of beds in the house./There are forty miners with their families/and fifteen without.	Focuses on furniture required and confirms the nature of the populace.	Beds and mining families	IU S S	Focusing Informing Confirming Confirming	Looks at Rod then Nola.
47 Nola	Not necessarily.	Disagrees with Kay's ideas.	Kay's ideas	S	Disagreeing	Eye contact with Kay

48 Kay	Well how are the families going to live in the houses if there is no furniture?	Requests clarification from Nola re living conditions.	Living with no beds	Q	Seeking clarification	Eye contact with Nola
49 Rod	They'd share it.	Proffers solution to Kay's question.	Sharing	S	Solving	Eye contact with Kay
50 Nola	All different houses are built in all different sizes.	Elaborates on requirements for houses.	House sizes	S	Elaborating	Eye contact with Kay
51 Con	It's not necessary.	Disagrees with Nola's ideas.	Nola's ideas	S	Disagreeing	Eye contact with Nola
52 Kay	And the fifty miners without families you could sort of like split them up.	Hypothesises a solution for some miners' housing.	Miners without families (Inferential)	S	Hypothesising	Points to task sheet with her biro.
53 Rod	They could have single beds.	Elaborates on Kay's ideas.	Single beds (Inferential)	S	Hypothesising	Eye contact with Kay
54 Kay	Yes.	Agrees with Rod's ideas.	Rod's ideas	S	Agreeing	Eye contact with Rod
55 Nola	Like three people could go into one-.	Begins to explain a possibility	Three people (Inferential)	IU	Hypothesising	Eye contact with Kay
56 Kay	Yeh/like-.	Agrees and begins to explain.	Nola's statement	S	Agreeing	Eye contact with Nola
57 Nola	Could go into one village.	Completes her previous statement.	Previous statement (Inferential)	IU S	Explaining Hypothesising	Eye contact with Kay
58 Kay	Yeh/could go into one village.	Agrees. Echoes Nola's ideas.	Three people in a village	S	Agreeing	Eye contact with Nola
59 Nola	Into one cottagey thing.	Amends previous ideas.	Cottagey thing	S	Repeating Amending	Eye contact with Kay
60 Kay	You could split them up.	Confirms earlier ideas.	Splitting up families (Inferential)	S	Confirming	Eye contact with Nola
61 Nola	Okay/so bedding.	Endorses ideas on bedding	Bedding	S	Agreeing	Writes on the sheet.
62 Kay	So bedding.	Endorses ideas on bedding.	Bedding	S	Confirming	Writes on her sheet.

63 Nola	I'm writing.	Informs Kay of her group role.	Group recording	S	Informing	Eye contact with Kay
64 Joe	Furniture.	Focuses on furniture.	Furniture	S	Informing	Looks at Nola.
65 Kay	Furniture.	Confirms Joe's idea.	Furniture	S	Confirming	Looks at Nola.
66 Con	Only needed furniture/not excessive.	Qualifies Joe's ideas.	Needed furniture	S	Specifying	Eye contact with Kay
67 Rod	Radio/television.	Focuses on radio and television.	Radio television	S	Informing	Eye contact with Con
68 Kay	Radio for information.	Elaborates on Rod's idea.	Radio for information	S	Informing	Eye contact with Rod
69 Joe	Telephone.	Focuses on telephone	Telephone	S	Informing	Looks at Nola.
70 Nola	Communication	Generalises group members' ideas.	Communication	S	Synthesising	Eye contact with Joe
71 Rod	Um-	Monitors ideas	Unclear	EM	Maintaining	Looks at Nola.
72 Con	Daily needs.	Focuses on needs.	Daily needs	S	Informing	Looks at Rod.
73 Kay	That would come under-	Begins to classify Con's idea.	Con's statement	IU	Classifying	Eye contact with Con
74 Con	Airconditioning.	Focuses on airconditioning.	Airconditioning	S	Informing	Eye contact with Kay
75 Kay	Furniture/all that would come under furniture.	Classifies topic. Classifies Con's ideas.	Furniture	S	Classifying	Eye contact with Con
76 Rod	Sewage.	Focuses on sewage.	Sewage	S	Informing	Looks at Nola.
77 Kay	Fans/electricity.	Focuses on fans and electricity.	Fans electricity	S	Informing	Eye contact with Rod
78 Rod	Yeh.	Agrees with Kay's ideas.	Kay's statement	S	Agreeing	Eye contact with Kay
79 Con	Power lines.	Focuses on electricity supply.	Power lines	S	Informing	Looks at Nola.
80 Rod	Yeh/power lines.	Agrees with and endorses Con's ideas.	Power lines	S	Agreeing	Eye contact with Con
81 Con	Lights.	Focuses on lights	Lights	S	Confirming	Looks at Nola.
82 Kay	With electricity you need to get the fans to work.	Explains link between electricity and fans.	Fans electricity	S	Informing	Eye contact with Nola
83 Rod	Airconditioning.	Refocuses on airconditioning.	Airconditioning	S	Refocusing	Eye contact with Nola

84 Kay	All that would come under the needs of communication,/ wouldn't it?	Classifies ideas expressed earlier and seeks endorsement.	Needs of communication	S Q	Classifying Seeking confirmation	Eye contact with Nola
85 Nola	Family needs/like hospitals and things. Yeh/first aid. Hospital Yeh. Hospital. Surgery/surgery Surgery.	Focuses on family needs. Provides examples.	Hospitals	S	Informing	Eye contact with Kay
86 Con		Agrees with Nola's ideas and elaborates on them.	First aid.	S	Specifying Agreeing	Eye contact with Rod
87 Rod		Confirms concept of hospital.	Hospital	S	Elaborating Confirming	Eye contact with Con
88 Con		Agrees with Rod's idea.	Rod's statement	S	Agreeing	Eye contact with Rod
89 Rod		Refocuses on hospital.	Hospital	S	Refocusing	Eye contact with Con
90 Con	Surgery/surgery Surgery.	Focuses on surgery. Confirms the idea.	Surgery	S	Informing	Eye contact with Rod
91 Nola		Confirms concept of surgery.	Surgery	S	Repeating Confirming	Both Nola and Kay write.
92 Con		Focuses on transport.	Transport	I	Directing	Looks at Nola then Kay.
93 Nola	Or care centre/a small care centre.	Focuses on care centre and qualifies the concept.	Small care centre	S S	Informing Specifying	Eye contact with Con
94 Rod	Transport.	Confirms concept of transport.	Transport	S	Confirming	Eye contact with Nola
95 Con	Yeh/put transport.	Confirms concept of transport further.	Transport	S	Agreeing	Eye contact with Nola
96 Rod	Buses/and trains.	Focuses on aspects of transport.	Buses and trains	I S	Directing Informing	Eye contact with Con
97 Nola	They wouldn't exactly need buses and trains.	Disagrees with Rod's ideas.	Rod's statement	S	Informing Disagreeing	Eye contact with Rod
98 Con	Yeh/one train that goes around the suburbs.	Confirms idea of trains and elaborates.	Suburban train	S	Agreeing	Waves right hand in a circle.
99 Nola	Alright.	Agrees with Kay's idea.	Kay's statement	S	Elaborating Agreeing	Writes on the sheet.

100 Rod	Ah/roads.	Monitors ideas. Focuses on roads.	Roads	EM	Maintaining	Eye contact with
101 Con	Signposts.	Focuses on signposts.	Signposts	S	Informing	Con
102 Nola	There would already be roads to get out there/wouldn't there?	Hypothesises the existence of roads. Seeks confirmation.	Existence of roads (Inferential)	S	Informing	Looks at Nola.
103 Rod	Dirt roads maybe.	Presents hypothesis as clarification.	Dirt roads (Inferential)	Q	Hypothesising	Eye contact with Rod
104 Nola	You wouldn't exactly need bitumen.	Argues against bitumen roads.	Road forms	S	Seeking confirmation	Eye contact with Nola
105 Joe	Yes/ you would for the buses.	Argues for bitumen roads.	Bitumen roads	S	Hypothesising	Eye contact with Rod
106 Nola	You're only going 140 k's./It only takes about an hour and a half.	Supports her argument via explanation of distance and time.	Distance and time of bus trip	S	Arguing	Eye contact with Rod
107 Kay	The company expects to be there for fifteen years/ That means food for fifteen years/transport for fifteen years/water for fifteen years.	Refers to the task sheet and explains the significance of the time frame for the mine operation.	Time frame for planning operations (Textual)	S	Agreeing	Looks at Nola.
108 Nola	You need heat/hot water/and things/but don't forget Helen's Town is just down the road.	Focuses on a range of needs. Focuses attention on the proximity of Helen's Town to the site.	Miners'needs and proximity of Helen's Town	S	Arguing	Eye contact with Joe
109 Kay	Pardon?	Seeks clarification of Nola's ideas.	Nola's statement	S	Explaining	Points to the task sheet with her biro as she speaks.
110 Nola	Helen's Town is just down the road.	Clarifies Kay's query.	Nola's statement	S	Informing	Eye contact with Kay
111 Con	Yeh/140 k's.	Agrees. Confirms Nola's information.	Nola's statement	CR	Informing	Eye contact with Nola
112 Nola	180 k's.	Corrects Con's information.	Con's information	S	Clarifying	Eye contact with Kay
113 Kay	180 k's.	Confirms Nola's information.	Nola's information	S	Agreeing	Eye contact with Kay
				S	Informing	Eye contact with Kay
				S	Correcting	Nola looks at Con.
				S	Confirming	Eye contact with Con

114 Nola	That's only about two hour's drive.	Hypothesises distance in time.	Driving time (Inferential)	S	Hypothesising	Eye contact with Con
115 Con	Yes/but they haven't a truck.	Agrees then raises a problem.	Not having a truck.	S	Agreeing	Eye contact with Nola
116 Nola	Yes they do./ How do you think they get out there?	Argues against Con's idea and explains why.	Con's statement	S Q	Arguing Disagreeing Clarifying	Eye contact with Con
117 Con	They have one train to get from A to B.	Focuses on train travel.	One train	S	Informing	Eye contact with Nola
118 Joe	They don't go fast.	Elaborates on train travel	Train travel	S	Informing	Eye contact with Con
119 Nola	They do go fast./Why don't you send a train out? /Trains go fast.	Contradicts Joe's idea. Argues for train use and explains why.	Train travel	S Q	Disagreeing Arguing Informing	Eye contact with Con
120 Kay	Yes/why don't you send a train to Helen's Town?	Agrees with and confirms Nola's argument.	Train to Helen's Town	S S	Agreeing Confirming	Points to task sheet in front of her.
121 Nola	To Helen's Town.	Confirms destination of train.	Train to Helen's Town	S	Confirming	Eye contact with Con
122 Rod	A train would go with stores.	Elaborates on train travel.	Stores by train	S	Elaborating	Eye contact with Nola
123 Nola	But that would come under transport.	Argues against location of Rod's idea.	Location of train travel	S	Classifying	Eye contact with Rod
124 Kay	Yeh.	Agrees with Nola's argument.	Nola's argument	S	Agreeing	Eye contact with Rod
125 Rod	Um.	Considers Nola's /Kay's idea	Nola's argument	EM	Maintaining	Looks at Nola. Teacher joins the group.
126 Con	Transport	Refocuses on transport	Transport	S	Refocusing	Looks at Nola.
127 Nola	Some of them would have cars and things.	Elaborates on concept of transport.	Means of transport	S	Explaining	Eye contact with Con
128 Kay	Rich ones would have cars.	Qualifies Nola's ideas.	Rich persons.	S	Specifying	Eye contact with Nola
129 Nola	No/not necessarily.	Argues against Kay's qualification.	Kay's ideas.	S S	Disagreeing Arguing	Eye contact with Kay

130 Kay	Not all of them.	Qualifies her own ideas.	Rich persons	S	Arguing	Eye contact with Nola
131 Nola	I didn't say they did.	Argues against Kay's ideas.	Kay's ideas	S	Disagreeing	Eye contact with Kay
132 Rod	Have your own stock like cattle and sheep.	Focuses on stock and gives examples.	Cattle and sheep	S	Informing	Looks at Nola
133 Con	It would come under stock.	Classifies cattle and sheep.	Stock	S	Classifying	Eye contact with Rod
134 Rod	And they'd have to have farming gear.	Focuses on farming gear.	Farming gear	S	Explaining	Eye contact with Con
135 Nola	This is getting an expensive village.	Evaluates the impact of ideas expressed.	Expensive village	S	Evaluating	Eye contact with Rod
136 Kay	Um/they'd need/ What's at Helen's Town?	Begins to say something then seeks information.	Helen's Town	EM IU Q	Maintaining Informing Seeking information	Eye contact with Nola
137 Nola	It doesn't say there'd be shopping centres.	Answers Kay's question negatively.	Shopping centres	S	Informing	Eye contact with Kay
138 Kay	Silver Lakes is 140 kilometres away/and has an airstrip.	Confirms location and distance of Silver Lakes.	Silver Lakes (Textual)	S S	Confirming Confirming	Points to the task sheet.
139 Nola	So you could.	Confirms Kay's ideas.	Kay's utterance	S	Confirming	Eye contact with Kay
140 Kay	So before you went anywhere you could go up to Silver Lakes./You could catch the train up to Silver Lakes/then you would go for your ticket/you know to go somewhere in your train.	Hypothesises a way of travelling to Silver Lakes and explains travel procedures.	Travelling procedures for Silver Lakes. (Inferential)	S S S	Hypothesising Explaining Explaining Explaining	Looks at Nola then Rod.
141 Nola	Oh!/Helen's Town would have shopping centres and things.	Informs group of Helen's Town's shopping potential.	Shopping Centres	E S	Exclaiming Informing	Looks straight ahead.

142 Kay	Yeh/but wouldn't it be better if they had a small minibus and corner store and things?	Argues against the idea of a shopping centre and suggests an alternative.	Minibus and corner store (Inferential)	S S	Agreeing Hypothesising	Eye contact with Nola
143 Nola	Yes they do/but if you're doing major shopping-	Agrees then argues her case via a specific example.	Major shopping	S IU	Agreeing Arguing	Eye contact with Kay
144 Kay	If you're doing major shopping.	Confirms the concept of major shopping	Major shopping	S	Confirming	Nods her head in agreement.
145 Nola	Then you could go to Helen's Town.	Completes her statement.	Major shopping S	S	Elaborating	Eye contact with Kay
146 Rod	They would just have to have a little minibus.	Proffers a solution to means of travel.	Minibus transport	S	Solving	Eye contact with Nola
147 Nola	A lot of people would have cars.	Proffers alternative solution.	Car transport	S	Explaining	Eye contact with Rod
148 Kay	Yeh.	Agrees with Nola's solution.	Nola's statement	S	Agreeing	Nods her head in agreement.
149 Con	They need a train to get where they want to go.	Suggests the need for train transport.	Train transport	S	Explaining	Eye contact with Kay
150 Nola	You don't really need a train.	Disagrees with Con's idea.	Train transport	S	Disagreeing	Eye contact with Con
151 Con	Yes you do.	Continues to argue for train transport	Train transport	S	Disagreeing	Eye contact with Nola
152 Kay	Yes you do.	Agrees with Con's argument.	Train transport	S	Agreeing	Eye contact with Nola
153 Nola	Unless you want to carry things from Silver Lakes/or whatever it is called/to the village side of Helen's Town.	Continues to argue her case by establishing conditions.	Train transport (Inferential)	S S	Hypothesising Hypothesising	Looks at Con then Kay.
154 Kay	What about a mail box?	Focuses on mail services.	Mail box (Inferential)	Q	Suggesting	Looks at Rod then Nola
155 Con	Then they'd have more cars and stuff/and more pollution.	Focuses on the use of cars and resultant pollution	Cars and pollution (Inferential)	S S	Hypothesising Hypothesising	Eye contact with Nola

156 Nola	Suppose one train.	Refocuses on train travel.	Train travel	S	Refocusing	Eye contact with Con
157 Kay	What about a post office?/If they had a post office, people could send letters to everyone.	Refocuses on mail distribution. Explains outcomes of a mail service.	Post office	Q S	Suggesting Explaining	Eye contact with Nola
158 Rod	What about telephones?	Focuses on possibility of telephones.	Telephones	Q	Suggesting	Eye contact with Kay
159 Nola	Communication.	Classifies ideas expressed	Communication	S	Synthesising	Looks straight ahead.
160 Kay	That's communication./ We've got that.	Echoes Nola's idea. Informs her that's it has been recorded.	Communication	S S	Synthesising Informing	Eye contact with Nola.
161 Nola	Do people still write letters?	Seeks information on letter writing.	Writing letters	Q	Seeking information	Leans her head on her hands.
162 Kay	Yes/so you need a post office so they can write letters/ then they can write the night before in case they have a blackout.	Clarifies Nola's question. Elaborates on the concept of mail service.	Mail service	S S S	Agreeing Explaining Explaining	Eye contact with Nola
163 Con	They still need to communicate.	Refocuses on communication.	Communication	S	Refocusing	Eye contact with Kay
164 Kay	Yeh.	Agrees with Con's idea.	Con's statement	S	Agreeing	Eye contact with Con
165 Rod	You'd need a petrol station.	Focuses on the need for a petrol station.	Petrol station	S	Informing	Eye contact with Kay
166 Nola	I'll put communication. /Letters will come under communication.	Informs group of intentions. Classifies letters as part of communication.	Letters and communication	S S	Specifying Classifying	Write as she speaks to the group.
167 Rod	You need a petrol station for transport if you've got trucks.	Refocuses on the need for a petrol station.	Petrol station	S	Specifying	Looks at Nola as she writes.
168 Nola	Yeh.	Agrees with Rod's ideas.	Rod's statement	S	Agreeing	Looks up and establishes eye contact with Rod.

169 Con	That's right.	Confirms Rod's ideas	Rod's statement	S	Confirming	Eye contact with Rod.
170 Kay	Wouldn't you have a coal power station?/ Mr B., how long back was this?/How long ago was it?	Focuses on the need for power. Seeks information from the Teacher.	Coal power station	Q Q Q	Suggesting Seeking information Seeking information	Looks at Teacher who moves towards the group to answer the question.
171 Nola	It's just now.	Informs Kay of time of the event.	Time of the event	S	Informing	Looks at Kay.
172 Teacher	It's recent years./It's recent./It's present time they're setting up.	Confirms the concept of recency expressed by Nola.	Time of the event	S S S	Confirming Confirming Confirming	Eye contact with Kay.
173 Kay	They'd use the diamonds to get the money.	Focuses on costs for establishing the settlement.	Diamonds as resources	S	Informing	Looks at Nola.
174 Nola	That's exactly what they're doing/isn't it?	Seeks confirmation of purposes for mining.	Purposes for mining	S Q	Confirming Seeking confirmation	Eye contact with the Teacher.
175 Teacher	Well yes./They have to pay the miners with the money/don't they?/The miners work/and get paid/but they have to live there.	Clarifies Nola's question and explains how expenses are covered.	Utilisation of resources	S S Q S S S S	Confirming Explaining Seeking confirmation Explaining Explaining Explaining Explaining	Eye contact with Nola.
176 Con	They try to find more diamonds.	Explains resultant events.	More diamonds	S	Explaining	Eye contact with Nola
177 Nola	That's better than driving out there every weekend or something in the morning.	Evaluates the concept of living on the job.	Living on the job.	S	Evaluating	Looks straight ahead.
178 Rod	Set up a big open mining company./They'd have more people working there.	Explains the structure of the mine and hypothesises events to follow.	Open cut mining. (Inferential)	S S	Explaining Hypothesising	Eye contact with Con.

179 Con	Yes.	Agrees with Rod's ideas.	Rod's statement (Inferential)	S	Agreeing	Eye contact with Rod.
180 Nola	If there are more people working there, then they're just going to have to pay more people.	Hypothesises a scenario with more money needed to pay more workmen.	More money needed for more workmen (Inferential)	S	Hypothesising	Eye contact with Con
181 Rod	But then they will find more diamonds.	Elaborates on Nola's ideas.	Finding more diamonds (Inferential)	S	Elaborating	Eye contact with Nola
182 Con	Yeh./The quicker they find the diamonds-	Agrees and begins to elaborate on Rod's ideas.	Finding diamonds quickly	S IU	Agreeing Elaborating	Eye contact with Rod
183 Rod	They can buy more houses.	Hypothesises a consequence of finding more diamonds.	More houses from more diamonds (Inferential)	S	Hypothesising	Eye contact with Con
184 Nola	Not necessarily./What if there are not that many diamonds there?	Disagrees. Hypothesises a scenario of few diamonds.	Few diamonds (Inferential)	S Q	Disagreeing Hypothesising	Eye contact with Rod
185 Kay	What happens if there is?	Argues against Nola's ideas.	Nola's scenario (Inferential)	Q	Hypothesising	Eye contact with Nola
186 Nola	What happens if there's not?	Argues against Kay's ideas.	Kay's argument (Inferential)	Q	Hypothesising	Looks at Con.
187 Teacher	It's a risk of mining/but they do plan things/don't they?/They have some idea.	Explains planning for establishment of the mine. Seeks confirmation of ideas.	Planning for the mine	S S Q	Explaining Explaining Seeking confirmation	Looks at Nola then Kay.
188 Rod	Where there's one diamond, there's sure to be more.	Hypothesises a scenario of diamond exploration.	Diamond exploration (Inferential)	S S	Explaining Hypothesising	Eye contact with Nola
189 Con	Yeh.	Agrees with Rod's hypothesis.	Rod's hypothesis	S	Agreeing	Eye contact with Rod

190 Nola	There might be./ What will I do?	Agrees. Seeks directions for recording.	Recording directions	S Q	Hypothesising Seeking clarification	Eye contact with Rod
191 Rod	Put down employing more people.	Directs Nola what to record.	Employing people	I	Directing	Eye contact with Nola
192 Nola	Employing more people.	Confirms Rod's ideas as she writes.	Employing people	S	Confirming	Teacher leaves the group.
193 Rod	Um.	Monitors ideas.	Unclear	EM	Maintaining	Looks at Nola.
194 Kay	People or workers?	Seeks clarification of recording	People or workers	Q	Seeking clarification	Looks at Nola.
195 Nola	People.	Clarifies Kay's question.	People	S	Informing	Eye contact with Kay
196 Kay	People.	Confirms Nola's response.	Nola's response	S	Confirming	Eye contact with Nola
197 Rod	Get more equipment for mining.	Focuses on mining equipment.	Mining equipment	S	Informing	Eye contact with Nola
198 Nola	More equipment needed./Okay.	Confirms Rod's idea.	Mining equipment	S S	Confirming Confirming	Records the item.
199 Rod	Get a school.	Focuses on a school.	School	I	Informing	Looks at Nola.
200 Nola	Yeh/and you'd also need a playground and things.	Agrees with Rod's idea and elaborates on it.	Playground and things	S S	Agreeing Elaborating	Eye contact with Rod.
201 Rod	Yeh.	Agrees with Nola's ideas.	Nola's ideas	S	Agreeing	Eye contact with Nola
202 Con	You'd need a park.	Focuses on a park.	Park	S	Informing	Looks at Nola.
203 Rod	Yeh/a park.	Agrees with and confirms Con's idea.	Con's idea	S S	Agreeing Confirming	Eye contact with Con
204 Nola	School and park.	Synthesises Rod's and Con's ideas.	School and park	S	Synthesising	Looks at the recording sheet.
205 Kay	School and park together do you reckon?	Seeks clarification of recording format.	School and park	Q	Seeking clarification	Eye contact with Rod
206 Rod/ Nola	Yeh.	Clarify Kay's question in unison.	Kay's question	S	Agreeing	Both look at Kay.
207 Rod	Then you would have to have sports for the kids and stuff.	Elaborates on the concepts of school and park.	Sports for kids	S	Specifying	Looks at a pencil in his hand.

208 Con	You need a soccer ground.	Focuses on a soccer ground.	Soccer ground	S	Informing	Eye contact with Nola
209 Kay	I'll just write sports games.	Synthesises ideas for recording.	Sports games	S	Refocusing	Looks at Rod then Nola.
210 Rod	Yeh/and you'd need a policeman.	Agrees and focuses on need for police.	Policeman	S	Agreeing	Eye contact with Kay
211 Con	Yeh/so they can't steal the diamonds.	Agrees and explains a role of police.	Policeman's role.	S	Agreeing	Eye contact with Rod
212 Nola	You'd need sport.	Refocuses on sport.	Sport	S	Explaining	Eye contact with Kay
213 Rod	You'd need security.	Focuses on the need for security.	Security	S	Refocusing	Eye contact with Kay
214 Kay	You'd need security everywhere,/yeh.	Repeats Rod's idea and confirms it.	Security everywhere	S	Informing	Looks around the group.
215 Rod	Security.	Confirms concept of security.	Security	S	Repeating	Eye contact with Rod
216 Kay	That's nineteen.	Confirms concept of security.	Security	S	Confirming	Eye contact with Kay
217 Nola	No/twenty.	Informs group of number recorded.	Number recorded	S	Informing	Looks at sheet in front of her.
218 Rod	Don't worry about it./Let's get on with the rest.	Disagrees. Amends Kay's total.	Number recorded	S	Disagreeing	Eye contact with Kay
219 Nola	What else?	Directs Kay and Nola to continue with the task.	Nola's/Kay's statements	I	Correcting	Looks at Kay then Nola.
220 Rod	Um/I'll have to think about it.	Seeks guidance in recording.	Item to record	I	Directing	Eye contact with Rod
221 Nola	They'd need work for the women.	Monitors ideas. Informs Nola of his intentions.	Nola's question	Q	Seeking information	Eye contact with Nola
222 Rod	Other Jobs.	Focuses on work for women	Work for women	EM	Maintaining	Eye contact with Nola
223 Nola	Yes.	Generalises the idea of work.	Other jobs	S	Informing	Eye contact with Rod
224 Kay	Other jobs like other occupations.	Agrees with Rod's idea.	Rod's idea	S	Generalising	Eye contact with Nola
		Confirms Nola's/Rod's ideas.	Other occupations	S	Agreeing	Looks at sheet in front of her.
					Explaining	Leans her head on her hands.

225 Rod	Yeh/someone to make the cars transport.	Agrees. Focuses on someone to make the cars transport.	Someone to make cars transport	S S	Agreeing Specifying	Looks at Nola.
226 Con	Factories.	Focuses on factories.	Factories.	S	Informing	Looks at Rod.
227 Nola	No/that's at Helen's Town./That would be at Helen's Town.	Disagrees. Explains location of factories. Confirms the idea.	Factories at Helen's Town	S S S	Negating Explaining Confirming	Eye contact with Con.
228 Kay	Helen's Town has got a big seaport.	Focuses on location of seaport.	Seaport (Textual)	S	Informing	Points to task sheet.
229 Nola	Helen's Town is like a big city/ like Townsville.	Compares Helen's Town with big cities and Townsville.	Helen's Town as a big city	S S	Comparing Comparing	Nods her head in approval.
230 Kay	They'd make things at Helen's Town/so they've got to send them down/so they would get contact with Helen's Town to tell them about the very things that started there.	Hypothesises a scenario of Helen's Town's capacity to make things and explains its significance for the mining families.	Contact with Helen's Town (Inferential)	S S S	Explaining Hypothesising Hypothesising	Taps the sheet with her biro as she speaks.
231 Nola	Not necessarily./They could just go up./It's not that far away./ They could just drive in every time they wanted something like by car.	Disagrees with Kay's hypothesis and argues for a different scenario.	Travelling to Helen's Town	S S S S	Disagreeing Informing Explaining Explaining	Eye contact with Kay
232 Kay	They could get a big shipment of things.	Argues for her scenario of contact.	A big shipment of things (Inferential)	S	Hypothesising	Eye contact with Nola
233 Nola	Why would they need big shipments of things?	Continues to argue against Kay's ideas.	Kay's ideas	Q	Seeking information	Eye contact with Kay
234 Kay	Families need things.	Supports her argument with facts.	Family needs	S	Arguing	Eye contact with Nola
235 Nola	What else do people need?	Focuses on another need.	Another need	Q	Seeking information	Looks straight ahead.

236 Kay	Shelter.	Focuses on shelter in response to Nola's question.	Shelter	S	Informing	Eye contact with Nola
237 Con	Yeh/shelter.	Agrees with and confirms Kay's idea.	Kay's idea.	S S	Agreeing Confirming	Eye contact with Kay
238 Nola	There's nothing really more.	Concludes that the list is complete.	Complete list	S	Concluding	Looks straight ahead.
239 Kay	It would be nice if they had animals up there.	Focuses on animals.	Animals	S	Evaluating	Eye contact with Nola
240 Rod	A zoo.	Focuses on location of animals.	A zoo	S	Suggesting	Eye contact with Kay
241 Kay	Pets.	Elaborates on idea of animals.	Pets	S	Suggesting	Talks as she writes.
242 Rod	A pet shop.	Focuses on pet shop.	Pet shop	S	Suggesting	Eye contact with Kay
243 Nola	You would need easy access./No/they wouldn't need a pet shop because that would come under convenience store/or you could just go to Helen's Town again.	Focuses on access to services. Disagrees with Rod's idea and explains why.	Access to services and Rod's idea	S S S S	Explaining Negating Explaining Explaining	Eye contact with Rod
244 Rod	And what happens if every time you don't want to go up to Helen's Town?	Argues against Nola's explanation.	Not wanting to go to Helen's Town (Inferential)	Q	Hypothesising	Eye contact with Nola
245 Kay	Exactly that's just what I'm saying.	Supports Rod's argument.	Rod's idea	S	Arguing	Eye contact with Nola
246 Nola	Then why do you need a pet shop?	Seeks clarification from Rod/Kay.	Rod's/Kay's idea	Q	Seeking clarification	Looks at Kay then Rod
247 Rod	You'd get sick of driving up there and back.	Argues against Nola's explanation.	Getting sick of driving	S	Arguing	Eye contact with Nola
248 Nola	You don't have to/ you only have to go up there every two weeks.	Continues to argue her position on the idea of a pet shop.	Not going every two weeks	S S	Disagreeing Arguing	Eye contact with Rod

249 Kay	Yeh/but-	Agrees. Begins to argue against Nola's ideas.	Nola's ideas	S IU	Agreeing Disagreeing	Eye contact with Nola.
250 Rod	Yes/but it's better to have it in your own town.	Agrees. Continues to argue against Nola's ideas.	Better in your own town	S S	Agreeing Evaluating	Eye contact with Nola
251 Nola	This is only going to be here for fifteen years or something.	Supports her argument by reference to the life of the mine.	Fifteen years of mining	S	Arguing	Eye contact with Rod
252 Kay	Yeh.	Confirms Nola's reference to time.	Nola's idea	S	Agreeing	Eye contact with Rod
253 Nola	That's all./It's not going to be there for ever.	Concludes the argument by referring to time frame.	Life of the mine	S S	Concluding Informing	Looks straight ahead.
254 Con	Don't get too many things.	Focuses attention on need for restraint.	Too many things	I	Suggesting	Looks at Nola then Rod.
255 Nola	Yeh.	Agrees with Con's caution.	Con's ideas	S	Agreeing	Eye contact with Con
256 Con	'Cause you won't need them.	Justifies his caution.	Justification of ideas	S	Explaining	Eye contact with Nola
257 Nola	They're not going to be needed later on.	Confirms Con's ideas and elaborates.	Con's ideas	S	Confirming	Eye contact with Con
258 Kay	You'd get one big shipment./That's all they'll need./They'll have just about everything they'll need in that one shipment.	Refocuses on the idea of a big shipment and justifies her idea.	One big shipment	S S S	Refocusing Explaining Explaining	Eye contact with Nola
259 Nola	Yes/but when they finish doing their mining-	Agrees then hypothesises an eventual scenario.	Completion of mining (Inferential)	S IU	Agreeing Hypothesising	Gestures with open hands.
260 Joe	Yes/when they finish their mining.	Agrees with and confirms Nola's ideas.	Nola's ideas (Inferential)	S S	Agreeing Confirming	Eye contact with Nola
261 Nola	When they finish their mining, everything is-	Confirms ideas then begins to elaborate on her ideas.	Completion of mining (Inferential)	IU	Confirming (towards elaboration)	Looks straight ahead
262 Joe	Going to go down.	Completes Nola's statement.	Going down (Inferential)	S	Completing	Eye contact with Nola

263 Nola	Just going to go down the loo.	Elaborates on Joe's ideas.	Down the loo	S	Elaborating	Smiles as she speaks.
264 Kay	But they can keep what they have/can't they?	Seeks confirmation of her ideas.	Keeping what they have (Inferential)	S Q	Hypothesising Seeking confirmation	Eye contact with Nola
265 Joe	No.	Confirms Kay's ideas.	Kay's ideas	S	Negating	Looks at Kay
266 Nola	But then they would have to move everything/and get new shops, pet shops, and things when there's already a pet shop they need only two hours away.	Focuses attention on the consequences of establishing unnecessary facilities.	Unnecessary facilities	S S	Arguing Arguing	Waves her right hand in front of her.
267 Rod	It's a waste of money.	Confirms the non-acceptance of unnecessary facilities.	Unnecessary facilities	S	Explaining	Looks in front of him.
268 Con	You don't want to get too many stores and that because they're just going to get knocked down and that.	Confirms the temporary nature of the mining enterprise.	Temporary stores	S	Arguing	Eye contact with Rod
269 Nola	Yeh/they're just going to be knocked down and that.	Agrees and confirms Con's ideas.	Con's ideas	S S	Agreeing Confirming	Eye contact with Con
270 Rod	That's about it.	Concludes completion of task.	Completion of task	S	Concluding	Eye contact with Con
271 Nola	Yeh.	Endorses Rod's conclusion	Rod's idea	S	Agreeing	Eye contact with Rod
272 Kay	Is there any more you reckon?	Seeks confirmation of Rod's conclusion.	Rod's idea	Q	Seeking confirmation	Eye contact with Nola
273 Nola	Nope.	Confirms conclusion of task.	Kay's question	S	Confirming	Eye contact with Kay
274 Kay	What about a tackle shop?	Focuses on tackle shop.	Tackle shop	Q	Suggesting	Eye contact with Nola
275 Joe	Where are they going to go fishing?	Seeks information re concept of fishing.	Fishing site	Q	Seeking information	Eye contact with Kay

276 Nola	Where are they going fishing?	Repeats Joe's question.	Fishing site	Q	Seeking information	Teacher joins the group.
277 Kay	There's a seaport up at Helen's Town.	Clarifies question re fishing site.	Possible fishing site	S	Informing	Gestures with both hands.
278 Rod	It's got to be a bait shop.	Specifies the nature of the shop.	Bait shop	S	Specifying	Eye contact with Kay
279 Kay	A bait shop?	Questions Rod's idea.	Bait shop	Q	Seeking clarification	Smiles at Rod as she speaks.
280 Con	Yes.	Endorses Rod's idea of the type of shop.	Rod's idea	S	Confirming	Eye contact with Kay
281 Nola	If Helen's Town is near the sea, then every time you go to Helen's Town/every time you go fishing/ you can just go on the way to Helen's Town because the sea is near Helen's Town.	Hypothesises a scenario to solve the fishing problem.	Fishing on the way to Helen's Town (Inferential)	S S	Hypothesising Hypothesising	Gestures with her left hand as she speaks.
282 Kay	Exactly/but do you think there is a little town in between those two?	Agrees then seeks hypothesis on existence of an inbetween town.	Inbetween town (Inferential)	S Q	Agreeing Seeking clarification	Eye contact with Nola
283 Nola	Nope.	Negates the idea.	Kay's ideas	S	Negating	Looks straight ahead.
284 Kay	Well how are you going to get bait and tackle straight in the middle when there is nothing there to get it from?	Requests an explanation from Nola re her rationale	Sources of bait.	Q	Seeking clarification	Taps the sheet in front of her with her biro as she speaks.
285 Nola	If there is a sea at Helen's Town-	Begins to explain the basis of her thinking.	Sea at Helen's Town (Inferential)	IU	Hypothesising	Eye contact with Kay
286 Kay	Yeh.	Confirms the existence of a sea.	Nola's ideas	S	Confirming	Eye contact with Nola
287 Rod	They'll have it.	Confirms availability of bait.	Availability of bait	S	Confirming	Eye contact with Kay

288 Nola	You go down to the sea there and buy bait and tackle from there.	Completes previous statement re procuring bait.	Buying bait and tackle	S	Explaining	Eye contact with Nola
289 Kay	What if bait and tackle are a long way away?	Seeks an clarification for her hypothesised scenario.	Availability of bait and tackle (Inferential)	Q	Hypothesising	Eye contact with Nola
290 Rod	They'll have it. They'll have it.	Confirms availability of bait and tackle.	Availability of bait and tackle	S S	Confirming Repeating	Eye contact with Kay
291 Kay	That's all.	Concludes completion of task.	Task strategy	S	Concluding	Eye contact with Nola
292 Teacher	So what have you done discussed the list?	Requests information on progress of task strategy.	Task strategy	Q	Seeking clarification	Looks around the group for a response.
293 Rod	Made a list.	Informs teacher of group progress.	Task list	S	Informing	Eye contact with Teacher
294 Teacher	What's your next move? What are you going to do next?	Requests information re next strategy.	Next strategy	Q Q	Seeking information Seeking information	Eye contact with Rod
295 Rod	Write-	Begins to inform Teacher of next step	Writing	IU	Informing	Eye contact with Teacher
296 Nola	How do you spell "supply"?	Interrupts to get correct spelling.	Spelling "supply"	Q	Seeking information	Eye contact with Teacher
297 Kay	s-u-p-l-y	Spells the word (incorrectly) for Nola.	Spelling "supply"	Sp	Spelling	Looks at Nola
298 Teacher	s-u-double p.	Spells the word for Nola.	Spelling "supply"	Sp	Spelling	Eye contact with Nola
299 Kay	Oh that's right.	Endorses Teacher's correct spelling.	Teacher's spelling	S	Confirming	Eye contact with Nola
300 Teacher	What's the next job Rod when you've listed them?	Elicits a further response from Rod re task strategy.	The next job	Q	Seeking information	Eye contact with Rod

301 Rod	Write out a classify classification on the paper supplied. Write only one draft of the classification based on your discussion.	Reads aloud from the task sheet in front of him.	Task strategy	RTA	Informing by reading aloud	Looks at the task sheet from which he reads.
302 Teacher	By one draft I didn't think you would have time to rewrite it neatly.	Explains the reason for the task expectations.	Task strategy	S	Explaining	Looka around the group as he explains.
303 Nola	Is that enough for the classification?	Seeks confirmation of task strategy.	Task strategy	Q	Seeking confirmation	Shows Teacher the sheet.
304 Teacher	You need a new page./Do you want a new sheet so you can write a bigger one?	Evaluates the classification sheet. Seeks information re use of new sheet.	Task strategy	S Q	Evaluating Requesting	Examines the sheet and hands it back to Nola.
305 Nola	Yeh.	Informs Teacher of her need.	Task strategy	S	Confirming	Takes sheet from Teacher.
306 Teacher	Think about the classification/and I'll get Nola a new sheet./What did you say Joe?/You wanted to draw on it?	Focuses group's attention on task. Informs group of intentions. Seeks clarification from Joe re his intentions.	Task strategy	I S Q Q	Directing Informing Seeking clarification Seeking clarification	Looks at Joe who had whispered something.
307 Joe	A school and a park and that.	Clarifies Teacher's question.	Drawing a park and school	S	Informing	Eye contact with Teacher
308 Nola	They'd need a--	Begins to focus on a need.	Settlement need	IU	Focusing	Eye contact with Joe
309 Joe	The sports could be in the park/can't they?.	Focuses on location of sports and seeks confirmation.	Location of sports (Inferential)	S Q	Hypothesising Seeking confirmation	Eye contact with Nola
310 Nola	Yeh/I know/but-	Confirms Joe's idea. Begins to elaborate.	Joe's idea	S S IU	Confirming Informing Incomplete	Shuffle papers in front of her as she speaks.
311 Joe	But what?	Seeks an explanation from Nola.	Nola's ideas	Q	Seeking clarification	Eye contact with Nola

312 Nola	You need sport equipment.	Completes her statement.	Sport equipment	S	Informing	Eye contact with Joe
313 Joe	You need buildings.	Focuses on buildings.	Buildings	S	Informing	Looks at Nola.
314 Nola	It doesn't matter./You need sports/um/what's the word?	Evaluates her own idea. Begins to focus on an idea. Seeks help to find a word.	Previous ideas	S IU EM Q	Evaluating Informing Maintaining Seeking information	Teacher hands Nola a new sheet
315 Kay	You have written exactly the same as me /but you have written it down differently	Compares written records and informs Nola of similarity between them.	Written record	S S	Comparing Evaluating	Looks at Nola as she takes the new sheet.
316 Nola	I can't remember what the word is/but you need/um sport/What's it called?	Repeats her request for a particular word in order to focus on a particular idea.	Unknown word	S S EM Q	Explaining Informing Maintaining Seeking information	Looks at Kay then Rod
317 Con	Leaders	Proffers a word.	Leaders	S	Solving	Looks at Nola.
318 Nola	No/rules and things like coaches and things./I can't remember./It's called-/Can I have your red pen Rod?	Negates Con's idea. Tries to explain the meaning of the word. Requests a pen from Rod.	Unknown word	S S S IU Q	Negating Explaining Informing Incomplete Requesting	Waves her right hand around in front of her.
319 Teacher	So what are you going to do now/classify them?	Requests information re next step to complete task.	Next step in task strategy	Q	Seeking clarification	Looks at Nola then Rod.
320 Nola	Yeh/but you need a margin to do that.	Confirms classification as next step. Informs group of strategy requirement.	Task strategy	Q S S	Suggesting Agreeing Informing	Eye contact with Teacher
321 Teacher	Maybe you should work out how you are going to classify them.	Suggests group should work out a strategy for classification.	Classification strategy	S	Suggesting	Eye contact with Nola
322 Nola	Okay/how are we going to classify them?	Accepts Teacher's suggestion. seeks guidance from group.	Classification strategy	S Q	Agreeing Seeking information	Looks straight ahead.

328

323 Teacher	I asked the question. Do you know what it means to classify?	Informs Nola re question. Probes for response.	Previous question	S Q	Informing Probing	Looks at Nola and smiles.
324 Nola	Yeh/sort of.	Confirms knowledge of classification.	Classification	S S	Confirming Elaborating	Eye contact with Teacher
325 Rod	Like in a newspaper.	Explains by reference to newspapers.	Classification	S	Comparing	Eye contact with Teacher
326 Teacher	Classified advertisements?	Seeks clarification from Rod.	Classified ad -vertisement	Q	Seeking clarification	Eye contact with Rod
327 Rod	Yeh.	Clarifies Teacher's question	Classified ad -vertisement	S	Agreeing	Eye contact with Teacher
328 Teacher	Well what are classified advertisements Rod?/ What does that mean?	Seeks explanation re classified advertise- ments frm Rod.	Classified advertise- ments	Q Q	Seeking clarification Seeking clarification	Eye contact with Rod.
329 Rod	Something they write up and stick in the ads.	Explains classified advertisements.	Classified advertise- ments	S	Explaining	Looks straight ahead.
330 Teacher	Not quite./You're on the right track./But it doesn't quite mean that/does it?/It means you have to group them in a certain way./In other words your advertisement in used cars is not put with caravans./So you group them./So classification means you are going to group them.	Partly disagrees with Rod's ideas. Explains the concept of classification by including ideas used by Rod. Synthesise ideas.	Explanation of classification	S S S Q S S S S	Evaluating Evaluating Disagreeing Seeking confirmation Explaining Explaining Explaining Synthesising	Gestures with his right hand as he explains the meaning of classification.
331 Con	Like communication and transport.	Suggests another example to consider.	Classification	S	Comparing	Eye contact with Teacher

332 Teacher	That's a good idea./Something like that./So I suggest as a group you work out how you are going to group them./Just put them in.	Praises Con's participation and confirms his ideas. Suggests participants work as a group to classify ideas presented.	Group participation to classify ideas	S S S I	Evaluating Evaluating Suggesting Directing	Nods his head in approval as he speaks.
333 Kay	We could put them in columns.	Proffers a task strategy.	Columns	S	Suggesting	Eye contact with Nola
334 Nola	We'll just write them in order.	Informs Kay of her intentions.	Writing in order	S	Informing	Eye contact with Kay
335 Kay	I did columns	Informs Nola of her strategy.	Task strategy	S	Informing	Eye contact with Nola
336 Nola	And like leave a space every different one.	Elaborates on her intended strategy.	Task strategy	S	Elaborating	Eye contact with Kay
337 Kay	I did columns.	Repeats her task strategy.	Columns	S	Confirming	Eye contact with Nola
338 Nola	No because columns get too confusing/'cause everything's needed./We're writing down what they needed.	Disagrees with Kay's strategy and argues for her own strategy.	Task strategy	S S S	Disagreeing Explaining Informing	Gestures with open hands in front of her.
339 Kay	No/like stores, food and water and those things.	Disagrees with Nola. Argues by proffering examples.	Stores, food and water	S S	Disagreeing Arguing	Eye contact with Nola
340 Nola	If we just list them down-	Begins to argue for her position.	Listing items	IU	Suggesting	Eye contact with Kay
341 Con	You put them down on one side.	Supports Nola's ideas.	Nola's ideas	S	Explaining	Eye contact with Nola
342 Nola	Yeh like transport/and then we write down everything that's needed that's needed in transport/then like food and education.	Confirms her ideas. Explains her strategy with examples.	Task strategy	S S S	Confirming Explaining Explaining	Eye contact with Con

343 Teacher	That's good./I think Kay's idea is good too./They're all good ideas.	Praises ideas proffered by group members.	Praising ideas proffered	S S S	Praising Praising Praising	Looks at Nola then Kay.
344 Nola	Yeh/columns get confusing.	Agrees then continues to argue her case.	Columns	S	Agreeing	Teacher leaves the group.
345 Joe	Columns?	Seeks clarification re columns	Columns	Q	Explaining Seeking clarification	Eye contact with Nola
346 Nola	Yeh.	Clarifies Joe's question.	Joe's question	S	Agreeing	Eye contact with Joe
347 Kay	Here you are Rod./Thank you.	Thanks Rod for use of his pen.	Rod's pen	S CR	Directing Thanking	Returns pen Rod had given Nola.
348 Nola	Do transport first/Okay./Here anyone want to read this?	Focuses on first item. Requests someone to read sheet.	Nola's written record	I S Q	Directing Confirming Requesting	Holds up sheet which Kay takes.
349 Rod	Give us yours.	Directs Kay to pass her sheet.	Kay's written record	I	Directing	Takes Kay's sheet to read.
350 Nola	Okay.	Signals she is ready to continue.	Nola's readiness	S	Requesting	Prepares to write.
351 Kay	Transport	Informs Nola of first topic.	Transport	S	Informing	Eye contact with Nola
352 Nola	Is the first topic transport?	Seeks confirmation re first item.	First item	Q	Seeking confirmation	Looks around the group.
353 Kay	Yeh.	Confirms first item.	First item	S	Confirming	Eye contact with Nola
354 Nola	Okay.	Nola endorses Kay's idea.	Kay's idea	S	Confirming	Begins to write the new list.
355 Rod	Did you put petrol in transport?.	Seeks clarification on list from Kay.	Kay's list	Q	Seeking clarification	Looks up From Kay's list.
356 Kay	Yeh.	Clarifies Rod's Question	Rod's question	S	Confirming	Eye contact with Rod
357 Rod	Yeh/petrol because you have to.	Confirms the idea of including petrol.	Previous ideas	S S	Confirming Explaining	Eye contact with Kay
358 Kay	One train.	Focuses on a train.	Train	S	Informing	Eye contact with Nola
359 Nola	One train and track.	Amends Kay's statement for the record.	Train and track	S	Clarifying	Writes on the sheet.

360 Kay	One train and needed amount of track.	Amends Nola's statement for the record.	Train and track	S	Clarifying	Eye contact with Nola
361 Nola	Train and Road.	Amends Kay's ideas.	Train and road	S	Specifying	Eye contact with Kay
362 Kay	Yeh/but they'd need one train.	Agrees with and confirms idea of train.	One train	S	Agreeing	Eye contact with Nola
363 Nola	Yeh./You can understand/it's one train and one train road.	Agrees. Argues her case by explaining train and road.	Train and road	S	Explaining	Eye contact with Kay
364 Con	One train/two trains.	Proffers two ideas.	One train two trains	S	Agreeing	Eye contact with Kay
365 Nola	Okay.	Confirms the ideas presented.	Previous ideas	S	Agreeing	Eye contact with Nola
366 Rod	You'd need workers for the trains.	Focuses on workers.	Train workers	S	Suggesting	Looks straight ahead.
367 Nola	Yeh./That will come under occupations.	Agrees. Classifies the idea of train workers.	Train workers	S	Informing	Eye contact with Nola
368 Kay	Cars/trucks.	Focuses on cars and trucks.	Cars and trucks	S	Agreeing	Eye contact with Rod
369 Nola	Yeh.	Agrees with Kay's ideas.	Kay's ideas	S	Classifying	Eye contact with Rod
370 Con	Trains	Confirms trains.	Trains	S	Suggesting	Eye contact with Nola
371 Rod	That's about it for transport.	Concludes completion of transport.	Transport	S	Suggesting	Write on the sheet.
372 Nola	Okay/that's about it for transport.	Confirms Rod's conclusion	Rod's conclusion	S	Agreeing	Looks at Nola.
373 Kay	What about Helen's Town?	Focuses on Helen's Town.	Helen's Town	S	Confirming	Looks at sheet.
374 Nola	What?	Seeks clarification from Kay	Kay's ideas	Q	Concluding	Looks up from the sheet.
375 Kay	Helen's Town.	Clarifies Nola's question.	Nola's question	Q	Agreeing	Eye contact with Nola
376 Nola	Oh yeh.	Agrees with Kay's idea.	Kay's idea	S	Seeking information	Eye contact with Kay
377 Rod	Communications/telephones.	Focuses on communications and telephones.	Communications and telephones	S	Seeking clarification	Eye contact with Nola
				S	Informing	Eye contact with Kay

378 Kay	Wait a minute./She's not finished./Now communications.	Directs Rod to wait until Nola has finished writing.	Nola's writing	I	Directing	Pauses while Nola finishes writing.
379 Rod	Post Office telephone. /That's it/isn't it?	Refocuses on telephone. Concludes completion of classification.	Post Office telephone	S S S Q	Explaining Informing Refocusing Concluding Seeking confirmation	Eye contact with Nola
380 Kay	Lighting.	Focuses on lighting	Lighting	S	Informing	Eye contact with Nola
381 Rod	You need power lines.	Elaborates on concept of lighting.	Power lines	S	Suggesting	Eye contact with Kay
382 Nola	Telephone.	Refocuses on telephones	Telephones	S	Refocusing	Eye contact with Rod
383 Kay	Electricity./Oh you've got electricity power.	Refocuses on electricity. Acknowledges its recording.	Electricity	S S	Informing Confirming	Eye contact with Nola
384 Nola	Okay.	Signals she is ready to write.	Readiness	S	Requesting	Looks around the group.
385 Kay	Television/television.	Focuses on television	Television	S	Suggesting	Eye contact with Nola
386 Rod	Yeh.	Confirms Kay's idea.	Kay's idea	S S	Repeating Agreeing	Eye contact with Kay
387 Nola	Electricity maybe.	Confirms electricity with reservation.	Electricity	S	Suggesting	Eye contact with Kay
388 Kay	They come under family.	Classifies electricity and television.	Family needs	S	Classifying	Eye contact with Nola
389 Nola	Ah!	Confirms Kay's classification.	Kay's classification	E	Agreeing	Runs left hand through hair.
390 Kay	Farming.	Focuses on farming.	Farming	S	Suggesting	Eye contact with Nola
391 Rod	No/people's needs.	Disagrees with Kay's idea. Focuses on people's needs	People's needs	S S	Negating Suggesting	Eye contact with Kay
392 Kay	Farming.	Confirms her idea.	Farming	S	Suggesting	Eye contact with Rod
393 Rod	Needs.	Argues by confirming his idea.	Needs	S	Suggesting	Eye contact with Kay

394 Kay	Okay/people's needs.	Agrees with and confirms Rod's idea.	People's needs	S S	Agreeing Confirming	Eye contact with Rod
395 Rod	They need houses, bedding, electricity, first aid.	Elaborates on people's needs.	People's needs.	S	Explaining	Eye contact with Nola
396 Kay	First aid/just write first aid.	Confirms first aid. Directs Nola what to write.	First aid	S I	Suggesting Directing	Eye contact with Nola
397 Nola	Okay.	Agrees with Kay's ideas.	Kay's ideas	S	Agreeing	Write on the sheet.
398 Rod	Food, employment, schools.	Continues elaboration of people's needs.	People's needs	S	Listing	Looks at Nola.
399 Kay	Water.	Refocuses on water.	Water	S	Suggesting	Eye contact with Nola
400 Rod	Water.	Confirms Kay's idea.	Water	S	Confirming	Eye contact with Nola
401 Nola	People's needs cover everything because the whole thing the whole thing is based on needs.	Generalises by indicating that all items may be classified as people's needs.	People's needs	S	Generalising	Gestures with left hand as she speaks.
402 Kay	Just write all of them.	Proffers a solution to the problem.	Nola's ideas	I	Directing	Eye contact with Nola
403 Rod	The rest of it?	Seeks clarification from Kay.	Kay's idea	Q	Seeking clarification	Eye contact with Kay
404 Kay	No./You need desperate things like shelter, water and food and something.	Clarifies Rod's question. Explains prioritised items.	Desperate things	S S	Disagreeing Explaining	Eye contact with Rod
405 Nola	Yeh.	Agrees with Kay's ideas.	Kay's ideas	S	Agreeing	Eye contact with Rod
406 Kay	Desperate things like first aid and water pipes inside.	Elaborates on the concept of desperate things.	Desperate things	S	Elaborating	Eye contact with Rod
407 Rod	Furniture and houses and water and food Um-	Focuses on a series of ideas. Begins to say something	Furniture, houses, food water	S EM	Listing Maintaining	Eye contact with Kay

408 Kay	Toilet	Focuses on toilet.	Toilet	S	Suggesting	Eye contact with Rod
409 Nola	Okay./Three shelter.	Confirms Kay's/Rod's ideas. Informs group of item three.	Item three shelter	S S	Agreeing Informing	Looks straight ahead.
410 Kay	Sewage equipment.	Focuses on sewage equipment.	Sewage equipment	S	Suggesting	Eye contact with Nola
411 Rod	What else farming?	Seeks clarification re next item.	Farming	Q	Seeking clarification	Eye contact with Nola
412 Kay	What about hospitals?/We need hospitals.	Focuses on hospitals and justifies their inclusion.	Hospitals	Q S	Suggesting Explaining	Eye contact with Rod
413 Nola	First aid I've got here.	Informs group re list	First aid	S	Informing	Eye contact with Kay
414 Kay	Two hospitals then a dash/then first aid/Yeh/then farming next.	Explains how to order the items. Confirms own ideas. Explains what to put next.	Order of items.	S S S S	Explaining Explaining Confirming Explaining	Eye contact with Nola
415 Rod	They need stock.	Focuses on stock.	Stock	S	Informing	Eye contact with Nola
416 Kay	They need their own stock like cattle and horses.	Elaborates on the concept of stock.	Cattle and horses	S	Elaborating	Eye contact with Rod
417 Rod	Equipment and that.	Focuses on equipment.	Equipment	S	Elaborating	Eye contact with Nola
418 Con	Wheat and-	Focuses on wheat.	Wheat	S	Elaborating	Eye contact with Rod
419 Kay	Give her a chance./She hasn't finished yet.	Instructs Rod/Con to wait and explains why they should.	Task strategy	I S	Directing Explaining	Looks at Rod then Con.
420 Nola	Okay/farming.	Informs group she's ready for farming.	Task strategy	S S	Agreeing Confirming	Looks up from writing.
421 Rod	They need-	Begins to focus on an idea.	Unclear	IU	Incomplete	Eye contact with Nola
422 Kay	Stock.	Completes Rod's statement.	Stock	S	Completing	Eye contact with Rod

423 Rod	They need-	Starts to focus on an idea again.	Unclear	IU	Incomplete	Eye contact with Nola
424 Nola	Cattle.	Completes Rod's statement.	Cattle	S	Completing	Writes it down
425 Rod	They need cattle.	Confirms Nola's idea.	Cattle	S	Confirming	Looks at Nola.
426 Con	Oh!/containers for food so it doesn't get so it doesn't get disease in it and stuff.	Suddenly thinks of an idea and focuses on food containers.	Containers for food.	E S	Exclaiming Explaining	Eye contact with Nola
427 Nola	Pardon?	Seeks clarification on Con's ideas.	Con's ideas	CR	Seeking clarification	Eye contact with Con
428 Con	Containers for food so it doesn't get diseases	Clarifies Kay's question.	Containers for food	S	Explaining	Eye contact with Nola
429 Kay	Oh yeh.	Agrees with Con's ideas.	Con's ideas	S	Agreeing	Eye contact with Con
430 Nola	That comes under people's needs.	Classifies Con's ideas.	People's needs	S	Classifying	Eye contact with Con
431 Kay	You need shelter.	Focuses on shelter.	Shelter	S	Informing	Eye contact with Nola
432 Nola	Okay then/shelter and food containers.	Confirms Kay's and Con's ideas.	Shelter and containers	S S	Agreeing Confirming	Begins to write them down.
433 Rod	Back onto farming.	Refocuses on farming.	Farming	S	Refocusing	Loks at Nola.
434 Nola	What would you call it/what would you call hygienically things?	Requests a word related to "hygiene".	Hygiene	Q Q	Seeking Information Seeking information	Looks up from her writing and waits for a response.
435 Rod	Sterilise.	Suggests a solution to Nola's problem.	Sterilise	S	Suggesting	Eye contact with Nola
436 Nola	Hygienic things like food containers to make it hygienic or something?	Implicitly rejects Rod's solution and explains her problem in more detail.	Hygienic things	Q	Explaining	Eye contact with Rod
437 Kay	Food containers for-	Begins to proffer a solution.	Food containers	IU	Suggesting	Eye contact with Nola
438 Nola	For "hygienicy" or something?	Persists with search for the word.	"Hygienicy"	Q	Seeking clarification	Eye contact with Kay

439 Kay	Yes.	Agrees with the word "hygienicity".	"Hygienicity"	S	Agreeing	Eye contact with Nola
440 Nola	Is that what you call it but?/Is that what you call it "hygienicity"?	Seeks confirmation of "hygienicity" from Kay then Teacher.	"Hygienicity"	Q	Seeking confirmation	Looks across the room to Teacher.
441 Teacher	What was your question? It was a good question.	Requests Nola to repeat her question. Praises her question.	Nola's question	Q	Seeking clarification	Moves towards the group.
442 Nola	What would a word be for like -?	Begins to repeat her question.	Unknown word	S	Praising	Eye contact with Teacher
443 Kay	Hygienic	Proffers a word for Nola.	Hygienic	IU	Seeking clarification	Eye contact with Nola
444 Nola	Hygienic.	Seeks confirmation of Kay's word.	Kay's solution	S	Suggesting	Eye contact with Nola
445 Teacher	I think you would just call it "hygiene".	Proffers a solution to Nola's problem.	Hygiene	Q	Seeking confirmation	Eye contact with Teacher
446 Nola	Okay.	Confirms Teacher's solution.	Teacher's solution	S	Explaining	Eye contact with Nola
447 Teacher	That takes into account having clean water,/having your water tested/having fresh air.	Explains the meaning of the word in context.	Meaning of "hygiene"	S	Agreeing	Begins to write the word.
448 Con	Having oxygen.	Elaborates on meaning of "hygiene"	Meaning of "hygiene"	S	Explaining	Looks at Nola then Kay.
449 Nola	How do you spell it?	Seeks spelling of "hygiene".	Spelling of "hygiene"	S	Explaining	Looks at Nola then Kay.
450 Teacher	h-y-g-i-e-n-e	Spells the word for Nola.	Hygiene	S	Elaborating	Looks at Nola
451 Nola	g-i-n-e	Spells aloud as she writes.	Spelling	Q	Seeking information	Eye contact with Teacher
452 Teacher	g-i-e-n-e	Corrects Nola's spelling.	Spelling	Sp	Spelling	Looks at Nola's sheet.
453 Nola	g-i-e	Confirms correct spelling	Spelling	Sp	Spelling	Spells as she writes.
				Sp	Spelling	Eye contact with Nola
				Sp	Spelling	Writes correct spelling

454 Con	Oh yes!/Take a canary down/I mean a budgy./If they die, it's got bad air.	Suddenly thinks of something. Hypothesises a scenario for testing air.	Testing air (Inferential)	E S S S	Agreeing Hypothesising Correcting Hypothesising	Eye contact with Teacher
455 Nola	That's what frogs do.	Proffers another scenario for testing.	Testing air	S	Explaining	Eye contact with Con
456 Con	Pardon?	Seeks clarification from Nola.	Nola's statement	CR	Seeking clarification	Eye contact with Nola
457 Nola	That's what frogs do.	Clarifies Con's question.	Testing air	S	Explaining	Eye contact with Con
458 Teacher	Frogs do that?	Seeks confirmation of Nola's idea.	Frogs for testing	S	Seeking confirmation	Eye contact with Nola
459 Nola	You put frogs in like and if they die-	Begins to explain the testing procedure.	Frogs for testing	IU	Explaining	Eye contact with Teacher
460 Con	With budgies you take them in a cage/and if the air goes rotten, they die.	Explains the testing procedure with budgerigars.	Budgies for testing	S S	Explaining Explaining	Eye contact with Teacher
461 Nola	Okay.	Confirms Con's scenario for testing.	Con's ideas	S	Agreeing	Eye contact with Con
462 Teacher	Do you think your "hygiene" is an interesting one/do you think there would be something related to that in a mining town/hygiene-mining town?/Does anything come to mind?	Confirms the appropriateness of "hygiene" and probes for elaboration of the concept by associating hygiene and mining town.	Hygiene and mining town	S Q Q Q	Evaluating Probing Probing Probing	Looks around the group and waits for a response.
463 Con	Quarantine.	Proffers a response.	Quarantine	S	Suggesting	Eye contact with Teacher
464 Kay	Quarantine?	Seeks clarification re Con's idea.	Con's idea	S	Seeking clarification	Eye contact with Con

465 Nola	You need quarantine places/wouldn't you?	Seeks confirmation of Con's idea.	Con's idea (Inferential)	S Q	Hypothesising Seeking confirmation	Eye contact with Teacher
466 Teacher	Maybe something else though./What else?	Continues to probe for another response.	Con's idea	S S	Probing Probing	Eye contact with Nola
467 Kay	You'd need something in the/you'd probably need breathing devices.	Begins to say something then hypothesises use of breathing devices.	Breathing devices (Inferential)	IU S	Incomplete Hypothesising	Eye contact with Teacher
468 Teacher	You're getting close./Pollution comes to mind here/so you would have to take care in your mining town, if you're talking about hygiene, so that you didn't have pollution from the mine./So I think maybe you should include that/so your idea on that was a good one.	Praises efforts by participants. Explains the relationship between pollution and hygiene in the context of mining. Confirms inclusion of the idea and praises its initiation.	Pollution and hygiene.	S S S S S	Evaluating Informing Suggesting Suggesting Praising	Looks around the group and establishes eye contact with individual members.
469 Nola	Okay.	Confirms Teacher's ideas.	Teacher's ideas	S	Confirming	Eye contact with Teacher
470 Rod	Have you got farming yet?	Refocuses on farming.	Farming	Q	Checking	Looks at Nola.
471 Nola	Yep/I've got stock, cattle and horses.	Confirms inclusion of a range of stock.	Stock, cattle and horses	S S	Agreeing Listing	Eye contact with Rod
472 Rod	Wheat?	Seeks clarification re wheat.	Wheat	Q	Seeking clarification	Eye contact with Nola
473 Nola	Yep.	Confirms inclusion of wheat.	Rod's question	S	Agreeing	Eye contact with Rod
474 Rod	Hay?	Focuses on Hay	Hay	S	Seeking clarification	Eye contact with Nola
475 Kay	Fences?	Focuses on Fences.	Fences	S	Seeking clarification	Eye contact with Nola

476 Con	Vegetables and fruits?	Focuses on fruits	Fruits	S	Seeking clarification	Looks at Nola
477 Kay	Vegetables?	Confirms Con's idea.	Vegetables	S	Seeking clarification	Eye contact with Nola
478 Rod	Equipment like tractors and stuff.	Refocuses on equipment.	Equipment	S	Refocusing	Eye contact with Nola
479 Con	Farming equipment.	Elaborates on concept of equipment.	Farming equipment	S	Synthesising	Eye contact with Nola
480 Rod	You'd need vans.	Focuses on vans.	Vans	S	Suggesting	Eye contact with Nola
481 Con	Vans	Confirms's Rod's idea.	Rod's idea	S	Confirming	Looks at Nola.
482 Kay	You'd need fences to keep your animals in.	Refocuses on fences.	Fences	S	Suggesting	Eye contact with Nola
483 Nola	Yeh/you said that.	Agrees. Informs Kay she has said it.	Kay's ideas	S	Agreeing	Eye contact with Kay
484 Kay	But you haven't got it yet/have you?	Seeks confirmation of inclusion of her idea.	Kay's ideas	S Q	Confirming Disagreeing Seeking confirmation	Eye contact with Nola
485 Nola	Yeh.	Confirms inclusion of idea.	Kay's question	S	Confirming	Eye contact with Kay
486 Rod	You need a house.	Refocuses on house.	House	S	Suggesting	Eye contact with Nola
487 Nola	Yeh/that comes under-	Agrees. Begins to classify "house".	Rod's ideas.	S	Agreeing	Eye contact with Rod
488 Con	Shelter.	Completes the classification.	Shelter	IU S	Classifying Completing	Eye contact with Nola
489 Nola	Yeh./I've got shelter in family needs.	Agrees. Informs Rod of location of his idea.	Shelter	S S	Agreeing Informing	Eye contact with Con
490 Rod	You need food for animals.	Focuses on food for animals.	Food for animals	S	Informing	Eye contact with Nola
491 Con	Yeh/ for the stock.	Confirms Rod's idea.	Food for stock	S S	Agreeing Explaining	Eye contact with Nola
492 Nola	Animal foods/then you need food containers for them.	Confirms Rod's/Con's ideas. Refocuses on food containers.	Animal foods and food containers	S S	Confirming Refocusing	Eye contact with Rod. Teacher leaves the group.

493 Rod	You need big half things.	Explains type of food container.	Food container	S	Explaining	Eye contact with Nola
494 Nola	Yeh/drinking-	Agrees. Begins to explain.	Rod's ideas	S IU	Agreeing	Eye contact with Rod
495 Con	Troughs.	Completes Nola's idea.	Nola's idea	S	Completing	Looks at Rod.
496 Kay	Actually there is half a thing for them./It's a kind of acid.	Elaborate on Nola's/Rod's ideas.	Half a thing	S S	Elaborating Explaining	Eye contact with Nola
497 Nola	How do you spell "troughs" t-r-o-o?	Seeks correct spelling of "trough".	Spelling "troughs"	Q	Seeking information	Looks up from writing.
498 Kay	t-r-o-g-h	Spells "trough" (incorrectly) for Nola.	Spelling "trough"	Sp	Spelling	Eye contact with Nola
499 Nola	t-r-o-g-h-s/Are you sure?	Repeats Kay's spelling Seeks clarification	Spelling "troughs"	Sp Q	Spelling Seeking confirmation	Eye contact with Kay
500 Kay	Yeh./What else would there be?	Clarifies Nola's question.	Nola's question	S Q	Agreeing Seeking clarification	Eye contact with Nola
501 Rod	Have you got water pipes in there?	Seeks clarification re water pipes.	Water pipes	Q	Seeking clarification	Eye contact with Nola
502 Nola	Yeh.	Confirms inclusion of water pipes.	Rod's question	S	Confirming	Eye contact with Rod
503 Con	Underground electricity.	Focuses on underground electricity.	Underground electricity	S	Suggesting	Eye contact with Nola
504 Nola	Oh yeh!/We'll put that under electricity./Is this your last one?	Agrees with Con's ideas. Seeks clarification re item's status.	Con's ideas	E S Q	Agreeing Classifying Checking	Looks around the group for a response.
505 Kay	No it isn't.	Clarifies Nola's question.	Nola's question	S	Explaining	Eye contact with Nola
506 Nola	Oh well it is now.	Disagrees with Kay's statement.	Kay's statement	S	Disagreeing	Eye contact with Kay
507 Kay	You've got jobs, schools and parks.	Confirming items recorded.	Jobs, schools and parks	S	Confirming	Eye contact with Nola
508 Con	Oh!	Thinks of something.	Unclear	E	Exclaiming	Looks at Kay.

509 Nola	I can't fit anything else/oh just wait./I'll put it under "occupations" oc-cu-pa-tions such as schools.	Informs group re recording sheet and explains where she will record items. Syllabifies "occupations" to spell it.	Recording "occupations"	S I S	Informing Directing Explaining	Looks at the recording sheet in front of her.
510 Kay	Shops	Refocuses on shops.	Shops	S	Suggesting	Looks at Nola
511 Con	Convenient Stores	Re f o c u s e s o n convenient stores	Convenient stores	S	Refocusing	Looks at Nola
512 Nola	Okay.	Confirms Kay's/Con's ideas	Kay's/Con's ideas	S	Agreeing	Looks up from the sheet.
513 Kay	There needs to be electricity lines.	Refocuses on electricity lines.	Electricity lines	S	Refocusing	Eye contact with Nola
514 Nola	Okay electricity lines.	Confirms Kay's ideas.	Electricity lines	S	Agreeing	Writes down the item.
515 Con	Underwater electricity lines.	Specifies the type of lines	Underwater electricity lines	S	Specifying	Eye contact with Nola
516 Nola	Why underwater?	Seeks clarification from Kay.	Kay's idea	Q	Seeking clarification	Eye contact with Kay
517 Joe	Underground.	Corrects Kay's idea.	Underground lines	S	Correcting	Eye contact with Kay
518 Kay	I mean underground.	End o r s e s J o e ' s correction.	Underground	S	Amending	Eye contact with Joe
519 Nola	Why would they need to be underground?/Why couldn't they be aboveground?	Continues to seek clarification of Kay's ideas.	Kay's ideas.	Q Q	Seeking clarification Seeking clarification	Eye contact with Kay
520 Kay	So when electricity-	Begins to clarify Nola's question.	Electricity	IU	Explaining	Looks at Con for support.
521 Con	The people wouldn't see the lines.	Clarifies Nola's question.	Unseen lines	S	Explaining	Eye contact with Kay
522 Rod	It is more safer.	Elaborates on Con's ideas.	Safer	S	Elaborating	Eye contact with Nola
523 Nola	I suppose so.	Generally agrees with Rod's idea.	Rod's idea	S	Agreeing	Eye contact with Rod
524 Rod	And it doesn't cost as much I think.	Elaborates further on underground lines.	Cost of lines	S	Elaborating	Eye contact with Nola

525 Nola	Underground./Oh shivers!	Reads as she writes. Realises she has made a mistake.	Kay's/Joe's idea	RTA E	Reading aloud Exclaiming	Erases an error in her writing.
526 Rod	It saves trees./It saves cutting down trees/and it saves pollution.	Continues to elaborate on advantages of underground lines.	Saving trees and pollution	S S S	Elaborating Elaborating Elaborating	Looks at Nola as she writes.
527 Kay	That's all there is./There's no more yet.	Concludes completion of list.	Completion of list	S S	Concluding Concluding	Eye contact with Rod
528 Rod	Have you got police?	Checks re recording police.	Police	Q	Checking	Eye contact with Nola
529 Nola	Have I got what?	Seeks clarification re Rod's question.	Rod's question	Q	Seeking clarification	Eye contact with Rod
530 Rod	Have you got police?	Repeats his question.	Police	Q	Checking	Eye contact with Nola
531 Nola	Yeh./Underground electricity lines.	Clarifies Rod's question. Reads aloud from record as she writes.	Rod's idea Underground lines	S RTA	Agreeing Reading aloud	Looks at sheet then Rod.
532 Rod	Can I have a read? /Read it out to everyone.	Seeks permission to read sheet. then directs Nola to read.	Reading the sheet	Q I	Requesting Directing	Puts out his hand then withdraws it.

533 Nola	Okay./Transport one, petrol, two, one train and one train road, three, cars and trucks, four, plane and runway, five, reverse or whatever you call it town. Communications one, telephones, two, post office, three, television. Needs for Families one, first aid, hospital and security, two, water pipes and supply, three, shelter, food containers and hygiene and quarantine, four, sewage equipment and pollution, five, occupations such as school teachers and shop workers.	Agrees. Reads aloud from the sheet in front of her.	Recorded list of items.	S RTA	Agreeing Reading aloud	Reads from the sheet on which she has recorded the suggested items.
534 Kay	Well you haven't written down about the convenient stores or anything yet.	Informs Nola re omission of items.	Omitted items	S	Evaluating	Eye contact with Nola
535 Nola	Yes but they're shop workers.	Justifies non-inclusion of items.	Justifying rationale	S	Explaining	Eye contact with Kay
536 Rod	They're shops.	Corrects Nola's statement.	Nola's ideas	S	Correcting	Eye contact with Nola
537 Nola	Farming.	Continues reading aloud.	Farming	RTA	Reading aloud	Looks at the sheet.
538 Rod	Have you got schools?	Seeks clarification re schools.	Schools	Q	Checking	Looks at Nola
539 Nola	Yeh.	Clarifies Rod's question.	Rod's question	S	Confirming	Looks at sheet discovers she has omitted it.

540 Rod	Write it in needs.	Directs Nola where to include schools.	Schools	I	Directing	Eye contact with Nola
541 Nola	Yeh./I don't think I put it in.	Confirms omission of schools.	Schools	S	Agreeing	Examines sheet in front of her.
542 Rod	Schools, playgrounds-	Begins to list items for Nola to write.	Schools playgrounds	S	Confirming Listing	Looks at Nola.
543 Con	Equipment.	Adds an item to the list.	Equipment	S	Listing	Eye contact with Rod
544 Nola	Education/ed-u-ca-tion./Okay./Farming, one, stock, cattle and horses, two, wheat, three, a hay stock, four, farming equipment, five, fences for animals, six, animal food drinking troughs and molasses.	Confirms education by writing and saying the word. Syllabifies "education" for spelling. Continues to read aloud from the written record.	Education Written record	S Sp S RTA	Confirming Spelling Confirming Reading aloud	Reads from the sheet on which she has recorded the ideas expressed by the group.
545 Kay	Where's hay?/You have to have hay.	Seeks clarification re hay. Confirms inclusion of hay.	Hay	Q S	Checking Explaining	Eye contact with Nola
546 Nola	In stock and wheat./Electricity, underground electricity lines.	Clarifies Kay's question. Continues reading aloud.	Stock and wheat. Written record	S RTA	Explaining Reading aloud	Looks at Kay then at the written record.
547 Kay	What about the cost of the village?	Seeks information re cost of village.	Village cost	Q	Seeking information	Eye contact with Nola
548 Nola	You don't have to add up all the prices and things.	Informs Kay re cost of village.	Cost of village	S	Explaining	Teacher joins the group.
549 Joe	It will probably cost about two diamonds.	Hypothesises cost of village.	Cost of village (Inferential)	S	Hypothesising	Eye contact with Kay
550 Kay	Two?	Seeks clarification re cost.	Two diamonds	Q	Seeking clarification	Eye contact with Joe
551 Con	Yeh/two diamond's worth of equipment.	Confirms Joe's ideas.	Two diamonds	S S	Agreeing Explaining	Eye contact with Kay
552 Rod	They'd have to have enough money.	Elaborates on concept of village cost.	Money (Inferential)	S	Hypothesising	Eye contact with Con

553 Kay	About thirty diamonds.	Presents a hypothesis re cost	Thirty diamonds (Inferential)	S	Hypothesising	Eye contact with Rod
554 Joe	Thirty diamonds?	Seeks confirmation re number of diamonds.	Thirty diamonds	Q	Seeking confirmation	Eye contact with Kay.
555 Nola	We've just about covered everything now.	Concludes completion of task.	Completion of task	S	Concluding	Looks straight ahead and holds sheet up.
556 Teacher	Do you think you've covered it?	Seeks confirmation re task completion.	Task completion	Q	Checking	Eye contact with Nola.
557 Nola	Yeh	Confirms completion of task	Task completion	S	Confirming	Eye contact with Teacher
558 Teacher	Could you just read out your headings to me?	Requests Nola to read headings.	Headings	Q	Requesting	Eye contact with Nola
559 Nola	Okay./Transport, communication, needs for families, farming and electricity.	Agrees. Reads aloud from sheet in front of her.	Recorded headings	S RTA	Agreeing Reading aloud	Looks at sheet and reads aloud.
560 Teacher	Needs, farming, electricity./I think that is an interesting classification./That's good./Do you think you need to add anything to that to finish your task?/ Do any of you want to read the task and check it before we finish up?	Repeats headings read by Nola. Evaluates the group's classification system and praises them. Probes for final ideas. Encourages group to check task requirements.	Task classification and recording	S S Q Q	Repeating Evaluating Praising Probing Probing	Looks around the group. When Teacher finishes speaking, participants read their task sheets silently.
561 Nola	Is "families" spelt with a double "l"?	Requests spelling from Teacher.	Spelling "families"	Q	Checking	Eye contact with Teacher
562 Teacher	One "l".	Clarifies Nola's question.	Spelling "families"	S	Clarifying	Shakes his head then speaks.
563 Con	Family like there is one family.	Corrects Nola's use of words.	Family	S	Correcting	Eye contact with Nola.
564 Kay	That comes under family supports.	Explains use of word.	Family supports	S	Explaining	Eye contact with Con

565 Teacher	What do you mean Kay family supports?	Seeks clarification re Kay's idea.	Kay's idea	Q	Probing	Eye contact with Kay
566 Kay	You know those things./Do they have to use their own money here to buy things?/Do they have to buy their own food?	Begins to explain then seeks clarification re family economy.	Family economy	S Q Q	Explaining Seeking clarification Seeking clarification	Eye contact with Teacher
567 Teacher	The Mining Company pays them a salary/then they have to buy their own food.	Clarifies Kay's question re buying food.	Buying food	S S	Explaining Explaining	Eye contact with Kay
568 Con	Then they buy their own.	Confirms Teacher's idea.	Teacher's idea	S	Confirming	Eye contact with Kay
569 Teacher	Yes/the company employs them.	Agrees. Elaborates on his previous idea.	Company employment	S S	Agreeing Explaining	Eye contact with Kay
570 Kay	What happens if they lose all their money?	Hypothesises a problem scenario.	Losing money (Inferential)	Q	Hypothesising	Eye contact with Teacher
571 Teacher	Well they owe money then/don't they?	Informs Kay re consequences. Seeks her confirmation.	Owing money (Inferential)	S S	Informing Seeking confirmation	Eye contact with Kay
572 Kay	But don't they need something?	Seeks further clarification re money.	Owing money	Q	Checking	Eye contact with Teacher
573 Teacher	I see what you mean.	Informs Kay he understands her.	Kay's question	S	Agreeing	Eye contact with Kay
574 Nola	Well they take a loan out from the bank.	Clarifies Kay's question.	Bank loan	S	Explaining	Eye contact with Kay
575 Con /Rod	Which bank?	Seeks clarification re bank.	Which bank	Q	Seeking clarification	Both look at Nola.
576 Kay	But they don't have a bank.	Argues against Nola's explanation.	No bank	S	Disagreeing	Eye contact with Nola
577 Nola	Well it's in Helen's Town.	Defends her argument.	Bank in Helen's Town	S	Explaining	Eye contact with Kay
578 Rod	Which bank?	Repeats his question re bank.	Which bank	Q	Checking	Smiles at Con as he speaks.

579 Kay	A beginning bank/or just for a loan bank?	Continues seeking clarification re bank.	Beginning or loan bank.	Q	Seeking clarification	Eye contact with Nola
580 Nola	Are you really going to spend ten weeks taking out money?	Continues to argue her case.	Kay's argument	Q	Seeking Clarification Checking	Eye contact with Kay
581 Teacher	I think Kay is thinking of something else/aren't you Kay?	Begins to explain Kay's reasoning and seeks confirmation.	Kay's reasoning	S Q	Explaining Seeking confirmation	Looks at Nola then Kay.
582 Rod	They don't have a bank./They would rob it./People will rob the bank.	Hypothesises a consequence of having a bank.	Robbing the bank (Inferential)	S S S	Hypothesising Hypothesising Hypothesising	Eye contact with Kay
583 Con	Yes	Agrees with Rod's ideas.	Rod's ideas	S	Agreeing	Eye contact with Kay
584 Rod	What if you have your own money?	Hypothesises another scenario to consider.	Having your own money. (Inferential)	Q	Hypothesising	Eye contact with Nola
585 Con	Yes/everyone gets the same amount or whatever they get.	Agrees with and elaborates on Rod's ideas.	Rod's ideas (Inferential)	S S	Agreeing Elaborating	Eye contact with Nola
586 Rod	An equal amount of money.	Elaborates on Con's ideas.	Equal money	S	Specifying	Eye contact with Con
587 Nola	Everyone gets the same amount of money for how many hours they work.	Elaborates on the concept of equal pay.	Money for work	S	Elaborating	Looks straight ahead.
588 Kay	Everyone gets the same.	Confirms the concept of equal pay.	Same pay	S	Confirming	Eye contact with Nola
589 Nola	You might get twenty-four dollars an hour or something.	Hypothesises rate of pay for employees.	Twenty-four dollars an hour (Inferential)	S	Hypothesising	Eye contact with Kay

590 Con	Caw!	Expresses surprise at amount.	Nola's ideas (Inferential)	E	Exclaiming	Eye contact with Nola
591 Rod	That's good pay.	Evaluates Nola's ideas.	Good pay	S	Evaluating	Eye contact with Con
592 Con	Too right.	Confirms Rod's evaluation.	Rod's evaluation	S	Confirming	Eye contact with Rod
593 Teacher	Right so do you think you have finished the task?	Refocuses group's attention on task strategy.	Completion of task	Q	Refocusing	Looks around the group for a response.
594 Rod	Yes.	Clarifies Teacher's question.	Teacher's question	S	Agreeing	Eye contact with Teacher
595 Teacher	I think you have done well actually./I think it was an interesting idea to list all the important things/ then go back and rewrite your classification./You could write it again two or three times/couldn't you?/ That's good./Any questions on what you have done?/ Thanks grade six./That's very good.	Evaluates the group's work on the task and the strategy they employed. Informs them of the potential of rewriting and seeks confirmation. Praises the group. Elicits group for questions. Thanks the group.	Evaluation of the group task and praise for group participation	S S S Q S Q CR S	Evaluating Evaluating Evaluating Suggesting Seeking confirmation Praising Eliciting Thanking Praising	Looks around the group as he speaks. Receives no response to his question so continues to praise the group.
596 Kay	Do you want the sheet back?	Requests clarification re task sheet.	Task sheet	Q	Seeking clarification	Holds sheet up in front of her.
597 Teacher	You can keep the sheet if you like./I would like Nola's sheet if I may-the good one./Thank you.	Clarifies Kay's question and requests the sheet written by Nola and thanks her.	Nola's written record	S S CR	Clarifying Requesting Thanking	Takes the proffered sheet from Nola.

7.4 GROUP LEARNING INTERACTION IN LANGUAGE ARTS

The group learning session in language arts required the participants to develop and write a group report on a short story (The Quick Descent, APPENDIX K) which they had read before the session (see APPENDIX F, Language Arts). The audience for the group report was to be an evaluative committee whose task it was to select stories for inclusion in a book of short stories for Year Six.

As a basis for this report, participants were to discuss: (a) Setting; (b) Plot; (c) Characterisation; (d) Language; and (e) What they thought of the story as a whole.

Phase One data derived from application of the data analysis system (described in 6.9) to the group interaction in language arts via the processes articulated in FIGURE 7.1 are presented in TABLE 7.3.

TABLE 7.3 Group Learning Session in Language Arts						
Source	Interaction Segments Conversation Units Message Elements	Cognitive Strategies and Cognitive Functions	Contextual Frames and Sources of Information	F	Linguistic Forms and Linguistic Functions	Extra/Nonverbal Input
1 Teacher	Here's your group task grade six.	Focuses students' attention on group task (Advance organiser)	Written language arts problem	S	Focusing	Hands a task sheet to each student.
2 Nola	I'll read it.	Volunteers to read the task sheet.	Reading task sheet	S	Volunteering	Eye contact with teacher
3 Kay	Oh she read it last time! I'll read it out this time.	Provides argument for reading and proffers to read task sheet.	Reading task sheet	E S	Arguing Volunteering	Eye contact with Teacher
4 Teacher	What does the group say?/Who is going to read it this morning?	Seeks solution to the problem from the group.	Reading task sheet	Q Q	Requesting Eliciting	Looks around the group for a response.
5 Joe	Nola.	Proffers a solution.	Nola	S	Suggesting	Looks at Nola.
6 Kay	One of the boys should read it.	Proffers another solution.	One of the boys	S	Suggesting	Eye contact with Teacher
7 Nola	No./I asked first.	Disagrees. Presents her argument.	Kay's ideas	S S	Negating Arguing	Eye contact with Kay
8 Rod	Yes./Nola can read it	Agrees with and confirms Joe's idea.	Joe's idea	S S	Agreeing Confirming	Eye contact with Kay
9 Teacher	We'll all read it slowly and carefully first./Alright?/Nola is going to read it to us again./If you start there Nola/and read it through so we can be sure of what we have to do.	Directs group to read sheet silently then informs group Nola will read it aloud. Directs Nola where to start and justifies the second reading	Reading task sheet	S Q S I I	Directing Seeking confirmation Specifying Directing Directing	Points to place on sheet from which Nola is to read

10 Nola	"You are requested to discuss each of the following aspects of the story to include in the report, and then write a brief, clear report on the story. That is, your report will include (a) what you	Reads aloud from the task sheet	Task sheet (Textual)	RTA	Reading aloud	Reads aloud from the task sheet while group members listen and follow the reading on their sheets.
	think of the following aspects of the story, (b) what you think of the story as a whole and (c) any other comments you wish to make. In your conclusion of the report, clearly indicate whether the story should or should not be included and why you came					The language arts group task is based on the story The Quick Descent (APPENDIX K) which the students have received and read prior to implementation of the group task.
	to your conclusion. Setting, where the events took place. Plot, the events that occurred in the story. Characterisation, characters in the story. language, description and words used in the story. Group Task, Write the report as a group on the					
	paper supplied and write only one draft of the report based on your discussion."					

11 Teacher	Any questions on what you have to do?/Remember up at the top what you think of each of the following is (a)/then (b) what you think of the story as a whole/ and (c) any other comments./So there are three parts/aren't there?/Any questions?/I'll	Probes for questions re task. Confirms the three parts of the group task. Probes again for questions. Informs group they may start. Encourages the group to ask questions during the task. Informs group of his continued interest.	Establishment of an appropriate time frame	Q S S S Q Q S S S	Eliciting Focusing Focusing Focusing Informing Seeking confirmation Eliciting Informing Specifying Informing	Teacher looks around the group for questions. When no questions are asked by the participants, he leaves the group.
	let you start./If you have any questions, ask them as we go along./I'll come and see how your going in a moment.					
12 Nola	Draw columns?	Seeks clarification re task strategy.	Columns	Q	Columns	Waits for group response.
13 Kay	No./Not columns for it's too messy.	Argues against Nola's idea.	Nola's question	S S	Negating Arguing	Eye contact with Nola
14 Nola	Yeh well okay./Kay just said that we do columns.	Confirms Kay's ideas. Explains why she introduced columns.	Columns	S S	Agreeing Confirming	Eye contact with Rod
15 Kay	No./I just said we can do columns.	Disagrees. Clarifies her ideas.	Coumns	S S	Negating Explaining	Eye contact with Nola
16 Nola	Well we can do them if you want to.	Informs group re columns.	Columns	S	Informing	Eye contact with Kay
17 Rod	Just write them down.	Directs Nola re group's ideas.	Group's ideas	I	Directing	Eye contact with Nola
18 Nola	Okay.	Confirms Rod's ideas.	Group's ideas	S	Agreeing	Looks at sheet.
19 Con	Get ideas one. two-	Directs Nola re writing.	Group's ideas	S	Directing	Eye contact with Nola
20 Nola	Okay	Confirms Con's idea.	Group's ideas	S	Agreeing	Prepares to write.
21 Kay	(a) What do you think of the story what aspects.	Focuses on part of group task.	Aspects of the story (Textual)	S	Focusing	Points to the task sheet.

22 Nola	Well aspects, aspects, aspects-	Monitors ideas by repeating "aspects".	Aspects of the story (Textual)	IU	Repeating	Teacher joins the group.
23 Kay	Of the story.	Completes Nola's utterance.	Aspects of the story	S	Completing	Eye contact with Nola
24 Teacher	What are the aspects you have to consider?	Refocuses on part of group task.	Aspects of the story	Q	Refocusing	Looks around the group.
25 Kay	The setting, the plot, the characters.	Clarifies Teacher's question re aspects.	Teacher's question	S	Listing	Eye contact with Teacher
26 Nola	"What do you think of the following aspects of the story? What do you think of the story as a whole and other comments you wish to make. in the conclusion of your report, clearly indicate why you came to the conclusions.	Clarifies Teacher's question by reading aloud from the task sheet. Focuses on first part of the task strategy. Evaluates the story and describes an event in the story.	Group task (Textual) Task strategy	RTA S S	Reading aloud Informing Evaluating	Looks at the sheet while she reads then looks up and addresses the group.
	Okay, well we can start on number (b) what I thought of the story as a whole./Well I thought it was interesting how the helicopter came and rescued them all.					
27 Kay	With this question we all have to agree on one thing/don't we?	Seeks clarification from Teacher re task strategy.	Task strategy	S Q	Explaining Seeking confirmation	Eye contact with Teacher
28 Rod	Yeh/all give our ideas.	Clarifies Kay's question.	Task strategy	S I	Agreeing Directing	Eye contact with Kay
29 Kay	Then someone-	Stars to direct someone.	Task strategy	IU	Incomplete	Eye contact with Rod
30 Rod	We just write them all in to make one big thing.	Proffers a strategy to complete the group task.	Task strategy	S	Informing	Eye contact with Kay
31 Con	Yeh.	Agrees with Rod's idea.	Rod's idea	S	Agreeing	Eye contact with Kay

32 nola	Well I thought it was interesting the story how she fell/and she broke/she sprained her ankle.	Evaluates the story and describes an event in the story. Monitors her ideas.	Nola's response to the story	S S S	Evaluating Describing Correcting	Looks straight ahead
33 Con	On the rocks.	Elaborates on Nola's	On the rocks	S	Elaborating	Eye contact with Nola
34 Nola	Yeh/and how the helicopter came and-	Confirms previous ideas	Previous ideas	S IU	Agreeing Confirming	Eye contact with Con
35 Joe	Rescued her.	Completes Nola's idea.	Nola's idea	S	Completing	Looks at Nola.
36 Nola	And picked up from the mountain and all that.	Elaborates further on the story plot.	Story plot	S	Describing	Eye contact with Joe
37 Rod	It was an adventure.	Describes the story form.	An adventure	S	Describing	Looks at Nola
38 Nola	We write these things down./Who's writing, Con?	Informs group re task strategy. Seeks clarification re recorder.	Group recorder	S Q	Informing Seeking confirmation	Eye contact with Con
39 Kay	Con.	Confirms Nola's idea.	Nola's idea	S	Confirming	Looks at Co.
40 Rod	Write one copy first.	Directs Con re recording.	Recording	I	Directing	Con prepares to write. Teacher leaves the group.
41 Kay	Exciting and-	Begins to describe the story.	Exciting	IU	Describing	Eye contact with Con
42 Rod	It was an adventure.	Confirms earlier ideas.	Story form	S	Confirming	Eye contact with Con
43 Kay	Just put "adventure".	Directs Con re recording	Recording	I	Directing	Eye contact with Con.
44 Rod	It was something new.	Describes story plot.	Story plot	S	Describing	Eye contact with Con
45 Kay	We're supposed to look at the way it was written.	Focuses on the task strategy.	Task strategy	S	Informing	Eye contact with Rod
46 Con	Adventure, fun and exciting.	Confirms ideas proffered earlier.	Story description	S	Confirming	Eye contact with Rod
47 Kay	I like the way it was written.	Evaluates the story structure.	Story structure	S	Evaluating	Eye contact with Con
48 Nola	Yeh.	Agrees with Kay's ideas.	Kay's ideas	S	Agreeing	Looks at Kay.
49 Rod	It was an experience because they hadn't done it before.	Describes the story plot.	Story plot	S	Describing	Eye contact with Con
50 Kay	Well being in the helicopter-	Begins to focus on part of the plot.	In the helicopter	IU	Focusing	Eye contact with Rod

51 Con	Fred came to the rescue.	Focuses on part of plot.	Rescue	S	Describing	Looks up from writing.
52 Rod	For the kids it was an experience going in the helicopter/and going on-	Focuses on another part of the plot.	Going in a helicopter	S IU	Describing Describing	Eye contact with Con
53 Nola	Instead of just normally walking like they were supposed to have a hike, they got a helicopter ride and all that.	Focuses on part of the story plot.	Helicopter ride	S	Describing	Eye contact with Con
54 Con	All the kids had an adventure.	Generalises re events in the story.	An adventure	S	Generalising	Eye contact with Nola
55 Joe	They were rescued in the helicopter.	Refocuses on the helicopter rescue.	Helicopter rescue	S	Refocusing	Eye contact with Nola
56 Nola	But they were in the helicopter.	Confirms ideas re helicopter rescue.	In the helicopter	S	Confirming	Eye contact with Joe
57 Kay	Um/is there anything else for me?	Seeks clarification re her own recording.	Kay's recording	EM Q	Maintaining Requesting	Eye contact with Con
58 Con	We put it was an adventure riding in the helicopter.	Informs Kay re recording.	Written record	S	Informing	Eye contact with Kay
59 Kay	And going hiking.	Refocuses on part of plot.	Hiking	S	Refocusing	Looks at Con
60 Rod	Something they hadn't done before.	Focuses on part of the plot.	Something they hadn't done	S	Informing	Eye contact with Kay
61 Kay	They had experienced it now or something.	Amends Rod's ideas.	Experienced it now	S	Amending	Eye contact with Con
62 Con	It was good that they experienced it?	Seeks confirmation of recording.	Good experience	Q	Seeking confirmation	Eye contact with Kay
63 Rod	That's about it./Any others?	Concludes completion of that part. Seeks new items.	Conclusion of that part	S Q	Concluding Seeking clarification	Eye contact with Con
64 Nola	Okay.	Confirms Rod's ideas.	Rod's ideas	S	Confirming	Looks at Con.
65 Kay	Any other part now?	Seeks clarification re part to consider.	Other part	Q	Seeking information	Eye contact with Nola
66 Nola	No.We'll skip that one.	Clarifies Kay's question re part.	Kay's question	S S	Negating Informing	Eye contact with Kay

67 Kay	(c) any other comments you wish to make.	Reads aloud from task sheet.	Task sheet (Textual)	RTA	Reading aloud	Looks at task sheet.
68 Con	We have to put (c).	Focuses on recording.	Part (c)	S	Informing	Looks at Kay.
69 Rod	Just put (c)/and that will be it.	Directs Con re recording.	Part (c)	I S	Directing Concluding	Eye contact with Con
70 Kay	(a) later.	Directs Con re recording.	Part (a)	I	Directing	Eye contact with Con
71 Nola	Well I thought it was an interesting story./It didn't make you want to put it down.	Evaluates the story as a whole and justifies her evaluation.	Story as a whole	S S	Evaluating Explaining	Looks straight ahead
72 Kay	Because of the way it was written.	Elaborates on Nola's Ideas.	Way the story was written	S	Elaborating	Eye contact with Nola
73 Nola	Yes./After the first page you keep on going/and keep reading.	Agrees with Kay's ideas. Qualifies the motivation of the story.	Story motivation	S S S	Agreeing Evaluating Evaluating	Eye contact with Nola
74 Con	It puts you onto things you want to read.	Explains the story's motivation.	Thing you want to read	S	Explaining	Eye contact with Nola
75 Nola	Yeh/just like The Hobbit and things.	Compares story with The Hobbit.	<u>The Hobbit</u>	S S	Agreeing Comparing	Eye contact with Con
76 Rod	It's something that kids don't usually do.	Focuses on nature of the plot.	Something unusual	S	Informing	Eye contact with Nola
77 Nola	Like riding in a helicopter/and breaking an ankle./There were a few other things.	Confirms Rod's ideas by listing events in the story.	Events in the story	S S S	Comparing Comparing Informing	Eye contact with Rod
78 Con	It would be an experience for all of them because they-	Refocuses on part of the plot.	Part of the plot	IU	Refocusing	Eye contact with Nola
79 Kay	What about Fred?	Focuses on a character.	Fred	Q	Focusing	Eye contact with Con
80 Con	Fred?	Seeks confirmation re Fred.	Fred	Q	Seeking confirmation	Eye contact with Kay
81 Kay	What was the experience for him?	Seeks clarification re Fred.	Fred	Q	Seeking information	Eye contact with Con

82 Rod	Just write down not many other kids have did what they did.	Directs Con re recording.	Recording	I	Directing	Eye contact with Con
83 kay	Done.	Corrects Rod's utterance.	Rod's utterance	S	Correcting	Eye contact with Rod
84 Rod	Done	Confirms Kay's correction.	Kay's correction	S	Correcting	Eye contact qith Kay
85 Kay	Have done what they did./Write a lot of kids.	Confirms correction. Directs Con re record.	Recording	S I	Confirming Directing	Eye contact with Con
86 Rod	They were lucky to-	Begins to focus on plot.	Lucky	IU	Informing	Eye contact with Con
87 Joe	Escape.	Completes Rod's ideas.	Escape	S	Completing	Looks at Rod.
88 Rod	Yeh/they were lucky Fred got the rescue squad.	Elaborates on the concept of rescue.	Rescue squad	S S	Agreeing Evaluating	Eye contact with Con
89 Nola	They were lucky her ankle wasn't braken broken.	Focuses on the story plot.	Broken ankle	S	Evaluating	Eye contact with Rod
90 Rod	They were lucky she didn't fall off the cliff.	Focuses on the plot.	Falling off the cliff	S	Evaluating	Eye contact with Nola
91 Nola	Mm.	Confirms Rod's idea.	Rod's ideas	EM	Confirming	Looks at Rod
92 Kay	The camera went over.	Focuses on event in plot.	Camera	S	Informing	Eye contact with Nola
93 Joe	I wouldn't go after it.	Relates to plot event.	Camera	S	Informing	Looks at Nola.
94 Nola	I would.	Relates to plot event.	Camera	S	Disagreeing	Smiles at Joe.
95 Kay	I wouldn't go after it when I go walkabout.	Relates to plot event.	Camera	S	Elaborating	Eye contact with Nola
96 Nola	It could have smashed against the tree.	Hypothesises an event in plot.	Camera (Inferential)	S	Hypothesising	Eye contact with Kay
97 Kay	Any other comments you wish to make.	Focuses on the task sheet.	Task sheet (Textual)	RTA	Reading aloud	Looks at task sheet.
98 Rod	When you've finished Con, read what you've got so far.	Directs Con re task strategy.	Recording	I	Directing	Looks at Con.

99 Con	Yep./Not many kids would not many kids did what they did. She is lucky she did not fall down the hill and break her ankle.	Agrees to read the sheet. Reads aloud from written record.	Written record (Textual)	RTA	Reading aloud	Looks at recording sheet as he reads.
100 Nola	Is that all you've got?	Seeks clarification re record.	Written record (Textual)	Q	Checking	Eye contact with Con
101 Rod	We said something else/didn't we?/They were lucky Fred got the rescue squad 'cause if he didn't, they would have had to stay there overnight.	Seeks confirmation re recording. Focuses on event expected to be recorded	Record (Textual) Rescue squad	S Q S	Disagreeing Seeking confirmation Evaluating	Eye contact with Con
102 Nola	They were afraid if there were any wild cats and feral cats.	Focuses on an event in the plot.	Feral cats	S	Describing	Eye contact with Con
103 Con	They're lucky-	Reads as he writes.	Record	RTA	Reading aloud	Starts to write.
104 Rod	They were lucky Fred got the rescue squad.	Clarifies recording for Con.	Record (Textual)	S	Clarifying	Looks at Con as he writes.
105 Nola	So quickly.	Elaborates on Rod's ideas.	Quickly	S	Elaborating	Looks at task sheet.
106 Rod	They didn't have to stay there overnight.	Refocuses on event in story plot.	Staying overnight	S	Refocusing	Looks at Con.
107 Nola	They were worried.	Focuses on characters' feelings.	Worried	S	Describing	Eye contact with Rod
108 Rod	Do you have to write about all this here setting plot?	Seeks clarification re task strategy.	Task strategy	Q	Seeking clarification	Eye contact with Nola
109 Nola	Mm.	Clarifies Rod's question.	Rod's question	EM	Confirming	Eye contact with Rod
110 Kay	I think so.	Confirms Nola's clarification.	Rod's question (Inferential)	S	Hypothesising	Eye contact with Rod
111 Nola	That's what it's put there for./Well where all the events took place sounded like a sort of rainforestry.	Confirms Rod's ideas re task. Focuses on setting of the story.	Sort of rainforestry	S S	Explaining Describing	Eye contact with Rod
112 Rod	That's all.	Concludes task's completion	Group task	S	Concluding	Eye contact with Con

113 Con	It was in the bush.	Focuses on story setting	In the bush	S	Informing	Looks at Nola.
114 Nola	Where did all the events take place?	Seeks clarification re setting.	Story setting	Q	Seeking information	Eye contact with Con
115 Rod	We'll do the setting./That's about it./Write setting.	Concludes completion of part of task. Directs Con re record.	Story setting	S S I	Informing Confirming Directing	Eye contact with Con
116 Kay	Do (a) before (b).	Directs Con re record.	(a) before (b)	I	Directing	Looks at Con.
117 Con	Do the setting.	Confirms task strategy.	Setting	I	Directing	Looks at Rod
118 Joe	Haven't we done (a) Con?	Seeks clarification re task strategy.	Part (a)	Q	Seeking clarification	Eye contact with Con
119 Con	No/we've done (b) and (c).	Clarifies Joe's question re task.	(b) and (c)	S S	Negating Explaining	Eye contact with Joe
120 Nola	Well I think the events took place in a rainforestry thing.	Refocuses on setting.	Rainforestry thing	S	Hypothesising	Looks straight ahead.
121 Kay	Do (a).	Directs group re strategy.	(a)	I	Directing	Looks at Con.
122 Con	No./Do setting.	Disagrees. Directs group re strategy.	Setting	S I	Negating Directing	Eye contact with Kay
123 Nola	Where you walk up.	Continues her description of setting.	Walking up	S	Describing	Looks straight ahead.
124 Rod	It was set on a mountain.	Focuses on setting.	Mountain	S	Informing	Eye contact with Nola
125 Nola	Just like Mount Spec at Paluma./The setting was mainly on the top.	Compares setting with local mountain. Describes setting more precisely.	On top of the mountain	S S	Comparing Specifying	Eye contact with Rod
126 Con	Yeh./It was set on the top of a hill in the bush.	Agrees. Elaborates on Nola's description.	Top of a hill in the bush	S S	Agreeing Describing	Eye contact with Nola
127 Nola	It may not have been the top of the hill.	Argues against Con's description.	Con's description (Inferential)	S	Hypothesising	Eye contact with Co
128 Kay	It was up high.	Defends Con's ideas.	Up high	S	Arguing	Eye contact with Nola
129 Nola	It could have been the top of the hill.	Changes her position speculatively.	Top of hill (Inferential)	S	Hypothesising	Taps desk with her finger.
130 Rod	Plot and-	Begins to focus on plot.	Plot	IU	Focusing	Teacher joins group
131 Joe	Characters.	Focuses on characters.	Characters	S	Focusing	Looks at Con.

132 Kay	Umm-	Monitors ideas.	Unclear	EM	Maintaining	Eye contact with Rod
133 Rod	Plot.	Confirms plot.	Plot	S	Confirming	Looks at Con.
134 Nola	Well the events that took place.	Confirms Rod's ideas.	Plot	S	Clarifying	Eye contact with Rod
135 Kay	Mr B. do we just write down the main points?	Seeks clarification re task strategy.	Main points	Q	Seeking clarification	Eye contact with Teacher
136 Rod	Yes./Make main points like they went up the cliff/broke their leg.	Clarifies Kay's question and explains task strategy.	Kay's question	S S S	Confirming Clarifying Clarifying	Eye contact with Kay
137 Teacher	Yes.	Confirms Rod's ideas.	Rod's ideas	S	Agreeing	Eye contact with Kay
138 Nola	Went up the cliff./Fell down the cliff.	Recites the two ideas.	Up and down the cliff	S S	Focusing Focusing	Smiles as she recites.
139 Teacher	Well you're doing part (a) setting aren't you?/I think what your doing is a good start./You talk about where the events took place./I would like you to, when you outline them, briefly say what you think/whether	Confirms the part the group is doing. Praises the group. Confirms what they have done and elicits a more analytical response by explaining how to respond to each part.	Group responses for the task strategy	Q - S S S S S I	Seeking confirmation Praising Confirming Eliciting Explaining Explaining Directing	Looks around the group as he speaks.
	you think it was a good place for the story,/whether you liked it or didn't like it/so when you talk about each of them as a group, comment on what you think./					

	Remember you're a special group to choose whether it's well done or not./So when you do that, say something about whether you think it is good/or not good/and why./And if you just work through each of them, setting, plot, characterisation, language that way it would be good. Right does that help you?	Reminds the group of its role. Confirms the need for an analytical response. Explains the task procedure. Elicits a response from the group.	Group role and response.	S S S S Q	Confirming Confirming Confirming Explaining Eliciting	Looks around the group and waits for a response from the participants.
140 Kay	Mm.	Confirms Teacher's explanation.	Teacher's explanation	EM	Confirming	Eye contact with Teacher
141 Teacher	Good.	Agrees with the group's efforts.	Good	S	Agreeing	Teacher leaves the group.
142 Nola	Characterisation.	Focuses in task strategy.	Characterisation	S	Focusing	Looks straight ahead.
143 Kay	Well I think it was a good place for the events to take place.	Evaluates setting for the story.	Setting	S	Evaluating	Eye contact with Nola
144 Nola	Because it is-	Begins to elaborate.	Kay's ideas	IU	Incomplete	Yawns as she speaks.
145 Rod	It's better than just having it in a forest because, if it wasn't on a mountain, they wouldn't have had the helicopter and all that.	Evaluates the location of events by linking it to the events that occurred.	Events and setting	S	Evaluating	Looks at Nola then Kay.
146 Kay	It would not have had the rescue.	Confirms Rod's ideas.	Rod's ideas (Inferential)	S	Hypothesising	Eye contact with Rod
147 Nola	Nothing would have really happened.	Confirms Kay's/Rod's ideas.	Rod's/Kay's ideas (Inferential)	S	Hypothesising	Eye contact with Kay
148 Kay	Unless they came across a big cat or something.	Hypothesises a possible scenario.	A big cat (Inferential)	S	Hypothesising	Eye contact with Nola
149 Nola	A dog.	Hypothesises an alternative scenario.	A dog (Inferential)	S	Hypothesising	Eye contact with Kay

150 Kay	A dog or cat or something.	Confirms Nola's and own ideas.	Dog or cat (Inferential)	S	Confirming	Eye contact with Nola
151 Nola	Well I think the characters in the story were well described.	Focuses on characters and evaluates their description.	Characters	S	Evaluating	Looks straight ahead.
152 Rod	The scene was pretty well described./They told you where it was,/what was around/what they did and everything.	Refocuses on setting and events in the plot.	Scene and events	S S S S	Evaluating Explaining Explaining Explaining	Eye contact with Nola
153 Kay	Like wallabies.	Elaborates on Rod's ideas.	Wallabies	S	Comparing	Eye contact with Rod
154 Nola	You could actually sort of picture the people that were in it in your head picture like Melissa and Jodie being friends from grade one or something.	Describes her response to the description of characters in the story.	Melissa and Jodie	S	Describing	Leans forward on table with head on hands.
155 Kay	Or playing netball or vigoro and all that.	Elaborates on Nola's ideas.	Netball and vigoro	S	Describing	Eye contact with Nola
156 Nola	You know what happened.	Refocuses on events in the story.	Story events	S	Evaluating	Eye contact with Kay
157 Rod	What have you got?	Seeks information re record.	Written record	Q	Checking	Eye contact with Con
158 Con	In setting I've got/"It was set at the top of a hill in the bush. It was interesting where it was set at the mountain in the bush because the helicopter couldn't wouldn't have come and Jodie wouldn't have hurt herself."	Replies to Rod's question by reading from the written record.	Written record (Textual)	S RTA	Informing Reading aloud	Reads aloud what he has recorded to the group.
159 Rod	Because she wouldn't have slipped off the mountain.	Focuses on details for written record.	Slipped off the mountain	S	Describing	Eye contact with Con
160 Con	I'll write that in.	Informs group re intentions.	Written record	S	Informing	Starts to write.

161 Rod	Now the plot.	Focuses on plot.	Story plot	S	Focusing	Looks at Con writing.
162 Kay	We've got to do main characters and main points really.	Refocuses on the task strategy.	Task strategy	S	Refocusing	Eye contact with Rod
163 Rod	No./That's part of the next one the plot.	Disagrees. Explains focus of task strategy.	Task strategy	S	Negating	Eye contact with Kay
164 Kay	We're up to the plot.	Informs Rod re task strategy.	The plot	S	Explaining	Eye contact with Rod
165 Rod	You said characters.	Informs Kay re ideas.	Characters	S	Clarifying	Eye contact with Kay
166 Nola	I just said characters./I was just talking about the characters.	Justifies her discussion of characters.	Talking about characters	S	Disagreeing	Eye contact with Rod
167 Kay	The events that occurred in the story.	Focuses on events in the plot.	Events in the story	S	Explaining	Eye contact with Nola
168 Nola	They went up the hill./They went down the hill.	Describes events in the plot.	Events in the plot	S	Focusing	Lifts both hands in the air.
169 Rod	The main points of what happened like they went for a hike,/they went up the hill and she hurt her ankle,/then the helicopter came and saved her/ and	Focuses on what to record and proffers examples of what to write. Directs Con re recording	Main points to be recorded	S	Describing	Eye contact with Con.
	Just write the main points and stuff.			S	Describing	
170 Nola	I think-	Begins to proffer an idea.	Unclear	S	Describing	
171 Rod	Write it down.	Directs Con re record.	Events in the plot	IU	Incomplete	Looks straight ahead.
172 Con	What?	Seeks clarification re record.	Written record	I	Directing	Eye contact with Con
173 Rod	The plot.	Clarifies Con's question.	Rod's directive	Q	Seeking clarification	Eye contact with Rod
174 Con	Right.	Agrees with Rod's directive.	Con's question	S	Clarifying	Eye contact with Con
175 Rod	They went up the hill for a hike.	Informs Rod re record.	Rod's directive	S	Agreeing	Laughs then begins to write.
			The plot	S	Informing	Looks at Co.

176 Kay	They went up the hill./The camera went down./She hurt herself.	Describes events in the plot.	Events in the plot	S S S	Describing Describing Describing	Eye contact with Rod
177 Con	The what?	Seeks clarification re Kay's ideas.	Kay's ideas	Q	Seeking clarification	Eye contact with Kay
178 Kay	The camera went down/and she hurt herself.	Repeats ideas to clarify Con's question.	Events in the plot	S S	Clarifying Clarifying	Eye contact with Con
179 Nola	She slipped on the rock/and the camera fell out of her hand/ and the camera-	Describes events in the plot in more detail.	Events in the plot	S S IU	Describing Describing Describing	Eye contact with Con
180 Kay	And the camera went-	Begins to complete Nola's utterance.	The camera	IU	Describing	Eye contact with Nola
181 Nola	And the camera went splick.	Completes her utterance.	The camera	S	Completing	Eye contact with Kay
182 Kay	I said that the camera went down.	Confirms her previous ideas.	The camera	S	Confirming	Eye contact with Nola
183 Nola	Yeh/but you didn't describe it./No one would have known what the camera was.	Agrees. Evaluates Kay's description of events and explains her criticism.	Kay's description of events.	S S S	Agreeing Evaluating Explaining	Eye contact with Kay
184 Joe	She might have just dropped the camera/and might have been running	Hypothesises a scenario different from the one in the story.	Alternative events (Inferential)	S S	Hypothesising Hypothesising	Eye contact with Kay
185 Kay	She had a sprained ankle.	Focuses on Jodie's injury.	Sprained ankle	S	Focusing	Eye contact with Joe
186 Rod	Just write down they went up for a hike.	Directs Con re record	Written record	I	Directing	Eye contact with Con
187 Kay	Yeh/and she tried to get a picture of a bird/and she went forward/and she slipped on a rock/and sprained her ankle.	Agrees with Rod. Describes events in the plot for Con to record.	Events in the plot	S S S S S	Agreeing Describing Describing Describing Describing	Eye contact with Con
188 Con	Yeh.	Agrees with Kay.	Kay's ideas	S	Agreeing	Looks at Rod.

189 Nola	She slipped on a rock/and went falling/and cut her forehead/and grazed her knee.	Describes events in the plot in more detail for Con to record.	Events in the plot	S S S S	Describing Describing Describing Describing	Eye contact with Con
190 Kay	And sprained her ankle.	Elaborates on Nola's description.	Sprained ankle	S	Elaborating	Eye contact with Nola
191 Nola	A badly sprained ankle.	Qualifies Kay's description.	Badly sprained ankle	S	Qualifying	Eye contact with Kay
192 Rod	Write that/it's short.	Directs Con re record.	Record	I S	Directing Explaining	Eye contact with Con
193 Con	Okay.	Agrees with Rod.	Rod's idea	S	Agreeing	Begins to write.
194 Rod	They went up-Jodie and John and some of his friends-	Begins to describe events in the plot.	Jodie and John	IU	Describing	Looks at Con.
195 Nola	Jodie, Fred, Melissa, and	Begins to inform Rod re characters.	Jodie, Fred Melissa	IU	Listing	Checks sheet for names.
196 Joe	Robert.	Adds to Nola's list.	Robert	S	Completing	Looks at Nola.
197 Rod	You don't have to write it all/it takes up too much space.	Directs Con re written record.	Written record	S S	Informing Explaining	Eye contact with Con
198 Nola	Jodie, John, Melissa, Fred and-	Reads names from sheet.	Names of characters	RTA	Reading aloud	Reads aloud from sheet.
199 Joe	Robert.	Completes Nola's list.	Robert	S	Completing	Looks at Nola.
200 Nola	Robert.	Completes her list of characters.	Robert (Textual)	RTA	Reading aloud	Reads aloud from sheet.
201 Kay	Jodie, John, Melissa, that's all there was.	Proffers her version of the characters.	Names of characters	S	Confirming	Eye contact with Nola
202 Nola	Oh yeh./Jodie, John, Fred, Melissa and Robert.	Agrees with Kay and completes the list.	Names of characters	S S	Agreeing Completing	Waves both hands in the air.
203 Rod	Got that characters?	Seeks clarification from Con.	Characters	Q	Checking	Looks at Con who is writing.
204 Nola	Have you got that Con?	Repeats Rod's question.	Characters	Q	Checking	Looks at Con.
205 Kay	Characters.	Focuses on characters.	Characters	S	Focusing	Eye contact with Rod

206 Rod	Characters in the story/that's Robert, John, Fred, Jodie.	Confirms Kay's ideas and lists characters.	Characters	S S	Confirming Listing	Looks at Con.
207 Kay	The way they're described and that.	Explains expectations re characters.	Character description	S	Explaining	Teacher joins the group.
208 Nola	I thought I thought the language was very descriptive.	Evaluates language of the story.	Language	S	Evaluating	Eye contact with Rod
209 Kay	We're up to characters.	Refocuses Nola's ideas.	Characters	S	Refocusing	Eye contact with Nola
210 Nola	Sorry.	Apologises to Kay.	Sorry	EM	Apologising	Eye contact with Kay
211 Con	This is what I've got for the plot./"They went up a mountain for a hike and Jodie went um to get a close picture of a bird and slipped on a rock. She got stuck in the rocks and she and she struggled and strained and sprained her ankle."	Informs group re written record. Reads record to the group.	Written record (Textual)	S RTA	Informing Reading aloud	Looks at written record and reads aloud to the group.
212 Rod	Good./Now characters.	Agrees and refocuses on characters.	Characters	S S	Evaluating Refocusing	Eye contact with Con
213 Teacher	Are you saying what you think about each of them as you go?	Seeks clarification re task strategy from group.	Task strategy	Q	Seeking clarification	Looks at Co.
214 Joe	Have we done that?	Seeks clarification re task strategy.	Task strategy	Q	Seeking clarification	Looks at Con.
215 Kay	Characters, I think, were well described./Just write about the characters.	Evaluates description of characters. Directs Con re record.	Characters	S I	Evaluating Directing	Eye contact with Con
216 Rod/Kay	Robert, John, Fred, Melissa and Jodie.	Lists the characters.	Characters	S	Listing	Looks at Con.
217 Rod	Robert. John. Fred-	Lists some characters.	Characters	S	Listing	Looks at Con.
218 Nola	John, Fred, Robert, Melissa and Jodie.	Lists all the characters.	Characters	S	Listing	Eye contact with Con

219 Rod	Melissa and Jodie.	Completes character list.	Characters	S	Completing	Eye contact with Con
220 Nola	John, Fred, Melissa and Jodie and Robert./John, Fred, Robert, Melissa and	Lists the chracters then repeats the list.	Characters	S S	Listing Repeating	Eye contact with Con
221 Rod	Jodie.	Repeats Jodie's name.	Jodie	S	Repeating	Eye contact with Con
222 Con	Is that it?	Seeks clarification re list of characters.	List of characters	Q	Seeking clarification	Eye contact with Rod
223 Rod	Now language.	Focuses on language.	Language	S	Focusing	Looks at Con
224 Kay	And Robert.	Repeats Robert's name.	Robert	S	Repeating	Eye contact with Con
225 Con	What?	Seeks clarification re record.	Rod's idea.	Q	Seeking clarification	Eye contact with Rod
226 Rod	Language that's what's next.	Clarifies Con's question.	Language	S	Clarifying	Eye contact with Con
227 Kay	Language.	Confirms Rod's idea.	Language	S	Confirming	Eye contact with Rod
228 Teacher	Did you say something about the characters?/I don't think you said anything about the characters did you?/You've just written them down./Kay said something about them I think./Con has to write it down.	Focuses attention on need to comment on characters. Confirms lack of comment on characters. Explains what group has done and informs group of need for Con to record their comments.	Evaluation of comments on characters	Q - S S S S	Seeking clarification Confirming Explaining Explaining Directing	Looks around the group as he speaks.
229 Rod	Do you have to write what like what they were doing?	Seeks clarification re characterisation.	Characterisation	Q	Seeking clarification	Eye contact with Teacher
230 Teacher	No/whether you think the characters were well portrayed whether you think they were well described whether you think they were	Disagrees with Rod's interpretation. Explains what is required to examine the characters.	Examination of characters	S S IU	Negating Explaining Concluding	Eye contact with Rod
	interesting characters./So you could say something about-					

231 Rod	So they were described at the start how long they had been friends for/and where they live/and what they do.	Describes characterisation of the story.	Characterisation	S S S	Describing Describing Describing	Eye contact with Teacher
232 Con	Yeh/what they like doing.	Agrees with and confirms part of Rod's description.	Characterisation	S S	Agreeing Confirming	Eye contact with Rod
233 Nola	They were well described./You knew what they were doing.	Evaluates characterisation of the story.	Characterisation	S S	Evaluating Evaluating	Eye contact with Con
234 Teacher	That's good Nola.	Praises Nola's description.	Nola's description	S	Praising	Eye contact with Nola
235 Nola	And who they were/and how they lived.	Describes characters in the story.	Characters	S S	Describing Describing	Eye contact with Rod
236 Rod	You know a bit about their lifestyle before.	Describes characters.	Characters	S	Describing	Eye contact with Nola
237 Teacher	I think what Nola said is good.	Evaluates Nola's description.	Nola's description	S	Evaluating	Eye contact with Nola
238 Rod	Write it down.	Directs Con re record.	Record	I	Directing	Eye contact with Con
239 Kay	Do you want me to write for you?	Seeks directions from Con.	Record	Q	Seeking directions	Eye contact with Con
240 Con	Mm?	Seeks clarification from Kay.	Kay's question	EM	Seeking clarification	Eye contact with Kay
241 Kay	Do you want me to take over?	Repeats rephrased question.	Record	Q	Seeking directions	Eye contact with Con
242 Con	No./It's right./What did you say?	Rejects Kay's offer. Seeks clarification from Nola.	Record	S S Q	Negating Confirming Seeking information	Eye contact with Kay then Nola
243 Nola	They were well described./ You knew how they lived their life./Got that Con?/ Okay.	Dictates for Con to record.Checks his progress. Confirms his acknowledgement.	Description of characters for record	S S Q S	Evaluating Explaining Checking Confirming	Con nods his head in agreement.

244 Teacher	What are you up to now?/Language is it?	Seeks clarification re task strategy.	Task strategy	Q Q	Seeking clarification Seeking clarification	Looks at Rod then Nola.
245 Nola	Well they were well described./You knew how they lived and things.	Evaluates characterisation of the story.	Characterisation	S S	Evaluating Explaining	Rests head on left hand and looks straight ahead.
246 Rod	Did you hear that Con?/They were well described for characters.	Seeks clarification re record. Confirms description for record.	Nola's description	Q S	Checking Evaluating	Eye contact with Con Teacher leaves the group.
247 Con	Yeh.	Clarifies Rod's query.	Rod's query	S	Agreeing	Stops writing
248 Nola	They were well described.	Repeats ideas for Con.	Characters	S	Repeating	Looks at Con
249 Rod	I mean it's for language.	Clarifies his ideas re description.	Language	S	Clarifying	Eye contact with Con
250 Nola	Language.	Focuses on language.	Language	S	Focusing	Eye contact with Rod
251 Con	They were well described.	Reads from the record.	Record (Textual)	RTA	Reading aloud	Reads aloud from record.
252 Rod	The setting.	Focuses on setting.	Setting	S	Focusing	Looks at Con
253 Kay	You knew what they were talking about.	describes characters.	Characters	S	Describing	Eye contact with Rod
254 Rod	The setting and their life-style was well described.	Evaluates the setting of the story.	Setting	S	evaluating	Eye contact with Con
255 Nola	You knew exactly what was happening the whole story through.	Evaluates the plot.	Story plot	S	Evaluating	Looks straight ahead.
256 Kay	They were well described.	Evaluates characterisation.	Characters	S	Evaluating	Eye contact with Nola
257 Nola	You knew exactly what was happening through the story.	Confirms previous ideas.	Story plot	S	Repeating	Eye contact with Kay
258 Rod	You knew where they were.	Evaluates characterisation.	Characters	S	Evaluating	Eye contact with Nola
259 Nola	The whole way through it wasn't just like oh the cat was in the hat at the doorstep.	Evaluates the plot and includes an example.	Story plot	S	Evaluating	Eye contact with Rod. Smiles as she speaks.
260 Kay	Or you could say the cat	Hypothesises a scenario of	Story plot	S	Hypothesising	Eye contact with Nola

	was in the brown cat was in the black tophat at the-	events for a story.	(Inferential)	S		
261 Nola	At the doorstep.	Completes Kay's scenario.	Kay's ideas (Inferential)	S	Completing	Eye contact with Kay
262 Kay	At the dirty, rusty doorstep sort of thing.	Elaborates hypothesised scenario.	Story plot (Inferential)	S	Hypothesising	Eye contact with Nola
263 Nola	Or you could say the cat was in the beautiful, glowing tophat at the beautiful star doorstep at the address of 16 Victor Street Cranbrook 8414.	Hypothesises an exaggerated scenario which includes her own address.	Story plot (Inferential)	S	Hypothesising	Eye contact with Kay. Laughs then Kay laughs.
264 Rod	Now we've got to do (a).	Refocuses on part (a) of the task strategy.	Part (a)	S	Refocusing	Looks at Nola then Kay.
265 Kay	Yes (a).	Agrees with Rod's idea.	Rod's idea	S	Agreeing	Eye contact with Rod
266 Rod	What you think of the story.	Confirms the focus of the discussion.	Part (a)	S	Confirming	Eye contact with Nola
267 Nola	The following aspects.	Elaborates on Rod's idea.	Task strategy	S	Elaborating	Eye contact with Rod
268 Con	The following aspects of the story.	Confirms the focus of discussion.	Task strategy	S	Confirming	Looks at Nola.
269 Kay	Then we've got to do that.	Confirms the focus of discussion.	Task strategy	S	Confirming	Looks at Rod then Con.
270 Con	We've done that.	Concludes completion of part (a)	Part (a)	S	Concluding	Eye contact with Kay
271 Kay	Oh we've done it./Now we've got to write a copy.	Agrees with Con's idea. Focuses on copy of record.	Con's idea. Copy of record	S S	Agreeing Directing	Teacher joins the group.
272 Rod	Is that (a)?	Seeks clarification re part (a).	Part (a)	Q	Seeking clarification	Eye contact with Teacher
273 Teacher	Yes./ (a) is your plot characterisation./Have you done (a)?	Clarifies Rod's question. Seeks clarification re part (a).	Part (a)	S S Q	Agreeing Explaining Checking	Eye contact with Rod
274 nola	Ah Ah.	Clarifies Teacher's query.	Teacher's query	EM	Clarifying	Eye contact with Teacher
275 Teacher	Right./Have you done (b)?	Confirms response. Seeks clarification re (b).	Nola's response	S Q	Agreeing Checking	Eye contact with Nola

276 Nola	Yep.	Clarifies Teacher's query.	T's query	S	Agreeing	Eye contact with T.
277 Teacher	And have you done (c)?	Seeks clarification re part (c).	Part (c)	Q	Checking	Eye contact with Nola
278 Rod	Yep.	Clarifies Teacher's query.	Teacher's	S	Agreeing	Eye contact with
279 Nola	Are we finished?	Seeks clarification re task strategy.	task strategy	Q	Checking	Eye contact with Rod
280 Rod	You have to read it out Con.	Directs Con re record.	Record	I	Directing	Eye contact with Con
281 Nola	We have to do a good copy now.	Informs group re written record.	Record	S	Informing	Looks at Con then Rod.
282 Rod	I'll write it out.	Volunteers to rewrite the record.	Record	S	Volunteering	Eye contact with Con
283 Nola	Here Con I'll read them out.	Volunteers to read record.	Record	S	Volunteering	Receives sheet from Con.
284 Kay	yeh.	Agrees with Nola's idea.	Nola's idea	S	Agreeing	Eye contact with Nola
285 Nola	Okay./Are you ready Joe?/Are we doing a report/or are we just going to write them down?	Confirms her readiness. Seeks clarification re Joe's readiness and record genre.	Written record	S Q Q - Q	Confirming Checking Seeking clarification Seeking clarification	Mistakes Joe for Rod who is writing.
286 Con	A report.	Clarifies Nola's query.	Nola's query	S	Clarifying	Eye contact with Nola
287 Joe	Read them out.	Directs Nola re record.	Record	I	Directing	Looks at Nola
288 Nola	How about we put them in a report thing like it says in here.	Suggests a format for the written record.	Record format	S	Suggesting	Looks at the task sheet as she speaks.
289 Rod	Write it how it is in order (a), (b), (c).	Directs Nola re record format.	Record format	I	Directing	Eye contact with Nola
290 Kay	(a).	Focuses on part (a).	Part (a)	S	Focusing	Eye contact with Rod
291 Nola	Okay./Just a moment I'm finding myself./Okay./ just put setting as a heading.	Confirms directions. Requests time to prepare and explains why. Directs Joe re record	Record format	S S S I	Confirming Requesting Confirming Directing	Skims through part of record as she speaks.
292 Rod	I'll write it if you like/and you can copy it.	Volunteers to record. Informs Joe re his role.	Recorder	S S	Volunteering Informing	Eye contact with Joe
293 Nola	Joe is doing the copy./	Agrees. Describes scenario	Recording	S	Agreeing	Looks at Joe then Rod

	Rod and Joe are doing the group copy.	for recording		S S	Describing Amending	
294 Rod	Sorry.	Apologises re writing	Sorry	CR	Apologising	Eye contact with Nola
295 Nola	Write it down.	Directs Joe re writing.	Record	I	Directing	Eye contact with Joe
296 Joe	I'll copy it.	Informs Nola re intentions.	Copying record	S	Informing	Eye contact with Nola
297 Nola	Okay./Let Rod do the group copy.	Agrees./Confirms Rod as recorder.	Group recorder	S S	Agreeing Confirming	Eye contact with Joe
298 Rod	Here's a piece of paper./I'll do a margin.	Supports Joe re starting. Informs him re writing.	Record format	S S	Informing Informing	Hands Joe a piece of paper for recording.
299 Nola	Write setting./"It was set at the top of a hill in the bush./I can't read what it says.	Directs Rod re record. Dictates to Rod from sheet. Informs Rod re reading.	Written record (Textual)	I S S	Directing Dictating Seeking clarification	Looks closely at the sheet.
300 Rod	It was set at the top of a hill in the bush.	Reads what he has written.	Record (Textual)	RTA	Reading aloud	Reads aloud from sheet.
301 Nola	It was interesting in the bush in the rainforest or something./It was set at the top of a/oh you've got that./It was interesting.	Dictates slowly from sheet for Rod to record.	Written record (Textual)	S S S S	Dictating Dictating Amending Dictating	Looks closely at sheet while she dictates.
302 Rod	Is this still the setting?	Seeks clarification re record	Record (Textual)	Q	Seeking clarification	Eye contact with Nola
303 Nola	Yeh./It was set at the mountain in the bush because the helicopter couldn't-	Clarifies Rod's query. Continues to dictate slowly to Rod.	Record (Textual)	S S	Agreeing Dictating	Eye contact with Rod then looks at sheet.
304 Rod	It was interesting.	Reads as he writes.	Record (Textual)	RTA	Reading aloud	Reads as he writes.
305 Nola	Because when it was set at the mountain in the bush, the helicopter because the helicopter-	Dictates slowly from sheet.	Record (Textual)	S	Dictating	Dictates from sheet then looks straight ahead.
306 Rod	Because?	Seeks clarification re word.	Because	Q	Seeking clarification	Looks up at Nola.
307 Con	Speak louder so he can hear.	Directs Nola re dictation.	Dictation	I	Directing	Eye contact with Nola

308 Nola	The helicopter couldn't have come/and Jodie wouldn't have hurt herself.	Dictates slowly from sheet.	Dictation (Textual)	S S	Dictating Dictating	Looks at Rod as she dictates.
309 Rod	The helicopter couldn't-	Reads as he writes.	Record (Textual)	RTA	Reading aloud	Reads as he writes.
310 Nola	Because the helicopter couldn't have come/and Jodie wouldn't have hurt herself./What have you got?	Dictates from Sheet. Seeks clarification re progress.	Record (Textual)	S S Q	Dictating Dictating Checking	Looks at Rod who continues writing.
311 Rod	How do you spell "Jodie"?	Seeks information re spelling	Jodie	Q	Seeking information	Eye contact with Nola
312 Nola	j-o-d-y	Informs Rod re spelling.	Jodie	Sp	Spelling	Eye contact with Rod
313 Kay	I thought it was j-o-i-d-y	Informs Rod re spelling	Jodie	Sp	Spelling	Eye contact with Rod
314 Nola	Oh Jodie j-o-d-i-e wouldn't have hurt herself./ Have you got that?/Have you got that?/Wouldn't have hurt herself./Have you got that?	Continues the dictation and spells "Jodie" correctly. Seeks clarification re progress of recording.	Jodie Dictation (Textual)	S Q Q S Q	Dictating Checking Repeating Dictating Checking	Looks at Rod as he writes.
315 Rod	Yes/ (b).	Clarifies Nola's query. Focuses on (b)	Nola's query (b)	S S	Agreeing Focusing	Eye contact with Nola
316 Nola	Okay./Plot./Have you got that?	Agrees. Dictates. Seeks clarification re record.	Plot (Textual)	S S Q	Agreeing Dictating Checking	Looks at Rod as he writes.
317 Kay	Rule a line under that.	Directs Rod re record.	Record	I	Directing	Points to Rod's sheet.
318 Nola	Okay./Are you ready?/They went up a mountain for a hike and	Checks Rod's readiness. Dictates from sheet.	Dictation (Textual)	S Q S	Agreeing Checking Dictating	Looks at Rod as he writes.
319 Rod	j-o.	Starts to spell "Jodie".	Jodie	Sp	Spelling	Spells as he writes.
320 Kay	d-i-e	Completes spelling "Jodie"	Jodie	Sp	Spelling	Looks at Rod.
321 Nola	Went to get a close picture of a bird/and slipped on a rock./As she slipped-/Have you got that?	Dictates to Rod. Checks Rod's progress re record.	Dictation (Textual)	S S S Q	Dictating Dictating Dictating Checking	Looks at Rod as he writes.

322 Rod	Yes.	Confirms his progress.	Nola's query	S	Agreeing	Looks up from sheet.
323 Nola	Okay./As she slipped, she sprained her ankle badly,/cut her forehead/and grazed her knee and grazed her knee./Have you got that?	Confirms her readiness. Dictates to Rod from sheet. Seeks clarification re progress of record.	Dictation (Textual)	S S S Q	Confirming Dictating Dictating Checking	Looks at Rod as he writes.
324 Rod	Just a moment./How do you spell "grazed"?	Directs Nola to wait. Seeks correct spelling.	Grazed	I Q	Directing Seeking information	Eye contact with Nola.
325 Kay	q-r-a-z-e-d	Spells word for Rod.	Grazed	Sp	Spelling	Eye contact with Rod
326 Nola	g-r-a-z-e-d	Repeats spelling	Grazed	Sp	Spelling	Eye contact with Rod
327 Rod	Knee?	Seeks correct spelling.	Knee	S	Seeking information	Eye contact with Nola
328 Nola	k-n-e-e	Spells word for Rod.	Knee	Sp	Spelling	Eye contact with Rod
329 Rod	What?	Seeks clarification re spelling.	Nola's spelling	Q	Seeking clarification	Eye contact with Nola
330 Kay	k-n-e-e	Repeats the spelling.	Knee	Sp	Spelling	Eye contact with Rod
331 Nola	Okay characters./The main characters were	Focuses on characters. Dictates to Rod..	Characters (Textual)	S S	Focusing Dictating	Looks at Rod as he writes.
332 Kay	The main characters were-	Repeats Nola's dictation.	Characters	IU	Repeating	Eye contact with Nola
333 Nola	c-h	Begins to spell.	Characters	Sp	Spelling	Looks at Rod as he writes.
334 Kay	The main characters were Robert-	Begins to list the characters.	Main characters	IU	Dictating	Looks at Rod as he writes.
335 Nola	Robert, John, j-h-o-n, Fred, Melissa m-e-l-i-s-a Melissa and Jodie./Oh it's double "s" isn't it m-e-l-i-s-s-a?	Dictates names for Rod. Spells some words.	Dictation (Textual)	S Sp	Dictating Spelling	Looks at Rod as he writes.
336 Kay	Yep./You don't know how to spell.	Agrees. Evaluates Nola's spelling.	Spelling	S S	Agreeing Evaluating	Eye contact with Nola
337 Nola	Who have you got?	Seeks information re record.	Characters (Textual)	Q	Seeking information	Eye contact with Rod

338 Rod	I've got "the characters were Robert, John, Fred, Melissa and Jodie."	Provides Nola with information by reading list from sheet.	Record (Textual)	RTA	Reading aloud	Reads aloud from written record.
339 Nola	j-o-d-i-e	Spells "Jodie".	Jodie	Sp	Spelling	Eye contact with Rod
340 Rod	Yep.	Confirms spelling.	Spelling	S	Agreeing	Eye contact with Nola
341 Nola	Good./We thought they were well described/and you knew where they lived.	Dictates to Rod.	Dictation (Textual)	S S S	Evaluating Dictating Dictating	Looks at Rod as he writes.
342 Kay	And you knew what their lifestyle was like.	Informs Rod what was next.	Lifestyle	S	Informing	Looks at Rod as he writes.
343 Nola	And you knew what their lifestyle was like.	Dictates to Rod.	Lifestyle (Textual)	S	Dictating	Looks at Rod as he writes.
344 Rod	We thought-	Reads aloud as he writes.	Record (textual)	RTA	Reading aloud	Reads as he writes.
345 Nola	They were well described.	Completes the sentence for Rod.	Record (Textual)	S	Dictating	Eye contact with Rod
346 Kay	Well described.	Repeats part of Nola's utterance.	Nola's utterance	S	Repeating	Looks at Rod as he writes.
347 Nola	And their lifestyle was pointed out clearly/and you knew what their lifestyles were like./That's better./Are you finished?/The story said that they were adventurous.	Dictates to Rod. Evaluates the language structure. Seeks clarification re progress. Continues to dictate to Rod.	Dictation (Textual)	S S S Q S	Dictating Dictating Evaluating Checking Dictating	Looks at Rod as he writes.
348 Rod	Is this for language?	Seeks clarification re aspect being covered.	Language	S	Seeking clarification	Eye contact with Nola
349 Nola	No characters./Oh yes it is./It said they were very adventurous in language/ and you knew where they were/and what they were doing.	Clarifies Rod's query. Corrects her ideas. Informs Rod re record.	Record (Textual)	S S S S S	Disagreeing Correcting Informing Informing Informing	Eye contact with Rod
350 Rod	Language right	Confirms aspect covered.	Language	S	Confirming	Eye contact with Nola

351 Nola	Okay./They were adventurous/and you knew where they were/and what they were doing.	Cofirms her readiness to proceed. Repeats ideas dictated earlier. Focuses on part (b).	Written record	S S S	Agreeing Dictating Dictating	Looks at sheet while she speaks. Teacher joins the group.
				S S	Dictating Focusing	
352 Teacher	You're up to (b) are you?	Seeks clarification re task strategy.	Task strategy	Q	Seeking clarification	Looks around the group for response.
353 Nola	What do you think of the story as a whole?	Focuses on part (b) of the task strategy.	Part (b) (Textual)	Q	Focusing	Eye contact with Rod
354 Rod	What?	Seeks clarification re Nola's question.	Nola's question	Q	Seeking clarification	Eye contact with Nola
355 Nola	How do you think the story was as a whole?	Restates the question for Rod.	Rod's query (Textual)	Q	Focusing	Eye contact with Rod
356 Rod	Okay.	Cobfirms his clarification.	Nola's reply	S	Agreeing	Teacher leaves the group.
357 Nola	Okay./What do you think of the story as a whole?/We thought it had adventure./It was fun and exciting./ We thought it was fun and exciting the way it was written./Tell me when you are ready.	Confirms readiness to proceed and focuses on part (b). Dictates slowly to Rod. Directs him to inform her when he is ready to proceed.	Dictation (Textual)	S Q S S S I	Agreeing Focusing Dictating Dictating Dictating Directing	Yawns as she waits for Rod to record.
358 Kay	He's ready.	Informs Nola when Rod is ready.	Rod's readiness	S	Informing	Eye contact with Nola
359 Nola	Okay./For the kids in the story it was an adventure riding in the helicopter and going hiking.	Confirms her readiness to proceed. Dictates to Rod.	Dictation (Textual)	S S	Agreeing Dictating	Looks at Rod as he writes.
360 Kay	Is this (b)?	Seeks clarification re part.	Part (b)	Q	Seeking clarification	Eye contact with Nola
361 Nola	Mm.	Clarifies Kay's query.	Kay's query	EM	Confirming	Yawns as she speaks.
362 Kay	This is (b)?	Doubts Nola's Response.	Nola's response	Q	Seeking clarification	Eye contact with Nola

363 Rod	For the kids.	Reads aloud as he writes.	Record (Textual)	RTA	Reading aloud	Reads aloud as he writes.
364 Nola	It was an adventure riding in the helicopter/and going hiking./Tell me when you are ready.	Dictates to Rod. Directs him to tell her when he is ready.	Dictation (Textual)	S S I	Dictating Dictating Directing	Leans on the desk while she waits for Rod.
365 Rod	Yes./(c).	Confirms his readiness. Focuses on (c)	Part (c) Textual)	S S	Agreeing Focusing	Looks up from writing at Nola.
366 Nola	It was good that-	Begins to dictate.	Dictation (Textual)	S	Dictating	Looks at Rod as he writes.
367 Rod	Are we up to (c)?	Seeks clarification re task strategy.	Part (c) (Textual)	S	Checking	Eye contact with Nola
368 Nola	What?	Seeks clarification re Rod's query.	Rod's query	Q	Seeking clarification	Eye contact with Rod
369 Rod	Are we up to (c)?	Repeats his question to Nola.	Part (c) (Textual)	Q	Checking	Eye contact with Nola
370 Nola	No./It was good that they experienced it./Any other comments you wish to make.	Clarifies Rod's query. Dictates to Rod. Focuses on task strategy.	Dictation (Textual)	S S S	Negating Dictating Focusing	Looks at Rod as he writes. Kay starts to write.
371 Rod	Is that (c)?	Seeks clarification re task strategy.	Part (c) (Textual)	Q	Checking	Looks up from writing.
372 Nola	Mm./Have you got four lines left?	Clarifies Rod's query. Seeks clarification re record.	Rod's query Record (Textual)	EM Q	Agreeing Checking	Eye contact with Rod
373 Rod	Three.	Clarifies Nola's query.	Three (Textual)	S	Informing	Teacher joins the group.
374 Nola	Okay then./You're just going to have to squish it.	Confirms Rod's reply. Directs him re record.	Record (Textual)	S I	Confirming Directing	Eye contact with Rod
375 Teacher	This is the last part is it?	Seeks clarification re task strategy.	Last part (Textual)	Q	Checking	Eye contact with Nola
376 Nola	Mm.	Clarifies Teacher's query.	Teacher's query (Textual)	EM	Agreeing	Eye contact with Teacher

377 Rod	Yeh.	Confirms Nola's reply.	Nola's reply (Textual)	S	Agreeing	Eye contact with Teacher
378 Nola	You've got pretty small writing haven't you?/Kay's got pretty small writing./We need three	Seeks confirmation re Rod's writing. Informs him re Kay's writing and lines required.	Rod's/Kay's writing Record (Textual)	Q - S S	Seeking confirmation Informing Informing	Eye contact with Rod
	lines and one word.					
379 Rod	Yeh.	Clarifies Nola's query.	Nola's query	S	Agreeing	Eye contact with Nola
380 Nola	Not many kids did what they did.	Continues to dictate to Rod.	Dictation (Textual)	S	Dictating	Looks at Rod as he writes.
381 Rod	Yeh.	Informs Nola he is ready to proceed.	Record (Textual)	S	Agreeing	Looks up from writing.
382 Nola	Jodie was lucky she didn't fall down the hill and break her ankle.	Dictates to Rod.	Dictation (Textual)	S	Dictating	Taps her teeth with biro while waiting.
383 Rod	Just put hill and break her ankle.	Informs Nola re abbreviations.	Record (Textual)	I	Directing	Eye contact with Nola
384 Nola	Okay break her ankle./They were lucky Fred got the rescue squad so quickly so they didn't have to stay there overnight.	Confirms Rod's idea. Continues to dictate to him.	Dictation (Textual)	S S	Agreeing Dictating	Looks at Rod as he writes.
385 Rod	So they didn't have to stay there overnight.	Reads aloud as he writes.	Record (Textual)	RTA	Reading aloud	Reads as he writes.
386 Nola	Yeh.	Confirms Rod's recording.	Record (Textual)	S	Agreeing	Looks at Rod as he writes.
387 Teacher	Do you think you have finished the task now?	Seeks clarification re task strategy.	Task strategy	Q	Checking	Looks at Nola then Rod.
388 Kay	Yeh.	Clarifies Teacher's query.	Teacher's query	S	Agreeing	Eye contact with Teacher

389 Teacher	Just that last part that says/"In your conclusions, clearly indicate whether the story should or should not be included and why you came to that conclusion."/Do you think the story should be in a book for grade six to read?	Focuses on last part of task. Reads aloud from task sheet. Focuses on the question to be answered.	Task sheet (Textual)	S RTA S	Focusing Reading aloud Focusing	Reads aloud from the sheet.
390 Nola	No./Oh yeh/the story yeh.	Disagrees then changes her mind re inclusion.	Teacher's query	S S S	Disagreeing Agreeing Agreeing	Eye contact with Teacher
391 Rod	Nola pass the sheet I want to do that form.	Directs Nola re sheet.	Draft sheet	I	Directing	Nola passes him the sheet.
392 Nola	Use this Rod./It is already ruled up for you.	Proffers sheet. Informs Rod re ruling.	Task sheet	I S	Directing Informing	Hands Rod a second sheet.
393 Kay	I've already got one ruled up for you.	Informs Rod re sheet.	Kay's sheet	S	Informing	Eye contact with Rod
394 Nola	This one is neat.	Evaluates her sheet.	Nola's sheet	S	Evaluating	Eye contact with Rod
395 Teacher	What are you going to do now Rod?	Seeks clarification re next step in task strategy.	Next step	Q	Eliciting	Eye contact with Teacher
396 Rod	Looking over it.	Clarifies Teacher's query.	Teacher's query	S	Informing	Eye contact with Teacher
397 Teacher	Oh you're checking.	Confirms Rod's reply to his question.	Rod's reply	S	Refocusing	Eye contact with Rod
398 Rod	I'll put whiteout on it and keep on going	Informs Nola re record	Record	S	informing	Eye contact with Nola
399 Teacher	Do you want to say any more about why it should be included?/Why should it be included?	Probes for ideas re inclusion of the story.	Inclusion of story	Q Q	Probing Probing	Looks around group as if for a response.
400 Nola	Well it should be included.	Confirms inclusion of the story.	Inclusion of story	S	Confirming	Eye contact with teacher

401 Teacher	You said it should be included didn't you?/Why should it be included?	Confirms Nola's idea. Probes for reasons for inclusion of story.	Inclusion of story	Q Q	Confirming Probing	Eye contact with Nola
402 Nola	It should be included for it's an interesting story./It has meaning.	Evaluates the story for inclusion in year six reading.	Inclusion of story	S S	Evaluating Evaluating	Eye contact with Teacher
403 Teacher	Mm.	Agrees with Nola's evaluation.	Nola's ideas	EM	Agreeing	Knods head in agreement.
404 Nola	It helps you understand.	Continues evaluation of the story.	Inclusion of story	S	Evaluating	Eye contact with Teacher
405 Con	It helps children understand the dangers of hiking.	Elaborates on Nola's ideas.	Nola's ideas	S	Elaborating	Eye contact with Teacher
406 Teacher	That's interesting.	Evaluates Con's ideas.	Con's ideas	S	Evaluating	Eye contact with Con
407 Nola	Where's my ruler?	Seeks location of ruler.	Nola's ruler	Q	Requesting	Looks at Kay
408 Teacher	Maybe someone should write that down.	Suggests someone records Nola's/Con's ideas.	Nola's/Con's ideas	S	Suggesting	Looks around the group.
409 Nola	I will.	Volunteers to write down ideas.	Nola's/Con's ideas	S	Volunteering	Eye contact with Teacher
410 Teacher	Nola will.	Confirms Nola's idea.	Nola's idea	S	Confirming	Eye contact with Nola
411 Nola	Okay.	Agrees to write.	Nola's/Con's ideas	S	Agreeing	Gets ready to write.
412 Teacher	Nola will write down the last part whether she thinks the story should be included/and why it should be included to add to Rod's report.	Informs group and explains Nola's role at that time.	Nola's role	S S	Informing Explaining	Looks around the group as he speaks.
413 Rod	Do you want me to read it out?	Seeks directions re reading the written record.	Written record	Q	Seeking directions	Eye contact with Teacher
414 Teacher	While Nola's writing the final part, it might be a good idea Rod/then we can finish can't we?	Clarifies Rod's question and seeks confirmation of completing the task.	Rod's query	S Q	Clarifying Seeking confirmation	Eye contact with Rod

415 Rod	Setting. It was set at the top of a hill in the bush. It was interesting when it was set at the mountain in the bush because the helicopter could not of come and Jodie would not have fell off the rock and had hurt her ankle and hurt herself.	Rod reads aloud from the written record	Written rcord (Textual)	RTA	Reading aloud	Rod reads from the written record. Nola continues writing. Other group members listen.
	Plot. They went to the mountain for a hike and Jodie went to get a close picture of a bird and slipped					
	on a rock. As she slipped, she sprained her ankle badly and cut her head and grazed her knee.					
	Characters. The main characters were Robert, John, Fred, Melissa and Jodie. We thought they were well described and knew what their lifestyle was like,					
	Language. They were very adventurous and knew where they were and what they were doing. (b) What do you think of the story as a whole? We thought it had adventure and it was fun and exciting because of the way it was written.					

416 Nola	Is "a lot" two words?	Seeks information re language.	"A lot"	Q	Seeking information	Teacher knods in agreement.
417 Rod	For kids it was an adventure going hiking and going in the helicopter. It was good that they experienced it. Any other comments. Not many kids did what they did. Jodie was lucky she did not fall down the hill. They were lucky Fred got the	Rod continues reading aloud from the written record.	Written record (Textual)	RTA	Reading aloud	Reads aloud from the sheet while the rest of the group listen.
	the rescue squad so they did not have to stay there overnight.					
418 Teacher	I think you have covered everone quite well there./When we've had Nola's report,-/Perhaps you would like to read yours out to add to the report to make the whole report.	Evaluates the report read by Rod. Begins to focus on Nola's report then invites her to read it out to the group.	Written record (Textual) Nola's report (Textual)	S IU S	Evaluating Focusing Requesting	Eye contact with Rod then eye contact with Nola
419 Nola	We think the story should be included because it is interesting, shows children the dangers of mountain hiking and has a lot of meaning in the actual story itself.	Reads aloud from her minor report while the rest of the group listen.	Nola's report (Textual)	RTA	Reading aloud	Reads aloud from her report.

420 Teacher	Good./I think you have covered every part./Does anyone want to say anything about the report now?/ If you put those two parts together, I think we have the report./Joe is going to put them together/and check them for us.	Praises the group. Evaluates coverage of the task. Invites final comments from the group. Informs group re Joe's role at that stage.	Task strategy	S S S S S	Evaluating Evaluating Eliciting Informing Informing Informing	Looks around the group then establishes eye contact with Joe. Rod hands Teacher the sheet via Joe.
421 Joe	Yes.	Agrees with Teacher's ideas.	Teacher's ideas	S	Agreeing	Eye contact with Teacher
422 Teacher	Well thank you grade six./That's the final problem this morning./It was a bit harder/and you worked a bit harder there./It was good./Thank you very much.	Thanks the group. Informs group re task. Evaluates the task and the group effort. Praises the group. Thanks the group again.	Group task and group effort	S S S S S	Thanking Informing Evaluating Evaluating Evaluating Thanking	Accepts sheet offered by Joe. Looks around the group.

7.5 DATA ANALYSIS PHASE TWO: LINGUISTIC FORMS AND LINGUISTIC FUNCTIONS IN THE GROUP INTERACTION PROCESS

In order to examine the linguistic dimension of the group interaction (articulated in FIGURE 7.1), the Phase One data were synthesised and examined for the linguistic forms and linguistic functions created by each participant across the three knowledge domains providing data to examine each participant's contribution to the group interaction at these levels.

7.5.1 Linguistic Forms

The linguistic form data (described in 6.9) articulated in FIGURE 7.1 are presented in TABLE 7.4 in terms of frequencies and percentages.

TABLE 7.4 Frequencies of Linguistic Forms by Knowledge Domains

	Nola		Kay		Rod		Con		Joe		T/er		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<i>Exclamation</i>														
Science	-	0.0	2	0.090	-	0.0	-	0.0	1	0.045	-	0.0	3	0.135
Social Studies	4	0.178	-	0.0	-	0.0	3	0.135	-	0.0	-	0.0	7	0.313
Language Arts	-	0.0	1	0.045	-	0.0	-	0.0	-	0.0	-	0.0	1	0.045
Total	4	0.178	3	0.135	0	0.0	3	0.135	1	0.045	0	0.0	11	0.493
<i>Imperative</i>														
Science	5	0.224	10	0.448	8	0.359	5	0.224	1	0.045	9	0.404	38	1.704
Social Studies	2	0.090	4	0.178	6	0.268	3	0.135	-	0.0	9	0.404	24	1.075
Language Arts	8	0.359	7	0.313	17	0.762	4	0.178	1	0.045	3	0.135	40	1.792
Total	15	0.673	21	0.939	31	1.389	12	0.537	2	0.090	21	0.943	102	4.571
<i>Question</i>														
Science	11	0.493	33	1.480	18	0.806	4	0.178	1	0.045	25	1.120	92	4.122
Social Studies	39	1.749	34	1.524	17	0.762	1	0.045	5	0.224	34	1.524	130	5.828
Language Arts	28	1.256	10	0.448	19	0.852	7	0.313	2	0.090	25	1.120	91	4.079
Total	78	3.498	77	3.452	54	2.420	12	0.536	8	0.359	84	3.764	313	14.029
<i>Statement</i>														
Science	59	2.644	149	6.678	113	5.064	105	4.706	26	1.165	46	2.061	498	22.318
Social Studies	219	9.826	155	6.947	103	4.616	86	3.854	17	0.762	80	3.585	660	29.590
Language Arts	186	8.337	71	3.182	89	3.989	30	1.344	12	0.537	56	2.510	444	19.899
Total	464	20.807	375	16.807	305	13.669	221	9.904	55	2.464	182	8.156	1602	71.807

Conversation								
Ritual								
Science	1 0.045	1 0.045	- 0.0	- 0.0	- 0.0	2 0.090	4 0.180	
Social Studies	2 0.090	3 0.134	- 0.0	1 0.045	- 0.0	5 0.224	11 0.493	
Language Arts	- 0.0	- 0.0	1 0.045	- 0.0	- 0.0	- 0.0	1 0.045	
Total	3 0.135	4 0.179	1 0.045	1 0.045	0 0.0	7 0.314	16 0.718	
Extraverbal								
Marker								
Science	2 0.090	8 0.359	10 0.448	4 0.179	- 0.0	- 0.0	24 1.076	
Social Studies	2 0.090	1 0.045	6 0.268	1 0.045	- 0.0	- 0.0	10 0.448	
Language Arts	5 0.224	2 0.090	- 0.0	1 0.045	- 0.0	1 0.045	9 0.404	
Total	9 0.404	11 0.494	16 0.716	6 0.269	0 0.0	1 0.045	43 1.928	
Incomplete								
Utterance								
Science	3 0.135	7 0.313	7 0.313	5 0.224	1 0.045	4 0.179	27 1.209	
Social Studies	14 0.628	9 0.404	3 0.135	1 0.045	- 0.0	1 0.0	28 1.257	
Language Arts	7 0.313	6 0.269	4 0.179	1 0.045	- 0.0	2 0.090	20 0.896	
Total	24 1.076	22 0.986	14 0.627	7 0.314	1 0.045	7 0.314	75 3.362	
Reading Text								
Aloud								
Science	1 0.045	10 0.447	4 0.179	- 0.0	- 0.0	- 0.0	15 0.671	
Social Studies	8 0.359	- 0.0	1 0.045	- 0.0	- 0.0	- 0.0	9 0.404	
Language Arts	5 0.224	2 0.090	9 0.404	5 0.224	- 0.0	1 0.045	22 0.987	
Total	14 0.628	12 0.537	14 0.628	5 0.224	0 0.0	1 0.045	46 2.062	
Spelling								
Science	- 0.0	2 0.090	- 0.0	- 0.0	- 0.0	- 0.0	2 0.090	

Social Studies	4	0.179	2	0.090	-	0.0	-	0.0	-	0.0	3	0.135	9	0.404
Language Arts	6	0.267	4	0.179	2	0.090	-	0.0	-	0.0	-	0.0	12	0.536
Total	10	0.446	8	0.359	2	0.090	0	0.0	0	0.0	3	0.135	23	1.030
GRAND TOTAL	621	27.836	533	23.891	437	19.588	267	11.967	67	3.003	306	13.715	2231	100

7.5.2 Linguistic Functions

The derived data on linguistic functions for each of the participants across the three knowledge domains expressed as frequencies and percentages of each participant's total functions are presented in TABLE 7.5. The Grand Total percentages are expressed as proportions of the total functions generated across the three knowledge domains.

In order to analyse the nature of the interaction further, the relationship between the cognitive dimension of the interaction and the GROUP DYNAMIC (FIGURE 7.1) was examined by categorising the linguistic functions as *Initiating Ideas/Information*, *Responding to Ideas/Information* and *Maintaining Communication* (see 6.9).

TABLE 7.6 presents the total frequencies and percentages of these aspects of communication for each knowledge domain examined in the study.

TABLE 7.5 Frequencies of Linguistic Functions by Knowledge Domains

	Nola		Kay		Rod		Con		Joe		T/er		Grand Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<i>Agreeing</i>														
Science	4	0.644	20	3.754	14	3.201	14	5.243	2	2.986	2	0.654	56	2.509
Social Studies	46	7.409	21	3.941	11	2.515	16	5.996	3	4.474	2	0.654	99	4.434
Language Arts	26	4.187	6	1.125	12	2.743	8	2.992	1	1.493	5	1.635	58	2.598
Total	76	12.240	47	8.820	37	8.459	38	14.231	6	8.953	9	2.943	213	9.541
<i>Amending</i>														
Science	4	0.644	2	0.376	-	0.0	1	0.375	1	1.493	-	0.0	8	0.360
Social Studies	1	0.161	1	0.187	-	0.0	-	0.0	-	0.0	-	0.0	2	0.090
Language Arts	2	0.322	1	0.187	-	0.0	-	0.0	-	0.0	-	0.0	3	0.135
Total	7	1.127	4	0.750	0	0.0	0.375	1	1.493	0	0.0	0.0	13	0.585
<i>Apologising</i>														
Science	-	0.0	1	0.187	1	0.329	-	0.0	-	0.0	-	0.0	2	0.090
Social Studies	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0	0.0
Language Arts	1	0.161	-	0.0	1	0.229	-	0.0	-	0.0	-	0.0	2	0.090
Total	1	0.161	1	0.187	2	0.458	0	0.0	0	0.0	0	0.0	4	0.180
<i>Arguing</i>														
Science	1	0.161	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	1	0.045
Social Studies	9	1.449	4	0.750	1	0.229	2	0.750	1	1.493	-	0.0	17	0.761
Language Arts	1	0.161	3	0.563	-	0.0	-	0.0	-	0.0	-	0.0	4	0.180
Total	11	1.771	7	1.313	1	0.229	2	0.750	1	1.493	0	0.0	22	0.986
<i>Checking</i>														
Science	-	0.0	-	0.0	2	0.458	1	0.375	0.0		5	1.635	8	0.360

Social Studies	3 0.483	1 0.187	4 0.916	- 0.0	- 0.0	1 0.327	9 0.403
Language Arts	14 2.255	- 0.0	6 1.374	- 0.0	- 0.0	5 1.635	25 1.120
Total	17 2.738	1 0.187	12 2.748	1 0.375	0 0.0	11 3.597	42 1.883
<i>Clarifying</i>							
Science	- 0.0	2 0.375	1 0.229	- 0.0	- 0.0	- 0.0	3 0.135
Social Studies	3 0.483	2 0.375	- 0.0	- 0.0	- 0.0	2 0.654	7 0.315
Language Arts	2 0.322	3 0.563	5 1.145	1 0.375	- 0.0	1 0.327	12 0.536
Total	5 0.805	7 1.313	6 1.374	1 0.375	0 0.0	3 0.981	22 0.986
<i>Classifying</i>							
Science	1 0.161	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	1 0.045
Social Studies	6 0.966	5 0.938	- 0.0	1 0.375	- 0.0	- 0.0	12 0.540
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Total	7 1.127	5 0.938	0 0.0	1 0.375	0 0.0	0 0.0	13 0.585
<i>Comparing</i>							
Science	2 0.322	2 0.376	- 0.0	1 0.375	- 0.0	1 0.0	6 0.270
Social Studies	2 0.322	1 0.187	1 0.229	1 0.375	- 0.0	- 0.0	5 0.225
Language Arts	4 0.644	1 0.187	- 0.0	- 0.0	- 0.0	- 0.0	5 0.225
Total	8 1.288	4 0.750	1 0.229	2 0.750	0 0.0	1 0.327	16 0.720
<i>Completing</i>							
Science	- 0.0	1 0.187	- 0.0	1 0.375	- 0.0	- 0.0	2 0.090
Social Studies	1 0.161	1 0.187	- 0.0	2 0.750	1 1.493	- 0.0	5 0.225
Language Arts	3 0.483	1 0.188	1 0.229	- 0.0	4 5.972	- 0.0	9 0.405
Total	4 0.644	3 0.562	1 0.229	3 1.125	5 7.465	0 0.0	16 0.720
<i>Concluding</i>							
Science	1 0.161	2 0.376	5 1.145	2 0.750	- 0.0	- 0.0	10 0.445
Social Studies	3 0.483	3 0.562	2 0.458	- 0.0	- 0.0	- 0.0	8 0.360

Language Arts	- 0.0	- 0.0	3 0.687	1 0.375	- 0.0	1 0.327	5 0.225
Total	4 0.644	5 0.938	10 2.290	3 1.125	0 0.0	1 0.327	23 1.030
<i>Confirming</i>							
Science	6 0.966	20 3.754	12 2.743	20 7.493	2 2.986	4 1.308	64 2.866
Social Studies	36 5.798	23 4.316	12 2.743	8 2.992	2 2.986	12 3.917	93 4.171
Language Arts	16 2.577	8 1.500	9 2.058	4 1.500	- 0.0	8 2.616	45 2.011
Total	58 9.341	51 9.570	33 7.544	32 11.985	4 5.972	24 7.841	202 9.048
<i>Correcting</i>							
Science	- 0.0	1 0.187	- 0.0	- 0.0	- 0.0	- 0.0	1 0.045
Social Studies	2 0.322	- 0.0	1 0.229	2 0.750	1 1.493	- 0.0	6 0.270
Language Arts	2 0.322	1 0.188	1 0.229	- 0.0	- 0.0	- 0.0	4 0.180
Total	4 0.644	2 0.375	2 0.458	2 0.750	1 1.493	0 0.0	11 0.495
<i>Describing</i>							
Science	- 0.0	7 1.314	1 0.229	- 0.0	- 0.0	- 0.0	8 0.360
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Language Arts	20 3.220	10 1.877	14 3.206	2 0.750	- 0.0	- 0.0	46 2.060
Total	20 3.220	17 3.191	15 3.435	2 0.750	0 0.0	0 0.0	54 2.420
<i>Dictating</i>							
Science	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Language Arts	43 6.925	1 0.187	- 0.0	- 0.0	- 0.0	- 0.0	44 1.972
Total	43 6.925	1 0.187	0 0.0	0 0.0	0 0.0	0 0.0	44 1.972
<i>Directing</i>							
Science	5 0.805	11 2.065	11 2.515	7 2.618	- 0.0	10 3.263	44 1.971
Social Studies	3 0.483	5 0.938	6 1.374	3 1.125	- 0.0	9 2.943	26 1.163
Language Arts	7 1.127	8 1.501	17 3.884	4 1.500	1 1.493	5 1.635	42 1.880

Total	15 2.415	24 4.504	34 7.773	14 5.243	1 1.493	24 7.841	112 5.014
<i>Disagreeing</i>							
Science	4 0.644	3 0.562	2 0.458	- 0.0	- 0.0	- 0.0	9 0.405
Social Studies	13 2.093	4 0.751	- 0.0	2 0.750	- 0.0	1 0.327	20 0.894
Language Arts	3 0.483	1 0.187	2 0.458	- 0.0	- 0.0	- 0.0	6 0.270
Total	20 3.220	8 1.500	4 0.916	2 0.750	0 0.0	1 0.327	35 1.569
<i>Elaborating</i>							
Science	1 0.161	- 0.0	2 0.458	5 1.875	2 2.986	1 0.327	11 0.495
Social Studies	7 1.127	5 0.938	9 2.061	7 2.618	- 0.0	- 0.0	28 1.252
Language Arts	2 0.322	3 0.562	1 0.229	2 0.750	- 0.0	- 0.0	8 0.360
Total	10 1.610	8 1.500	12 2.748	14 5.243	2 2.986	1 0.327	47 2.107
<i>Eliciting</i>							
Science	1 0.161	2 0.375	1 0.229	- 0.0	- 0.0	2 0.654	6 0.270
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	1 0.327	1 0.045
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	7 2.289	7 0.315
Total	- 0.161	2 0.375	1 0.229	0 0.0	0 0.0	10 3.270	14 0.630
<i>Evaluating</i>							
Science	2 0.322	3 0.563	- 0.0	- 0.0	- 0.0	2 0.654	7 0.315
Social Studies	4 0.644	3 0.563	2 0.458	- 0.0	- 0.0	11 3.587	20 0.896
Language Arts	22 3.543	6 1.126	9 2.061	- 0.0	- 0.0	8 2.616	45 2.016
Total	28 4.509	12 2.252	11 2.519	0 0.0	- 0.0	21 6.857	72 3.227
<i>Exclaiming</i>							
Science	- 0.0	2 0.375	- 0.0	- 0.0	- 0.0	- 0.0	2 0.090
Social Studies	2 0.322	- 0.0	- 0.0	3 1.125	- 0.0	- 0.0	5 0.225
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Total	2 0.322	2 0.375	0 0.0	3 1.125	0 0.0	0 0.0	7 0.315

Science	14	2.255	37	6.942	32	7.316	31	11.590	10	14.910	9	2.940	133	5.957
Social Studies	31	4.992	21	3.941	21	4.802	12	4.494	5	7.465	9	2.940	99	4.433
Language Arts	12	1.932	6	1.126	14	3.206	6	2.242	2	2.986	8	2.613	48	2.152
Total	57	9.179	64	12.009	67	15.324	49	18.326	17	25.361	26	8.493	280	12.542
<i>Listing</i>														
Science	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0	0.0
Social Studies	1	0.161	-	0.0	3	0.687	1	0.375	-	0.0	-	0.0	5	0.225
Language Arts	3	0.483	2	0.375	2	0.458	-	0.0	-	0.0	-	0.0	7	0.315
Total	4	0.644	2	0.375	5	1.145	1	0.375	0	0.0	0	0.0	12	0.540
<i>Maintaining</i>														
Science	2	0.322	8	1.502	8	1.832	4	1.500	-	0.0	-	0.0	22	0.984
Social Studies	2	0.322	1	0.187	7	1.603	-	0.0	-	0.0	-	0.0	10	0.450
Language Arts	-	0.0	2	0.375	-	0.0	-	0.0	-	0.0	-	0.0	2	0.090
Total	4	0.644	11	2.064	15	3.435	4	1.500	0	0.0	0	0.0	34	1.524
<i>Negating</i>														
Science	1	0.161	5	0.938	3	0.687	1	0.375	-	0.0	-	0.0	10	0.450
Social Studies	4	0.644	1	0.187	1	0.229	-	0.0	1	1.493	-	0.0	7	0.310
Language Arts	3	0.483	2	0.375	1	0.229	3	1.125	-	0.0	1	0.327	10	0.450
Total	8	1.288	8	1.5	5	1.145	4	1.500	1	1.493	1	0.327	27	1.210
<i>Pleasant</i>														
Science	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0	0.0
Social Studies	-	0.0	1	0.187	-	0.0	-	0.0	-	0.0	-	0.0	1	0.045
Language Arts	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0	0.0
Total	0	0.0	1	0.187	0	0.0	0	0.0	0	0.0	0	0.0	1	0.045

<i>Praising</i>							
Science	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	5 1.634	5 0.225
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	9 2.940	9 0.405
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	2 0.654	2 0.090
Total	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	16 5.228	16 0.720
<i>Probing</i>							
Science	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	2 0.654	2 0.090
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	11 3.593	11 0.495
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	3 0.981	3 0.135
Total	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	16 5.228	16 0.720
<i>Qualifying</i>							
Science	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Language Arts	1 0.161	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	1 0.045
Total	1 0.161	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.045
<i>Reading Aloud</i>							
Science	1 0.061	10 1.877	3 0.687	- 0.0	- 0.0	- 0.0	14 0.630
Social Studies	8 1.288	- 0.0	1 0.229	- 0.0	- 0.0	- 0.0	9 0.405
Language Arts	5 0.805	2 0.375	9 2.061	5 1.875	- 0.0	1 0.327	22 0.982
Total	14 2.254	12 2.252	13 2.977	5 1.875	0 0.0	1 0.327	45 2.017
<i>Refocusing</i>							
Science	- 0.0	2 0.376	2 0.458	4 1.500	- 0.0	- 0.0	8 0.360
Social Studies	4 0.644	3 0.562	5 1.145	3 1.125	- 0.0	1 0.327	16 0.714
Language Arts	- 0.0	3 0.562	3 0.687	- 0.0	1 1.493	2 0.654	9 0.405
Total	4 0.644	8 1.500	10 2.290	7 2.625	1 1.493	3 0.981	33 1.479

Language Arts	- 0.0	2 0.375	1 0.229	- 0.0	- 0.0	- 0.0	3 0.135
Total	0 0.0	2 0.375	1 0.229	0 0.0	0 0.0	0 0.0	3 0.135
<i>Seeking Information</i>							
Science	2 0.322	7 1.314	10 2.290	3 1.125	- 0.0	2 0.654	24 1.076
Social Studies	13 2.094	5 0.938	1 0.229	- 0.0	1 1.493	3 0.981	23 1.031
Language Arts	3 0.483	2 0.375	3 0.687	1 0.375	- 0.0	- 0.0	9 0.403
Total	18 2.899	14 2.627	14 3.206	4 1.500	1 1.493	5 1.635	56 2.510
<i>Solving</i>							
Science	- 0.0	1 0.187	1 0.229	- 0.0	- 0.0	- 0.0	2 0.090
Social Studies	1 0.161	2 0.375	2 0.458	1 0.375	- 0.0	- 0.0	6 0.270
Language Arts	- 0.0	- 0.0	0 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Total	1 0.161	3 0.562	3 0.687	1 0.375	0 0.0	0 0.0	8 0.360
<i>Specifying</i>							
Science	3 0.483	3 0.563	- 0.0	5 1.875	2 2.986	- 0.0	13 0.583
Social Studies	4 0.644	1 0.187	5 1.145	4 1.500	- 0.0	- 0.0	14 0.627
Language Arts	1 0.161	- 0.0	- 0.0	- 0.0	- 0.0	2 0.654	3 0.135
Total	8 1.288	4 0.750	5 1.145	9 3.375	2 2.986	2 0.654	30 1.345
<i>Spelling</i>							
Science	- 0.0	2 0.375	- 0.0	- 0.0	- 0.0	- 0.0	2 0.090
Social Studies	4 0.644	2 0.375	- 0.0	- 0.0	- 0.0	4 1.308	10 0.448
Language Arts	6 0.966	4 0.750	2 0.458	- 0.0	- 0.0	- 0.0	12 0.538
Total	10 1.610	8 1.500	2 0.458	0 0.0	0 0.0	4 1.308	24 1.076
<i>Suggesting</i>							
Science	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	8 2.616	8 0.360
Social Studies	2 0.322	20 3.754	10 2.290	4 1.500	- 0.0	5 1.635	41 1.836

Language Arts	1 0.161	1 0.187	- 0.0	- 0.0	1 1.493	1 0.327	4 0.180
Total	3 0.483	21 3.941	10 2.290	4 1.500	1 1.493	14 4.578	53 2.376
<i>Synthesising</i>							
Science	1 0.161	1 0.187	- 0.0	2 0.750	- 0.0	- 0.0	4 0.180
Social Studies	3 0.483	1 0.188	- 0.0	1 0.375	- 0.0	1 0.327	6 0.270
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Total	4 0.644	2 0.375	0 0.0	3 1.125	0 0.0	1 0.327	10 0.450
<i>Thanking</i>							
Science	1 0.161	- 0.0	- 0.0	- 0.0	- 0.0	1 0.327	2 0.090
Social Studies	- 0.0	1 0.187	- 0.0	- 0.0	- 0.0	5 1.635	6 0.270
Language Arts	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	2 0.654	2 0.090
Total	1 0.161	1 0.187	0 0.0	0 0.0	0 0.0	8 2.616	10 0.450
<i>Volunteering</i>							
Science	1 0.161	- 0.0	2 0.458	- 0.0	- 0.0	- 0.0	3 0.135
Social Studies	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0 0.0
Language Arts	2 0.322	1 0.187	2 0.458	- 0.0	- 0.0	- 0.0	5 0.225
Total	3 0.483	1 0.187	4 0.916	0 0.0	0 0.0	0 0.0	8 0.360
Grand Total	621 100	533 100	437 100	267 100	67 100	306 100	2231 100

TABLE 7.6
Total Frequencies and Percentages of Linguistic Functions
by Knowledge Domains

<i>Initiating Ideas/ Information</i>	Science		Social Studies		Language Arts		Total	
	N	%	N	%	N	%	N	%
Describing	8	0.92	0	0.0	46	5.28	54	6.20
Eliciting	6	0.69	1	0.11	7	0.80	14	1.60
Probing	2	0.23	11	1.26	3	0.34	16	1.83
Suggesting	8	0.92	41	4.70	4	0.46	53	6.08
Dictating	0	0.0	0	0.0	44	5.04	44	5.04
Informing	133	15.23	99	11.34	48	5.51	280	32.08
Listing	0	0.0	5	0.57	7	0.80	12	1.37
Seeking Information	24	2.75	23	2.63	9	1.03	56	6.41
Spelling	2	0.23	10	1.15	12	1.37	24	2.75
Directing	44	5.04	26	2.98	42	4.81	112	12.83
Focusing	7	0.80	13	1.49	31	3.55	51	5.84
Refocusing	8	0.92	16	1.83	9	1.03	33	3.78
Reading aloud	14	1.60	9	1.03	22	2.52	45	5.15
Requesting	2	0.23	10	1.15	5	0.57	17	1.95
Seeking Direction	0	0.0	0	0.0	3	0.34	3	0.34
Seeking Confirmation	18	2.06	22	2.52	11	1.26	51	5.84
Volunteering	3	0.34	0	0.0	5	0.57	8	0.91
<i>Total</i>	<i>279</i>	<i>31.96</i>	<i>286</i>	<i>32.76</i>	<i>308</i>	<i>35.28</i>	<i>873</i>	<i>100</i>
<i>Responding to Information/ Ideas</i>								
Arguing	1	0.08	17	1.32	4	0.31	22	1.71
Classifying	1	0.08	12	0.93	0	0.0	13	1.01
Comparing	6	0.47	5	0.39	5	0.39	16	1.25

Elaborating	11	0.85	28	2.18	8	0.62	47	3.65
Evaluating	7	0.54	20	1.55	45	3.49	72	5.58
Explaining	86	6.68	95	7.38	26	2.02	207	16.08
Generalising	12	0.93	2	0.16	1	0.08	15	1.17
Hypothesising	22	1.71	51	3.96	14	1.09	87	6.76
Solving	2	0.16	6	0.47	0	0.0	8	0.63
Synthesising	4	0.31	6	0.47	0	0.0	10	0.78
Agreeing	56	4.35	99	7.69	58	4.51	213	16.55
Amending	8	0.62	2	0.16	3	0.23	13	1.01
Checking	8	0.62	9	0.70	25	1.94	42	3.26
Completing	2	0.16	5	0.39	9	0.70	16	1.25
Concluding	10	0.78	8	0.62	5	0.39	23	1.79
Confirming	64	4.97	93	7.21	45	3.49	202	15.67
Correcting	1	0.08	6	0.47	4	0.31	11	0.86
Disagreeing	9	0.70	20	1.55	6	0.47	35	2.79
Negating	10	0.78	7	0.54	10	0.78	27	2.10
Praising	5	0.39	9	0.70	2	0.16	16	1.25
Specifying	13	1.01	14	1.09	3	0.23	30	2.33
Clarifying	3	0.23	7	0.54	12	0.93	22	1.70
Qualifying	0	0.0	0	0.0	1	0.08	1	0.08
Repeating	7	0.54	6	0.47	9	0.70	22	1.71
Seeking Clarification	39	3.03	50	3.89	28	2.18	117	9.10
<i>Total</i>	<i>387</i>	<i>30.07</i>	<i>577</i>	<i>44.83</i>	<i>323</i>	<i>25.10</i>	<i>1287</i>	<i>100</i>
<i>Maintaining Communication</i>								
Apologising	2	2.82	0	0.0	2	2.82	4	5.64
Exclaiming	2	2.82	5	7.04	0	0.0	7	9.86
Pleasing	0	0.0	1	1.14	0	0.0	1	1.14
Thanking	2	2.82	6	8.45	2	2.82	10	14.09
Incomplete Maintaining	8	11.26	4	5.63	3	4.22	15	21.11
	22	30.98	10	14.09	2	2.82	34	47.89
<i>Total</i>	<i>36</i>	<i>50.70</i>	<i>26</i>	<i>36.62</i>	<i>9</i>	<i>12.68</i>	<i>71</i>	<i>100</i>

7.6 INITIATING AND RESPONDING ROLES IN THE GROUP INTERACTION PROCESS

In order to examine THE GROUP DYNAMIC (see FIGURE 7.1) at the global level, the role dimension of the interaction was examined by classifying the roles adopted by participants in the generation and communication of ideas/information during the interaction. The initial focus was on initiating and responding roles (see 6.9) which formed the basis for later analysis of roles adopted by each individual during the interaction.

The following roles, which are presented in TABLE 7.7, were derived as a means of characterising THE GROUP DYNAMIC at the global level across the three knowledge domains.

The *Initiator Role* entailed the introduction of ideas/information. The initiator originated discussion on a particular topic with potential for development by other participants. The initiator thus provided a range of ideas/information that stimulated interaction to achieve the group task. Typical linguistic functions supporting this role include *Describing, Directing, Eliciting, Focusing, Informing, Seeking information, Seeking confirmation, Probing, Suggesting and Volunteering*.

TABLE 7.7

Initiating and Responding Roles in the Group Interaction

Roles Which Generate the Group Dynamic	Primary Role Function	Examples of Linguistic Indicators of Roles
Initiator	Introduction of ideas/information	Focusing, Informing, Seeking information, Probing, Suggesting
Follower	Following up on ideas/information initiated by participants	Clarifying, Completing, Elaborating, Explaining, Qualifying
Passive Reactor	Reacting to ideas/information passively	Agreeing, Confirming, Repeating
Critical Reactor	Reacting to ideas/information evaluatively	Amending, Arguing, Checking, Evaluating, Seeking clarification
Extrapolator	Inferring from what is known	Classifying, Comparing, Generalising, Hypothesising, Synthesising

The *Follower Role* entailed following up on ideas/information initiated through confirming or embellishing strategies. Linguistic functions typically supporting this role included *Agreeing, Clarifying, Completing, Confirming, Elaborating, Explaining, Qualifying, and Specifying*.

The Reactor Role took the form either of *critical reactor* or *passive reactor*. The critical reactor reacts to ideas/information in evaluative ways whereas the passive reactor reacts through support of ideas/information.

Linguistic functions supporting evaluative reactions included *Amending, Arguing, Checking, Clarifying, Correcting, Disagreeing, Evaluating, Explaining, Probing, Qualifying, Seeking clarification, Seeking confirmation, Specifying, and Solving*. Linguistic functions typically supporting the passive reactor role included *Agreeing, Confirming, and Repeating*.

The *Extrapolator Role* entailed inferring what is not known from what is known and reorganising ideas/information presented. The extrapolator used background knowledge and experience to speculate on and organise ideas/information presented. Linguistic functions typically supporting this role included *Classifying, Comparing, Generalising, Hypothesising, Solving and Synthesising*.

CHAPTER 8

GROUP INTERACTION AS LEARNING CONTEXT

8.1 ANALYTICAL LAYERING OF RESEARCH DATA

This chapter examines the research questions, (structured in 5.1.3) which provide a focus for analysis of the data on each dimension of the group interaction.

The three, heterogeneous, group learning sessions in this study were implemented as part of ongoing instruction in the classroom (described in 6.6) within three knowledge domains (science, social studies, language arts) of the primary school curriculum thus providing a focus for the learning and generation of group interaction derived from implementation of the group learning tasks.

Analysis of the data was designed to proceed as one might dissect an onion layer by layer. Analysis of each layer, or dimension of the interaction, at both the global and individual levels of processing in the context of ongoing interaction, focused on each individual's contributions to the interaction as the sum of his/her contributions to each dimension of the interaction.

The layers of the group interaction may be conceptualised as in FIGURE 8.1. This figure establishes the interaction context in which the participants operated and portrays an interaction link amongst all participants. The participants and their interaction are located in the context of a semantic field shaped by the group task. The layers of interaction (Linguistic Forms, Cognitive Processes, Content and Extra/Nonverbal Input), which constitute major dimensions of the group interaction, are generated by the participants during the task learning. Each dimension of the interaction represented in this

figure was examined to determine its impact on the composition of the group interaction.

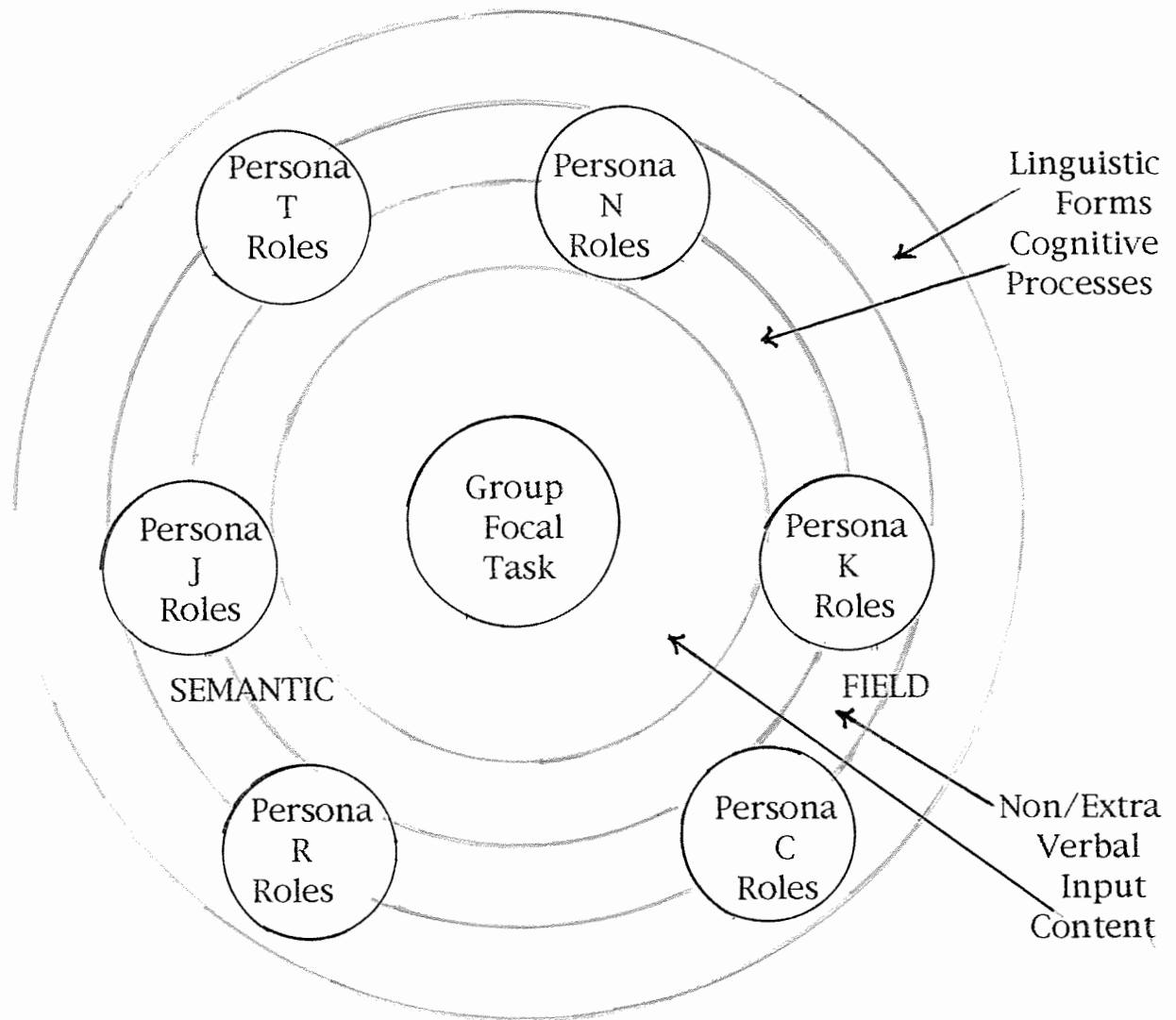


FIGURE 8.1 Major Dimensions of Group Interaction

8.2 LINGUISTIC FORMS AS GROUP LEARNING POTENTIAL

Question1

What linguistic forms do participants use in the group learning

process in collaborative, heterogeneous group contexts?

The frequencies and percentages of linguistic forms by knowledge domains are presented in TABLE 7.4 which provides data on the linguistic contributions of each participant across the three knowledge domains. It is clear from this table that, at the global level, the incidence of linguistic forms was relatively consistent across the three knowledge domain contexts sampled in the research. All participants used more statements than any other form. *Statements* and *questions* were the dominant linguistic forms regardless of discipline context and together constituted 85.84 per cent of the total linguistic contributions by participants (derived from TABLE 7.4).

The following propositions are advanced to account for this phenomenon.

- (1) *Statements reflect a linguistic form with knowledge power which, in terms of interactive leverage, permits the participant to express ideas/information and occupy a position of ongoing control of the interaction thus establishing a communicative hierarchy in the group.*
- (2) *Questions reflect a linguistic form with potential for participants to (a) gain entry to, and acceptance in, the interaction, (b) dominate and change the direction of the interaction, (c) exhibit knowledge as well as ignorance, and (d) elicit clarification and explanations re ideas/information expressed.*

The power of the use of statements across the three knowledge domains is partly explained by statements' potential to fulfil a range of linguistic functions. This potential was utilised by

participants whose use of statements included:

Comparing, Confirming, Describing, Disagreeing, Elaborating, Evaluating, Explaining, Focusing, Generalising, Hypothesising, Informing and Suggesting (TABLES 7.1, 7.2, 7.3).

The following segment of interaction consists entirely of statements.

92 Kay The camera went over. (Informing)

93 Joe I wouldn't go after it. (Informing)

94 Nola I would. (Disagreeing)

95 Kay I wouldn't go after it when I go walkabout. (Elaborating)

96 Nola It could have smashed against the tree. (Hypothesising)

(TABLE 7.3, Language Arts)

In this interaction, the participants are discussing an incident in the story, informing others what they would do in that situation and ends with Nola speculating on what could have happened to the camera. This example demonstrates the capability of the use of statements for expressing ideas/information and how participants sustained this segment of interaction solely through their use.

The power of the use of statements is further illustrated by the following segment of interaction which consists entirely of statements except for one question which is in statement form. This segment demonstrates Nola's and Kay's control of the interaction through the use of statements.

100 Nola Special cereals and things.

101 Kay They used to have food in tubes.

102 Nola They're not allowed any food.

103 Kay They're allowed to have any food now. They're even allowed food because it was on that packet we saw.

104 Nola No it wasn't. They have special food in that.

105 *Kay* In those packets?

106 *Nola* Yeh. It just wasn't in that.

107 *Kay* It's like a Chinese packet.

108 *Nola* And when you cook it up, it just tastes like real food like I make. (TABLE 7.1, Science)

This interaction between Nola and Kay provided an opportunity for them to examine the concept of "food for astronauts" by initiating, and responding to, ideas/information on this topic/theme. Their interaction included agreeing, disagreeing, comparing, confirming, informing and seeking clarification thus demonstrating the power of statements to generate a range of linguistic functions to sustain the interaction. This example also demonstrates how Nola and Kay controlled this segment of interaction via statements as other participants listened.

It is concluded from these data that statements were a dominant linguistic form used by participants to contribute to the group interaction. By using language that was mainly statement in form, participants, initiated, and responded to, ideas/information and, at times, controlled the interaction through their use thus supporting Proposition (1). This finding raises the question of what cognitive processes are generated by statements and how they impact on the group interaction to be considered in the next layer of discussion.

The extensive use of questions by participants was also partly derived from their potential for fulfilling a range of interactional functions which included:

(a) seeking clarification: 194 *Kay* People or workers?

195 *Nola* People. (TABLE 7.2, Social Studies)

(b) seeking information: 73 *Rod* What was that thing they went in?

74 *Nola* A non-gravity room. (TABLE 7.1, Science)

(c) seeking confirmation: 428 *Kay* Get lots of air supplies?

429 *Rod* Yes.

430 *Kay* Get a number of air supplies? Get heaps of air supplies?

(TABLE 7.1, Science)

Questions were also used to elicit additional responses e.g.,

(d) 191 *Rod* Any other ideas?

192 *Kay* Get used to that net. You know that net when we came forward to it. (TABLE 7.1, Science)

The use of questions thus impacted on the group interaction by participants using them to seek guidance, to seek information and to clarify and confirm their thinking about ideas/information presented. Seeking information and clarification of ideas/information also provided participants opportunities for entry to the interaction. These findings support Proposition (2).

The use of statements and questions in combination, illustrated by the above examples, thus permitted participants to occupy positions of control over the group interaction at the linguistic level. With the potential of statements and questions in mind, the quality of group interaction may be enhanced by participants using clearly expressed statements and well structured, relevant questions respectively to express, and clarify and confirm ideas/information.

Although statements and questions were the dominant linguistic forms used, imperatives and incomplete utterances were respectively the next most extensively used forms (TABLE 7.4). The following propositions are advanced from these findings.

(3) *The structure of imperatives as a linguistic form permits the utterer to assume a position of control by directing events and controlling the actions of participants.*

(4) *Incomplete utterances reflect a linguistic form that indicates the participant's (a) presentation of unclear ideas, (b) monitoring of ideas/information and (c) interruption by other participants.*

Examination of TABLES 7.1, 7.2, 7.3 indicates that the main impact on the group interaction from the use of imperatives, at the linguistic level, was their being used by participants to direct individuals in achieving group tasks and fulfilling group roles during ongoing interaction e.g.,

391 *Rod* Nola pass the sheet I want to do that form.

392 *Nola* Use this Rod. It is already ruled up for you. (TABLE 7.3, Language Arts)

During this interaction, Rod is trying to get on with the task and Nola is facilitating his efforts by offering the prepared sheet.

The use of imperatives occurred across the three knowledge domains (Science, 38; Social Studies, 24; Language Arts, 40, TABLE 7.4) as a result of participants assuming a directing role thus influencing the implementation of the group task via directions to individuals.

In some cases, incomplete utterances occurred because the participant was interrupted before completing what he/she wanted to say e.g.,

76 *Rod* It's something that kids don't usually do.

77 *Nola* Like riding in a helicopter and breaking an ankle. There were a few other things.

78 *Con* It would be an experience for all of them because they-

79 *Kay* What about Fred?

80 *Con* Fred?

81 *Kay* What was the experience for him? (TABLE 7.3, Language Arts)

During this interaction, participants are discussing the story plot and focus on the experiences the children had. In this context, Kay draws attention to Fred (the adult in the party) by interrupting the flow of interaction. It appears that Kay's keenness to include Fred resulted in her interrupting Con thus demonstrating how and why incomplete utterances occur.

In other cases, incomplete utterances resulted from the individual's monitoring his/her ideas e.g.,

80 *Rod* What do they do?

81 *Con* They practise emergency escape from the um-

82 *Nola* They do their training in water in pools and things. (TABLE 7.1, Science)

In the above examples, incomplete utterances prevented the clear expression of participants' interpretations thus interrupting a free flow of ideas. Therefore, incomplete utterances, resulting from both interruptions and monitoring processes, created interaction situations in which the flow of ideas was interrupted. Interruptions may be avoided by participants listening carefully to individuals and allowing them to finish what they have to say thus demonstrating the importance of listening in the group process.

With reference to Question 1, all linguistic forms used by participants influenced the pattern of group interaction in the three knowledge domains examined, however, this pattern was shaped extensively by the dominant use of statements, questions,

imperatives and incomplete utterances which together constituted 93.77 per cent of the linguistic contributions (derived from TABLE 7.6). These linguistic forms, particularly statements and questions, were used by participants to generate interaction at the linguistic level thus providing potential for conveying ideas/information in the group communication process. As demonstrated, at times, active participants used statements to control the interaction by initiating and responding to ideas/information and questions to clarify their thinking on ideas/information expressed. It is concluded from this analysis that *statements, questions and imperatives, in that order, are core linguistic forms generated in the contexts examined.*

The propositions on linguistic forms were tested further by examining the data presented in TABLE 7.4 at the individual level of analysis.

8.2.1 Group Interaction: Linguistic Contributions at the Individual Level

It is clear from TABLE 7.4 that Nola contributed most linguistic forms during the interaction across the three knowledge domains. Statements constituted 74.72 per cent of her linguistic contributions and questions constituted 12.56 per cent of her linguistic contributions (derived from TABLE, 7.4). This high level of involvement at the linguistic level placed her in a position of potential control of the interaction by providing opportunities to present, and react to, information/ideas.

Although statements were used most frequently, Nola used the whole range of linguistic forms recorded in this study which demonstrates versatility in the use of linguistic forms. She exhibited potential to influence the group interaction via her volume of contributions and extensive range of linguistic forms

which included statements with evaluative functions e.g.,

(a) 71 *Nola* Well I thought it was done well because it was an interesting story. It didn't make you want to put it down. (TABLE 7.4, Language Arts) and statements with comparing functions e.g.,

(b) 124 *Rod* It was set on a mountain.

!25 *Nola* Just like Mount Speck at Paluma. (Table 7.3, Language Arts)

As Nola was the second highest contributor of questions, (the teacher was the highest) (TABLE 7.4) she also exhibited characteristics of a potential seeker of information and clarification of ideas. Consequently, her volume of contributions via statements and questions at the linguistic level placed her in potential positions for presenting ideas/information and seeking information and clarification of ideas during the interaction. Her volume of contributions and exercise of control at the linguistic level, at times, placed her in a leadership role characterised by her potential for influencing ideas/information articulated.

In terms of linguistic frequencies (TABLE 7.4) Kay was the second highest linguistic contributor in the group. Statements constituted 70.36 per cent of her linguistic contributions and questions constituted 14.45 per cent of her linguistic contributions (derived from TABLE 7.4). This high level of involvement also placed her in a position of control, at times, of the interaction at the linguistic level.

Although statements were the predominant linguistic form, Kay also used the whole range of linguistic forms recorded in this study which showed her versatility in the use of linguistic forms. Her predominant use of statements also placed her in a position of potential knowledge control for contributing extensively to the interaction by initiating ideas/information and responding to

ideas/information presented by other participants.

As she was the third highest contributor of questions, she exhibited characteristics of a participant with potential for seeking information and clarification of ideas. Her high level of participation also placed her in a similar leadership role to Nola's at the linguistic level with potential for influencing the ideas/information expressed. At times, these two participants exercised control by interacting with each other on a particular issue while the rest of the group listened e.g.,

127 *Nola* Some of them would have cars and things.

128 *Kay* Rich ones would have cars.

129 *Nola* No not necessarily.

130 *Kay* Not all of them.

131 *Nola* I didn't say they did. (TABLE 7.2, Social Studies)

During this interaction Nola and Kay are discussing transport and are expressing their individual ideas on this topic by arguing their cases. This interaction also demonstrates how each of these individuals strives to assert knowledge control of the discussion which, at times, occurs during their face-to-face interactions.

Through their high volume of linguistic contributions and endeavours to control the interaction, both of these participants displayed similar characteristics as participants. The combined linguistic contributions of Nola and Kay constituted 51.73 per cent of the total linguistic interaction (derived from TABLE 7.4). This finding, combined with their predominant use of statements and questions, indicate that these two participants had periods of control of the group interaction at the linguistic level with potential for influencing the ideas/information expressed.

In terms of linguistic frequencies Rod was the third highest contributor in the group. Statements constituted 69.79 per cent of his linguistic contributions and questions constituted 12.36 per cent of his linguistic contributions (derived from TABLE 7.4). Although he did not contribute linguistically to the interaction as extensively as Nola and Kay, he did contribute across the three knowledge domains which demonstrates his willingness to participate at all times.

Rod used more imperatives than any other participant (TABLE 7.4) which indicates his exercising a position of control, at times, by directing participants and controlling events e.g.,

98 *Rod* When you've finished Con, read what you've got so far.
(TABLE 7.3, Language Arts)

Rod's directions, which were across the three knowledge domains, were primarily associated with the task strategy and were not directed at ideas expressed by individuals.

In terms of volume of linguistic interaction, the Teacher and Con respectively contributed 13.72 per cent and 11.97 per cent of the total linguistic contributions (derived from TABLE 7.4). Statements, which constituted 82.77 per cent of Con's contributions, were his dominant linguistic form (derived from TABLE 7.4) and included his using them for agreeing and explaining e.g.,

85 *Kay* They probably have flying lessons too.

86 *Con* Yes and they go in those things that spin around in case they go orbital. (TABLE 7.1, Science)

The Teacher was present only part of the time and an extensive part of his interaction occurred at the introduction of the group task. His most used linguistic forms were statements and questions in that order with the highest number of questions (26.84 per cent

of the total questions asked) in the group (derived from TABLE 7.4). The teacher included the use of check questions re the task strategy e.g.,

220 *Teacher* Have you got anything else to do in your task?
(TABLE 7.1, Science)

The Teacher shared with Kay the second highest number of imperatives used which included directing participants in the task strategy e.g.,

11 *Teacher* Make sure you speak clearly so that I can hear you.
(TABLE 7.1, Science)

The Teacher's use of questions and imperatives combined, indicates that, at times, he occupied a position with potential for eliciting responses from participants to extend their task analysis and direct their activities to facilitate the task strategy.

Joe contributed only three per cent of the total volume of linguistic interaction and used only five of the nine linguistic forms recorded (derived from TABLE 7.4). Statements, which constituted 80.09 per cent of his linguistic contributions, were his predominant linguistic form (derived from TABLE 7.4). Joe's statements included initiating ideas/information e.g.,

41 *Kay* Yeh and then they get then they get special things.

42 *Joe* They take them up in a plane and they have to go in the water. (TABLE 7.1, Science)

Examination of TABLES 7.1, 7.2, 7.3 shows that comparatively long segments of interaction occurred without his contributing which cast him in a follower role. However, his contributions did include his correcting ideas/information presented which indicates that he was listening to and following the interaction e.g.,

517 *Nola* Why underwater?

518 *Joe* Underground.

519 *Nola* I mean underground. (TABLE 7.2, Social Studies)

With reference to Question 1, the data on linguistic forms (TABLES 7.1, 7.2, 7.3, 7.4) provide evidence of each participant's linguistic contributions and indicates his/her volume of engagement in interaction at the linguistic level for the three knowledge domains. This level of interaction was dominated by the participants' use of statements and questions which, at times, placed the utterers in positions of control of the interaction.

Communication within the group context is dependent, to some extent, on the language used by participants. With reference to the question of quality versus quantity of group interaction, the group learning sessions provided (a) potential for language development by providing opportunities for participants to select and use a range of linguistic forms to communicate their messages and (b) a context with communicative potential for selecting and using cognitive processes which were analysed as the next layer of the group interaction.

8.3 LINGUISTIC FUNCTIONS AS GROUP LEARNING PROCESSES

Question 2

What evidence does participants' use of language provide of the use of cognitive processes in the group learning process in collaborative, heterogeneous group contexts?

8.3.1 Knowledge Domains: Contexts for Thinking Processes

The cognitive dimension of the group interaction was analysed in the context of the processes of the three knowledge domains of the Primary School Curriculum. The focal processes of the three

syllabuses are expressed in TABLE 8.1. Details on these processes may be found in APPENDIX L. These processes were derived and incorporated in the Social Studies and Science Source Books and The Language Arts Curriculum Guide by the respective syllabus committees after input was sought and had been received from curriculum committees and classroom teachers, and appropriate trialling procedures had been carried out.

Teachers normally incorporate the curriculum processes in instruction by implementing classroom activities that focus on particular processes. The group structure adopted in this study (described in 5.4.6), which includes task guidelines, allows students to structure their own learning by adopting their own methods for achieving the group task rather than focusing on particular curriculum learning processes. Consequently, this structure provides a context for analysing the learning processes generated by participants during the group interaction. In order to achieve this, the data on cognitive processes were analysed.

The segmented interaction which includes descriptions of cognitive functions, cognitive strategies and linguistic functions is presented in TABLES 7.1, 7.2, 7.3. The frequencies of linguistic functions by knowledge domains are presented in TABLE 7.5. Examination of these data provided a focus on the cognitive dimension of the interaction inferred from the linguistic contributions (discussed in 8.2) used by participants across the three knowledge domains.

8.3.2 Group Interaction as Group Learning Process

TABLES 7.1, 7.2, 7.3 present the participants' linguistic contributions to the group interaction as *conversation units* (segmented into messages) and their cognitive contributions as *cognitive strategies and cognitive functions* (described in 5.4.10) at

TABLE 8.1 Knowledge Domain Learning Processes		
SCIENCE	SOCIAL STUDIES	LANGUAGE ARTS
Observing	Comparing	Decision making
Communicating	Classifying	Problem solving
Inferring	Imagining	Critical Appreciation
Classifying	Inferring	Strategic planning
Measuring	Hypothesising	
Using numbers	Generalising	
Predicting		
Using space/time relationships		
Interpreting data		
Defining operationally		
Controlling variables		
Hypothesising		
Experimenting		

the global level. That is, the group interaction was partly structured by each participant's cognitive contributions which served to sustain the interaction.

The cognitive strategies included: (a) *focusing strategies* typically including describing, informing, focusing, seeking information and suggesting; (b) *elaborating strategies* typically including elaborating, explaining, hypothesising and synthesising; (c) *evaluating strategies* typically including agreeing, evaluating, seeking confirmation and qualifying; (d) *maintaining interaction strategies* typically including praising, repeating, and thanking; (e) *guiding strategies* typically including correcting, dictating, directing, reading aloud and spelling. From this broad perspective, the data were analysed in detail to determine the impact of the cognitive processes on the group interaction.

In the context of the research questions, the following proposition was advanced for this analysis:

In collaborative, heterogeneous group contexts, the group interaction is structured by the context created by the group task, the cognitive processes generated via participants' linguistic contributions and ideas/information communicated by participants.

The following segment of interaction is an example of three conversation units included in interaction on the theme/topic of "housing requirements" with the inferred cognitive descriptions in italics.

48 Kay Well how are the families going to live in the houses if there is no furniture? *Requests clarification* on living conditions.

49 Rod They'd share it. *Proffers a solution* to Kay's question.

50 *Nola* All different houses are built in all different sizes.
Elaborates on requirements for housing. (TABLE 7.2, Social Studies)

This short segment of interaction involves three participants and incorporates the linguistic contributions and three different cognitive processes by the respective participants, at the global level, thus illustrating analysis of the interaction at both linguistic and cognitive levels. In addition to the cognitive processes inferred and described above, each conversation unit contains the ideas/information drawn from the participant's knowledge structure. These ideas constitute the content or knowledge structure of the conversation unit. That is, *group interaction may be viewed from a linguistic dimension, (examined in 8.2,) a cognitive dimension and content or knowledge structure dimension.*

In order to analyse the interaction at the cognitive level in detail, the segmented messages (shown in TABLES 7.1, 7.1, 7.3) were examined. This entailed examination of the *primary* linguistic functions of the linguistic forms used in context (described in 6.9). That is, *linguistic functions described the cognitive processes generated by participants to express ideas/information thus describing the cognitive dimension of each message communicated via a linguistic form.* To this extent, the nature of the group interaction is partly determined by the language used, the embedded cognitive processes and the ideas/information expressed via linguistic forms and linguistic functions. As these three dimensions of the interaction are structured to achieve the group tasks in the knowledge domains examined, *group interaction is perceived as the group learning process into which participants tap via their individual interpretations and contributions.*

As the linguistic functions contributed to the group learning

process, their uses across the three knowledge domains, at both the global level and individual level, were analysed. TABLE 7.5 presents the frequencies of linguistic functions which provide data for this analysis by presenting totals of linguistic functions generated via messages communicated by each individual across the three knowledge domains.

8.3.3 Linguistic Functions as Cognitive Processes

At the global level, TABLE 7.5 indicates that there were both variation and commonality of usage of linguistic functions across the three knowledge domains, illustrated respectively in the following: (a) Evaluating (science, 7; social studies, 20; language arts, 45); (b) Negating (science, 10; social studies, 7; language arts 10). However, there were a number of predominant functions used across the three domains which are included in the following interactions.

(a) Informing: 42 *Joe* They take them up in a plane and they have to go in the water. (TABLE 7.1, Science)

(b) Agreeing: 251 *Nola* This is only going to be here for fifteen years or something.

252 *Kay* Yeh. (TABLE 7.2, Social Studies)

(c) Explaining: 82 *Nola* They do their training in the water in pools and things.

83 *Kay* Because of its weightlessness. (TABLE 7.1, Science)

(d) Confirming: 61 *Nola* Okay so bedding.

62 *Kay* So bedding. (TABLE 7.2, Social Studies)

(e) Seeking Clarification: 108 *Rod* Do you have to write about all

this here setting , plot? (TABLE 7.3, Language Arts)

Informing, Agreeing, Explaining, Confirming and Seeking Clarification were the five most frequently used functions, in that order, and together constituted 45.67 per cent of the cognitive contributions across knowledge domains (derived from TABLE 7.5). The high frequency of use of these functions provided opportunities for participants to contribute to the interaction and placed them in positions of control of the interaction by their:

- (a) initiating ideas/information (Informing);
- (b) expressing support for ideas/information presented (Agreeing);
- (c) interpreting ideas/information (Explaining);
- (d) verifying and reinforcing ideas (Confirming) and
- (e) seeking explanations re task and/or ideas/information (Seeking Clarification).

The following segment of interaction illustrates how Informing, Agreeing, Confirming and Explaining were used in context by participants to contribute to the interaction related to electricity and appliances.

77 *Kay* Fans, electricity.

78 *Rod* Yeh.

79 *Con* Power lines.

80 *Rod* Yeh power lines.

81 *Con* Lights.

82 *Kay* With electricity you need to get the fans to work. (TABLE 7.2) Social Studies)

This segment of interaction goes beyond listing ideas. Through their contributions incorporating a range of cognitive processes, participants provided a context for initiating and responding to ideas/information thus developing the concept of electricity by

suggesting a range of associated ideas/information. In this case, the items considered were contributed by the three participants.

Directing, Hypothesising, Evaluating, Seeking Information and Describing were also used extensively by participants and together constituted 17.08 per cent (derived from TABLE 7.5) of the cognitive contributions across knowledge domains. The use of these functions distinguish them as functions which place participants in positions with opportunities for:

(a) giving instructions re task strategy (Directing), e.g.,¹⁷ *Rod* Just write them down. (TABLE 7.3, Language Arts);

(b) using knowledge structures from which to speculate re ideas/information (Hypothesising), e.g.,

188 *Rod* Where there's one diamond there's sure to be more. (TABLE 7.2, Social Studies).

(c) making judgements re ideas/information presented (Evaluating), e.g.,⁴⁷ *Kay* I like the way it was written. (TABLE 7.3, Language Arts).

(d) seeking information re task strategy and/or ideas/information presented (Seeking Information) e.g.,

25 *Kay* How many astronauts were there? (TABLE 7.1, Science)

(e) recounting events (Describing) e.g.,

168 *Nola* They went up the hill. They went down the hill. (TABLE 7.3, Language Arts)

The following examples respectively illustrate participants' formulating hypotheses and evaluating in context.

(a) 46 *Rod* Weightlessness then what do they do?

47 *Kay* Then they probably go up in an aeroplane and drop them down in the water 'cause it gets them used to weightlessness or go in a special machine. (TABLE 7.1, Science)

In this example, participants are exploring activities related to training for weightlessness. In this context, Kay demonstrates willingness to draw from her knowledge of this concept to speculate on appropriate activities.

(b) 116 *Con* Know your way around in the shuttle.

117 *Kay* That's another one. That one would be close to last. Um get used to the shuttle.

118 *Con* Get used to parts of the shuttle. Learn how to go through parts of the shuttle. (TABLE 7.1, Science)

The interaction regarding the "shuttle" in this example demonstrates participants' willingness to inform, evaluate and specify. In this case, Kay evaluates Con's contribution in respect to its location in the list of items to be considered to complete the group task and Con specifies aspects of shuttle familiarity.

The data from group contexts (TABLE 7.5) indicate that there was an extensive range (forty-eight) of linguistic functions generated through the group interaction. Importantly, in the contexts examined, these processes were spontaneously generated by participants during the group interaction.

With reference to the proposition advanced for consideration, the group contexts, constituted basically by the group task and the participants, generated a range of cognitive processes, which included core processes, essential for achieving the group task. In

these contexts, participants' contributions were based on their individual interpretations, in context, thus determining the shape of the interaction.

With reference to Question 2, it is concluded, from the volume and variation of linguistic functions generated from the contexts examined, that the group interaction generated a range of cognitive processes through which participants initiated and responded to ideas/information and thus introduced concepts related to the knowledge domains from which the group task was drawn.

Within this range of learning processes generated, there were twelve predominant functions together constituting 67.32 per cent of the group interaction. This indicates that there was a core of linguistic functions used by participants across the three knowledge domains examined. *It may be inferred that the interaction in collaborative, heterogeneous group contexts, for learning in the knowledge domains of the curriculum, generates a core of learning processes essential for learning in those domains.*

The suggested core learning processes, in order of frequency, derived from the data (TABLE 7.5) are: Informing, Agreeing, Explaining, Confirming, Seeking clarification, Directing, Hypothesising, Evaluating, Seeking information, Describing, Focusing, and Seeking confirmation.

Within the circumstances of variety and essence, it is important to take account of context in the determination of cognitive processes essential for learning the knowledge domains of the curriculum. The data indicate that particular knowledge domains generated more, particular cognitive processes than other knowledge domains e.g., *Describing* (Language Arts, 46; Science, 8; Social Studies, 0; TABLE

7.5) which implies that particular contexts generate context-specific cognitive processes thus impacting on the group learning by establishing context-specific, linguistic functions.

In order to analyse the cognitive dimension of the interaction further, the data were examined to determine each participant's contributions to the group interaction.

8.3.4 Linguistic Functions as Individual Contributions to the Group Learning Process

The frequency of participation in order by individuals was shown in 8.2.2 (Nola, Kay, Rod, Teacher, Con, Joe). Therefore, the nature of their contributions was examined by analysing each participant's contributions for cognitive processes expressed as linguistic functions. This entailed analysis of linguistic frequencies across the three knowledge domains presented in TABLE 7.5.

Nola and Kay together contributed 51.73 per cent (derived from TABLE 7.5) of the linguistic functions used in the group discussion across the three knowledge domains demonstrating their high level of involvement and extensive use of learning processes. This level of involvement provided opportunities for them to initiate and respond to ideas/information and marked them as discussion leaders in the three contexts.

The most frequent linguistic functions generated by Nola in order were Agreeing, Confirming, Informing, Explaining and Dictating which together constituted 45.09 per cent of her cognitive contributions (derived from TABLE 7.5). The most frequent linguistic functions engaged in by Kay in order were Informing, Explaining, Confirming, Agreeing and Seeking clarification which together constituted 47.47 per cent (derived from TABLE 7.5) of her

cognitive contributions.

These findings in combination indicated that Nola and Kay led the interaction by (a) expressing support for ideas/information presented (agreeing), (b) reinforcing and verifying ideas/information expressed by others (confirming), (c) showing leadership by dictating ideas/information (dictating), (d) interpreting ideas/information presented (explaining), (e) initiating ideas/information (informing), and (f) seeking clarification of ideas presented. Their interactions also provided a source of ideas/information to which other participants could respond. Hence, they exercised positions of control in the interaction through the volume of their interactions and extensive range of ideas/information, generated by them. This control is also demonstrated, at times, by their extended interaction with each other while other participants listened e.g.,

230 *Kay* They'd make things at Helen's Town so they've got to send them down so they would get contact with Helen's Town to tell them about the very things that started there.

231 *Nola* Not necessarily. They could just go up. It's not that far away. They could just drive in every time they wanted something like by car.

232 *Kay* They could get a big shipment of things.

233 *Nola* Why would they need big shipments of things?

234 *Kay* Families need things.

235 *Nola* What else do people need?

236 *Kay* Shelter. (TABLE 7.2, Social Studies)

Nola and Kay in combination also demonstrated willingness to formulate hypotheses, suggest ideas, evaluate other participants' ideas, and seek information and confirmation of ideas. Their contributions impacted on the composition of the group interaction

by initiating and developing ideas/information which introduced concepts relevant to the group task via a range of cognitive processes which included core processes in context.

In terms of frequency of contributions, Rod did not contribute as extensively as either Nola or Kay, however, he did contribute to the discussion across the three knowledge domains. The most frequent linguistic functions generated by him in order were Informing, Agreeing, Directing, Confirming and Explaining which together constituted 46.68 per cent (derived from TABLE 7.5) of his cognitive contributions. His frequent use of these functions marked him as a contributor who impacted on the shape of the interaction by (a) initiating ideas/information, (b) expressing support for ideas/information presented, (c) giving directions, (d) reinforcing and verifying ideas/information presented and (e) interpreting ideas/information presented. Rod also formulated hypotheses, applied descriptions, focused on ideas/information, sought clarification and confirmation of ideas/information and elaborated on ideas/information presented which contributed to the task analysis.

In his interactions, he demonstrated an eagerness to focus on and complete the task strategy e.g.,

(a) 63 *Rod* That's about it. Any others?

(b) 98 *Rod* When you've finished Con, read what you've got so far.

(TABLE 7.3, Language Arts)

Although he did not demonstrate the leadership qualities characterised by volume of contributions and control of the interaction shown by Nola and Kay, the volume of his contributions and the use of imperatives across the three knowledge domains reflected an "Overseeing Role" characterised by his eagerness to

focus on and complete the task. Thus, at key times, his contributions impacted on the composition of the interaction by (a) generating a range of cognitive processes, including core processes, that incorporated a range of ideas/information in the task analysis, and (b) his focusing on the task strategy.

The most frequent cognitive processes generated by the Teacher in order were Explaining, Seeking Clarification, Informing, Confirming and Directing which constituted 44.77 per cent of his cognitive contributions (derived from TABLE 7.5).

The following segments of interaction illustrate the Teacher's seeking clarification and encouraging participants to focus on the task strategy.

(1) 240 *Teacher* What are you going to do put it in-?

241 *Joe* Separate columns.

242 *Teacher* In separate columns? First and last did you say?

243 *Rod* The order.

244 *Teacher* So you want the order now? Right? What are you going to do? Read them Out? (TABLE 7.1, Science)

(2) 3 *Teacher* Study it carefully to make sure that what you do this morning is what you are asked to do on the sheet. (TABLE 7.2, Social Studies)

Through his persistent seeking clarification in (1) and directions in (2), the Teacher focused the participants' attention on the format of the task strategy.

His contributions, which included evaluating contributions made by participants, suggesting ideas/information, seeking confirmation of ideas/information presented, and checking participants' completion of task activities, reflected "Overseeing" and "Quality Controller"

Roles characterised by his continually focusing the participants' attention on task requirements. In these roles, he used more eliciting questions than any other participant and was the only participant to offer praise and generate probing questions e.g.,

11 *Teacher* That was nicely read Nola. Any questions on your task? (TABLE 7.2, Social Studies)

At key times, the Teacher's contributions impacted on the composition of the group interaction by (a) focusing participants' attention on the task strategy by checking their progress through questions, (b) encouraging participants to contribute to the interaction by praising their efforts, (c) eliciting ideas/information to initiate and develop concepts through questions and (d) providing ideas/information when requested by the participants.

Con and Joe together contributed only 14.97 per cent of the total linguistic functions (derived from TABLE 7.5). The least volume of contributions was generated by Joe. Con's most extensive contributions in order of frequency were Informing, Agreeing, Confirming, Explaining and Directing which together constituted 59.93 per cent (derived from TABLE 7.5) of his cognitive contributions. Joe's most extensive contributions in order were Informing, Explaining, Agreeing, Completing and Hypothesising which together constituted 61.19 per cent (derived from TABLE 7.5) of his cognitive contributions.

Con's most frequent generation of Informing processes indicated his willingness to initiate ideas/information, however, his frequent generation of Agreeing and Confirming processes which together constituted 26.22 per cent of his interactions (derived from TABLE 7.5) indicated a high level of supporting and reinforcing ideas/information expressed by other participants. Less frequently,

he did indicate willingness to interpret ideas/information, to give directions, to infer ideas/information and to synthesise ideas.

Joe's, and to a lesser extent Con's, limited volume of contributions often reflected "Listener" and "Follower" Roles characterised, at times, by a tendency to wait for other participants to initiate ideas. However, both of these participants contributed to the group interaction across the three knowledge domains as it evolved by (a) generating a range of processes for the task analysis, (b) initiating and reacting to ideas/information presented and (c) following the interaction and supporting ideas/information presented by other participants.

8.3.5 A Profile of Group Interaction

With reference to Research Question 2, all participants contributed to the group interaction across the three knowledge domains by (a) generating a range of learning processes including core learning processes, (b) presenting ideas/information derived from their individual knowledge structures and (c) reacting to ideas/information presented. Consequently, their contributions shaped the analysis of the group task and impacted on the composition of the group interaction through the generation of a range of cognitive processes and diverse ideas/information.

The group interaction, resulting from implementation of the group tasks, thus provided a forum that generated a wide range of cognitive processes, including core processes, from the spontaneous interactions of the participants. Consequently, these processes included many of the essential learning processes (TABLE, 8.1) presented in the syllabuses of the three knowledge domains examined.

TABLE 8.2 presents each participants' frequencies of linguistic/cognitive contributions for each knowledge domain and percentages of his/her total interaction across the three knowledge domains.

TABLE 8.2 Participants' Frequencies of Contributions						
Participant	% of Total Interaction	Academic Rating	Linguistic/Cognitive Contributions			
			Science	Social Studies	Language Arts	Total
Nola	27.83	Above Av.	082	294	245	621
Kay	23.89	Average	222	208	103	533
Rod	19.59	Average	160	136	141	437
Teacher	13.72	-----	086	132	088	306
Con	11.97	Above Av.	123	096	048	267
Joe	03.00	Below Av.	030	022	015	067

The following conclusions are drawn from TABLE 8.2.

(1) The two females made most contributions to the interaction. Nola, who contributed the highest percentage of the interaction, was the above-average female. However, Kay who made the second highest volume of contributions, was an average student. These factors combined indicate that gender is an important variable to consider in respect to volume of contributions and needs to be considered by the classroom teacher in the composition of collaborative, heterogeneous groups.

(2) The importance of gender versus ability is exemplified by Con, an above average student, who made the second lowest volume of contributions. Although the sample was small, the data indicate that gender is a more significant factor than ability in determining the volume of contributions by participants in collaborative,

heterogeneous group contexts.

(3) Nola had the highest volume of contributions in social studies and language arts but not in science in which she was the second lowest contributor. Each other participant (except the Teacher) made more contributions to the science interaction compared with social studies and language arts. Kay, Con and Joe contributed least in language arts and Con contributed almost as much in science as he did in social studies and language arts combined.

These findings appear to indicate that two other variables, besides gender and ability, that influence the volume of interaction by individuals are (a) interest in the group task by them and (b) their knowledge of the group task. An important implication from this finding is the need for teachers and students to plan group learning that will generate interesting and challenging interaction by all participants to achieve the group task.

(4) Taking into account that the Teacher (a) had a teacher-participant role rather than a student-participant role, (b) was a participant for only part of the time and (c) made most of contributions at the introductory stages of the discussion to guide students in the task, it is concluded that he had some influence on the composition of the group interaction. However, he did not try to take control of the discussion from the students.

Although teachers have a role in group learning, there is a need for them to monitor their roles in the context of collaborative, heterogeneous learning to ensure students have adequate opportunity to structure their own learning in these contexts.

(5) Joe, a below-average student, contributed the least in all

knowledge domains but did contribute to the interaction across the three disciplines with least contributions in language arts. It is concluded that below-average students are able to contribute to collaborative, heterogeneous group learning.

The analysis of data at this stage continues to raise the question of quality versus quantity of the group interaction. With reference to this question within this layer of discussion, it is argued that the quality of the interaction was enhanced by the wide range of cognitive processes generated in the group contexts and, particularly, by processes which provided: (a) opportunities for participants to analyse and synthesise ideas; (b) feedback to participants via a range of evaluative responses; (c) opportunities for participants to engage in inferential thinking. That is, the group interaction provided a learning context that generated cognitive processes derived from each individual's knowledge structure thus providing for collaboration and the sharing of ideas/information. Through the generation of these processes in the group learning, participants initiated and responded to ideas/information thus forming the semantic field of the group task derived from their own knowledge structures. Consequently, the semantic field and the group learning were shaped by the participants' contributions in context.

Before drawing final conclusions in respect to the question of quality of interaction, the content communicated via the language and cognitive processes during the group interaction, was analysed as the next layer of discussion.

8.4 CONTEXTUAL FRAMES; CONTENT OF GROUP INTERACTION

Question 3

What are the roles of interaction segments and contextual frames

in the articulation of content in collaborative, heterogeneous group contexts?

Analysis of the content dimension of participants' interactions was achieved by detailed examination of the *interaction segments* and the *contextual frames* (described in 5.4.10) established across the three knowledge domains sampled (presented in TABLES 7.1, 7.2, 7.3). These two aspects of the interaction described the content respectively at a general level and a focused level of detail. The following proposition was formulated to explore these levels of content.

The content of the interaction in heterogeneous, group contexts is composed of themes/topics and contextual frames generated by the group task and drawn from the group participants' knowledge structures.

8.4.1 Interaction Segments and Contextual Frames as Knowledge Structures

While completing the group learning task, participants initiated and responded to ideas/information on themes/topics they perceived as relevant to it. The resultant, broad conceptual framework, or macro knowledge structures (segmented as interaction segments, TABLES 7.1, 7.2, 7.3), incorporated initiation and discussion of concepts related to the theme/topic being considered. For example, during the interaction on the social studies task, the group discussed the macro knowledge structure of "transport" and incorporated in this discussion the concepts of transport, buses and trains, suburban train, roads, signposts, dirt roads, bitumen roads and time of bus trip (TABLE 7.2, Social Studies, 94-106).

The focused and contextualised ideas/information or concepts, incorporated within interaction segments were segmented as

contextual frames (TABLES 7.1, 7.2, 7.3). Thus the macro structure of a theme/topic is perceived as a semantic constituent of related concepts within the broader semantic field generated by the group task.

The following is an example of interaction that exemplifies the establishment of the theme/topic of “Food for animals” that includes a group of related ideas/information expressed as contextual frames by the participants as they analyse this theme/topic. The contextual frames established during the discussion are in brackets.

- 491 *Rod* You need food for animals. (Food for animals)
492 *Con* Yeh for the stock. (Food for stock)
493 *Nola* Animal foods then you need food containers for them.
(Animal foods and food containers)
494 *Rod* You need big half things. (Food containers)
495 *Nola* Yeh drinking- (Rod’s ideas)
496 *Con* Troughs. (Nola’s idea)
497 *Kay* Actually there is half a thing for them. It’s a kind of acid.
(Half a thing)
498 *Nola* How do you spell “troughs” t-r-o-o? (Spelling “troughs”)
499 *Kay* t-r-o-g-h. (Spelling “trough”)
500 *Nola* t-r-o-g-h-s. Are you sure? (Spelling “troughs”)
(TABLE 7.2, Social Studies)

This segment of interaction has input from four of the participants who established individual contextual frames to make their contributions in the analysis of “Food for animals”. The establishment of these included the use of Statements, Questions, Spelling and an Incomplete Utterance. These linguistic forms incorporated the linguistic functions of Informing, Agreeing, Explaining, Confirming, Refocusing, Elaborating, Seeking information,

Seeking confirmation and Spelling thus demonstrating participants' use of a range of linguistic forms and functions to express the content of the interaction via interaction segments and contextual frames.

Consequently, analysis of the interaction at the levels of *linguistic form*, *linguistic function* and *interaction segments* and *contextual frames* respectively describes the linguistic dimension, the cognitive dimension and the content dimension of the interaction (presented in FIGURE 8.1).

8.4.2 The Roles of Interaction Segments and Contextual Frames in Collaborative, Heterogeneous Group Contexts

During the interaction the following roles of interaction segments and contextual frames were established by participants in collaborative, heterogeneous group contexts.

(1) Basically, the role of interaction segments and contextual frames is to structure ideas/information during the group interaction. That is, participants express ideas/information within an interaction segment relevant to the group task. Consequently, the content dimension of the interaction is shaped by the interaction segments and the contextual frames established by participants. However, in some cases, an interaction segment may be structured by a single contextual frame e.g.,

37 Rod It was an adventure. (An adventure)

(TABLE 7.3, Language Arts)

(2) In the establishment of contextual frames, participants both initiate and respond to ideas/information presented. Some contexts provide potential for critical responses exemplified by the Teacher's response in the following segment.

323 *Teacher* Do you know what it means to classify?
 324 *Nola* Yeh sort of.
 325 *Rod* Like in a newspaper.
 326 *Teacher* Classified advertisements?
 327 *Rod* Yeh.
 328 *Teacher* Well what are classified advertisements Rod? What does that mean?
 329 *Rod* Something they write up and stick it in the ads.
 330 *Teacher* Not quite. You're on the right track. (TABLE 7.2, Social Studies)

During this task, participants need to classify the items of the record and they are not sure what "classify" means. The teacher interacts with the group and probes for responses re meaning of "classify". In this interaction, the Teacher evaluates Rod's response and encourages him to develop his ideas further.

Participants' responses include establishing contextual frames to elaborate on ideas/information expressed thus developing concepts expressed. Participants also establish contextual frames to support a point of view e.g.,

98 *Con* Yeh one train that goes around the suburbs.
 99 *Nola* Alright.
 100 *Rod* Ah roads.
 101 *Con* Signposts.
 102 *Nola* There would already be roads to get out there wouldn't there?
 103 *Rod* Dirt roads maybe. (Dirt roads)
 104 *Nola* You wouldn't exactly need bitumen. (Road forms)
 105 *Joe* Yes, you would for the buses. (TABLE 7.2, Social Studies)

During this interaction, participants are discussing transport and

things to consider re transport. When “roads” are introduced, individuals express points of view re the kinds of roads needed. This interaction demonstrates how individuals (e.g., Nola) express a point of view and generates acceptance by establishing contextual frames within a broader frame of reference and semantic field.

8.4.3 Contextual Frames: Influencing Factors

In the construction of contextual frames, participants are influenced by the parameters set by the group task which constrain the discussion to relevant ideas/information thus creating a zone of relevancy in which participants are expected to operate. Within this task context, participants, at times, referred to written text in the course of discussion which is demonstrated by the following example in which Kay refers to the task guidelines to inform the group re the task strategy.

284 Kay It doesn't say it says some of the adjustments you have to get used to. It doesn't say all. Use these as subtitles. Okay. What do you want to put in? {Written record of training adjustments (Textual)} (TABLE 7.1, Science).

In this interaction Kay uses the task sheet as a source of guidelines for the task strategy.

The group contexts in which participants operate also trigger inferences from them in the course of discussion as demonstrated by the following example in which Kay hypothesises re specialty training.

39 Kay They probably go into a special machine so that gets them ready for space for weightlessness. {Special machine for weightlessness (Inferential)} (TABLE 7.1, Science)

The data indicate that the participants included inferential thinking by formulating hypotheses across the three knowledge domains

examined {Social Studies 51, Science 22, Language Arts 14. (TABLE 7.5)}.

Thus, three sources of information from which the participants drew to establish interaction segments and contextual frames included (1) the text of the interaction (Literal), (b) the written texts associated with the group task (Textual) and individual knowledge structures derived from past learning experiences (Inferential).

In the establishment of interaction segments and contextual frames, participants included the following terms within the semantic fields associated with the respective group tasks.

Science, Task 1 : weightlessness, fitting suits, survival food, non-gravity room, emergency escape, zero gravity, shuttle, atmosphere, satellites, strap bikes, vitamin tablets, rocket, communication, equipment, testing.

Social Studies, Task 2 : planning sites, water supply, water pumps, water pipes, convenience store, furniture, communications, sewage, electricity, power lines, hospital, transport, buses trains, miners' needs, stock, farming, minibus, cars and pollution, open cut mining, diamond exploration, school, park, sport, security, work for women, animals, pet shop, fishing site, bait shop, family needs, food containers, hygiene, quarantine.

Language Arts, Task 3 : netball, vigoro, hike, story description, helicopter rescue, story structure, story plot, story events, camera, rescue squad, story setting, rainforest, characters, lifestyle, adventure, unusual events, broken ankle, mountain.

The foregoing examples represent concepts initiated by participants via interaction segments and contextual frames, within

each knowledge domain. These examples also reflect these participants' knowledge structures from which they draw ideas/information perceived to be relevant to the group task. That is, the above terms represent the knowledge-domain-specific, conceptual frameworks derived from these participants' knowledge structures during the group interaction.

With reference to Question 3, participants established contextual frames, derived from their individual knowledge structures, within interaction segments to initiate and respond to ideas/information they perceived to be relevant to the group task. These frames were established from (1) the text of the interaction (Literal), (b) the written texts associated with the group task (Textual) and past learning experiences (Inferential).

In order to analyse the content of the interaction in more detail, the relationships between content and cognitive processes across the three knowledge domains were examined.

8.4.4 Knowledge Domain Interaction: Process and Content

The group interaction was analysed from the three perspectives of: (1) *Initiating Ideas/Information* with focus on (a) Ideas e.g., eliciting, probing, suggesting, (b) Information e.g., informing, listing, seeking information and (c) Initiating Strategies, e.g., directing, focusing, seeking confirmation;

(2) *Responding to Ideas/Information* with focus on (a) Intellectual Processing e.g., comparing, evaluating, hypothesising, (b) Acculturating e.g., amending, confirming, disagreeing and (c) Responding Strategies e.g., clarifying, qualifying, seeking clarification;

(3) *Maintaining Communication* e.g., apologising, thanking. The data on these perspectives are presented in TABLE 7.6.

Comparison of the volume of interactions for the three perspectives of group interaction, across the three knowledge domains, indicates that 39.13 per cent were initiating ideas/information, 57.69 per cent were responding to ideas/information and 3.18 per cent were maintaining functions (derived from TABLE 7.6). At the global level, it is inferred from these findings that participants engage in more responding interactions than initiating interactions which may be explained by an individual's initiation having potential for attracting a number of reponses from the other participants.

The initiating perspective of the interaction indicates that participants were able and willing to draw from their individual knowledge structures to contribute ideas/information to accomplish the group task. These initiations then became the basis for analysis by participants through their responses. This sequence creates an interaction pattern composed of initiating processes followed by response processes with maintaining processes interspersed to maintain communication.

The responding interactions indicate that participants were interested in ideas/information presented and were willing to negotiate ideas presented e.g.,

94 *Rod* Transport.

95 *Con* Yeh put transport.

96 *Rod* Buses and trains.

97 *Nola* They wouldn't exactly need buses and trains. (TABLE 7.2, Social Studies)

In this interaction, Con readily agrees with Rod but Nola questions Rod's ideas which demonstrates participants' willingness to respond to ideas/information presented.

Participants' use of acculturating responses, which entailed refinement and blending of ideas by the respondent, included interest in detail illustrated in the following segment of interaction.

278 *Rod* It's got to be a bait shop.

279 *Kay* A bait shop?

280 *Rod* Yes. (TABLE 7.2, Social Studies)

During this interaction, participants are discussing the establishment of a shop, Rod specifies the type of shop that is needed, Kay seeks clarification of his idea and Rod clarifies her question by confirming his idea. This interaction also shows Rod is determined to include the specialty shop.

Participants' use of intellectual responses, which entailed higher order reasoning processes by the respondent, included the use of Classifying, Evaluating, Generalising and Synthesising illustrated in the following segments of interaction.

(a) Classifying: 429 *Con* Containers for food so it doesn't get diseases.

430 *Kay* Oh yeh.

431 *Nola* That would come under people's needs. (TABLE 7.1, Science)

During this interaction, Nola classifies the items suggested by Con.

(b) Evaluating: 151 *Nola* Well I thought the characters in the story were well described.

152 *Rod* The scene was pretty well described. (TABLE 7.3, Language Arts)

Both Nola and Rod respectively evaluate the two literary concepts "characterisation" and "setting" during this interaction.

(c) Generalising/Synthesising; 371 *Rod* Get used to no gravity. Get used to-

372 *Kay* Make up your mind.

373 *Rod* Get used to all the things you do.

374 *Con* All the things you do in nongravity.

375 *Kay* Get used to all the things you have to do in nongravity activities. (TABLE 7.1, Science)

During this interaction, Rod generalises ideas for the written record and Kay synthesise ideas expressed by Rod and Con.

These examples, which demonstrate the participants' willingness to make judgements, form general notions, and combine and group ideas, exemplify a range of intellectual responses used by participants.

With reference to Question 3, the data indicate that participants structured content to both initiate and respond to ideas/information. That is, the content was structured by the language used and the cognitive processes generated via the interaction.

Although roles adopted by participants have been considered in 8.2 and 8.3, they have not been examined in the context of initiating, and responding to, ideas/information. Therefore, the next layer of discussion focused on the roles adopted by participants during the three group tasks.

8.5 PARTICIPANT ROLES: FUNCTIONS OF GROUP INTERACTION

Question 4

(a) What roles do participants adopt in learning the disciplines in collaborative, heterogeneous group contexts?

(b) What are the functions of roles adopted by participants in collaborative, heterogeneous group contexts?

The predominant roles (The Initiator Role, The Follower Role, The Critical Reactor Role, The Passive Reactor Role and the Extrapolator Role) were considered, at the global level, in 7.6. In order to answer Question 4(a) and Question 4(b), the roles adopted by participants were analysed in detail at the individual level as part of ongoing, group interaction (included in FIGURE 8.1).

8.5.1 Group Roles: Bases of Group Interaction

During the group interaction, all participants adopted initiating roles (to initiate ideas and information) and responding roles (to respond to ideas and information) at both the intellectual and the acculturating levels of processing. In order to analyse the adoption and function of these roles at the individual level, data were derived from TABLE 7.5 and TABLE 7.6 and presented in TABLE 8.3. which presents each individual's initiating, responding and maintaining roles. This table shows percentages for each individual's contributions within each of these roles plus totals for each individual's contributions across the three knowledge domains. The following proposition was formulated for discussion of these data.

In collaborative, heterogeneous group contexts, participants adopt a range of roles through which they make their contributions to the group interaction.

In the contexts examined, at the global level, these data indicate that all participants adopted more Responding Roles than Initiating Roles (TABLE 8.3). It is inferred that, in the group contexts examined, participants tend to respond to ideas/information which provide opportunities for them to either confirm ideas/information or react critically to them. Consequently, the interaction provides a potential context for individuals to examine and develop their own knowledge structures.

TABLE 8.3 Percentages of Interacting Roles by Individuals						
	Nola %	Kay %	Rod %	Con %	Joe %	Teacher %
INITIATING ROLES						
Ideas	03 .86	07 .50	05 .94	02 .27	01 .50	13 .07
Information	21 .26	16 .70	20 .14	20 .32	26 .86	11 .44
Strategies	10 .95	13 .51	18 .08	11 .34	07 .46	21 .57
Total	36 .07	37 .71	44 .16	33 .93	35 .82	46 .08
RESPONDING ROLES						
Intellectual Processes	23 .35	23 .83	19 .45	22 .48	26 .87	20 .26
Acculturating Processes	33 .17	24 .95	24 .94	35 .32	29 .85	21 .24
Strategies	05 .48	09 .57	06 .64	04 .88	07 .46	09 .81
Total	62 .00	58 .35	51 .03	62 .68	64 .18	51 .31
Maintaining Communication						
	01 .93	03 .94	04 .81	03 .39	00 .00	02 .61
	100	100	100	100	100	100

In the Respondent Role, participants adopted intellectual processing typically including Classifying, Comparing, Evaluating, Hypothesising, Generalising and Synthesising (TABLE 7.6). This finding indicates that participants were willing to examine ideas and information critically to test their validity and draw inferences thus respectively demonstrating their adoption of Critical Reactor and Extrapolator Roles within the broader Responding Role.

The data also indicate that all participants engaged in more acculturating processing than intellectual processing in the Responder Role. Con and Nola engaged in the highest number of these processes which respectively accounted for 35.32 per cent and 33.17 per cent of their response processes (TABLE 8.3). The acculturating processes, typically including Agreeing, Amending, Checking, Correcting and Disagreeing, reinforce the inference that participants want to ensure that ideas and information conform to their perceptions of clarity and relevance.

In the Initiating Roles all participants, except the Teacher, engaged in more initiating information processes (typically including Dictating, Informing, Listing, Seeking information and Spelling) than initiating ideas processes (typically including Describing, Eliciting, Probing and Suggesting) and initiating strategies (typically including Directing, Focusing, Refocusing, Reading aloud, Requesting, Seeking direction, Seeking confirmation and Volunteering) (TABLE 8.3). This could be partly explained by the nature of the group task which required participants to engage in processes that initiated information for its completion. In contrast to this, the Teacher adopted an Initiator Role that focused more on initiating strategies and initiating ideas than initiating information processes (TABLE 8.3). It could be concluded from this data that the Teacher's intent was to elicit ideas and information from the participants rather

than communicating information.

With reference to Question 4 (a) and Question 4(b), it is concluded, from the above, that the Initiator and Responder Roles generate group interaction at a number of levels which determine the linguistic and cognitive processes used, and the content expressed, by participants who adopt those roles. By adopting the Initiator and Responder Roles, participants respectively initiate, and respond to, ideas/information via a range of linguistic forms and cognitive processes thus contributing to the group learning and achievement of the group task.

8.5.2 Managerial Roles: Bases of Group Structure

In addition to the above interaction roles, individuals adopted *Managerial Roles* which are defined as *roles adopted by participants to help the group succeed in accomplishing the group task*. These roles have been discussed at the global level in 8.2 and are now considered in relation to individuals.

Through their volume of contributions and, at times, controlling the group interaction both Nola and Kay displayed leadership characteristics (discussed in 8.2.1). Within their volume of interactions they contributed to the flow of the interaction by continually initiating ideas/information for participants to consider. As leaders, they also displayed willingness to respond to ideas/information by interacting with all participants which reflects their interest in contributions made by other participants and their commitment to completing the group task. Through their continual contributions, they displayed concern for relevant interaction and a desire to keep the ideas/information flowing towards achievement of the group task.

Through his extensive use of directives, Rod displayed more characteristics of an Overseeing Role than other participants by his directing participants to follow the guidelines of the group task. This role was demonstrated by his showing a keenness to get on with the task in hand by directing participants' actions towards that end. His Overseeing Role was also characterised by his showing a willingness to focus participants' attention on the task at hand and bring the discussion on a theme/topic to a conclusion e.g.,

60 *Rod* Something they hadn't done before.

61 *Kay* They had experienced it now or something.

62 *Con* It was good that they experienced it.

63 *Rod* That's about it. Any others?

64 *Nola* Okay. (TABLE 7.3, Language Arts)

During this segment of interaction, participants are discussing what to record about the helicopter ride in the story. When Con makes a suggestion and seeks its approval, Rod accepts it by indicating that it concludes the discussion on that topic and quickly moves on by seeking clarification re anything else to record on the story plot thus adding some urgency to the context.

The teacher shared an Overseeing Role with Rod by encouraging participants' to focus on the task in hand. He also displayed characteristics of a Quality Controller Role by praising the contributions of participants and directing their efforts for quality responses. Additionally, he fulfilled the Resource Person Role for participants' who asked him questions re content of the interactions and the task strategy e.g.,

(a) 319 *Teacher* So what are you going to do now, classify them?

320 *Nola* Yeh, but you need a margin to do that.

321 *Teacher* Maybe you should work out how you are going to classify them.

322 *Nola* Okay, how are we going to classify them? (TABLE 7.2 Social Studies)

In the above, the Teacher focuses the participants' attention on the group strategy by suggesting they classify the items they have included in the record thus encouraging them to enhance the quality of their responses by processing the listed information.

(b) 6 *Kay* Can you like do you have to write it down or can you get up and act it out or something or do you have to write it down?

7 *Teacher* Read it through first and see what you come up with and we'll come back to that question. (TABLE 7.1, Science)

In this interaction, Kay seeks clarification from the Teacher on the required mode of responding to the group task. The Teacher replies by encouraging Kay to read the Task Guide for the answer to her question. (Later, he draws her attention to the response mode explained in the Guide thus fulfilling his Resource Person Role.)

Con and Joe fulfilled both Initiator and Responder Roles by contributing least to the interaction. They fulfilled these roles by (a) listening to other participants and following the interaction and (b) initiating, and responding to ideas when they wished.

In addition to the above roles, participants shared the group strategy task of Recorder who recorded the group's ideas. During the three group tasks, participants decided who was to record and all members had some input into the recording process.

The following segment of interaction illustrates the adoption of a range of roles by participants to initiate, and respond to, ideas and information during ongoing, group interaction as well as

opportunities for them to adopt a range of roles to complete the group tasks.

215 Kay Learn how to send messages. (*Initiating Information Role*) You've got to be able to send messages back to keep in touch if you don't have special TV. (*Responding/Critical Reactor Role*)

216 Joe We Know. (*Responding/Passive Reactor Role*)

217 Kay Are you just going to shout out and say "Hi"? (*Responding Role*)

218 Con Yeh. (*Responding/Passive Reactor Role*) Correct language on the radio. (*Initiating information Role*)

219 Kay Yeh. (*Responding/Passive Reactor Role*)

220 Teacher Do you think they've got special language for Moon travel? You're going well there. (*Managerial/ / Quality Controller Role*) Have you got anything else to do in your task? (*Managerial/Overseeing Role*).

221 Rod Draw a program. We've got to draw what they did first and then. (*Managerial /Overseeing Role*)

222 Kay Yes in order. (*Responding/Passive Reactor Role*)

223 Rod What they do first try and sign on. They check first. They have a test to know what their- (*Managerial /Overseeing Role*)

224 Con Yeh. (*Responding Role/Passive Reactor Role*)

225 Rod Who's drawing up the table? (*Managerial /Overseeing Role*)

226 Nola I am. (*Allocated Role/Recorder*)

227 Kay Nola is. (*Responding/Passive Reactor Role*) (TABLE 7.1, Science)

In the three knowledge domains examined, participants were not allocated particular roles. Therefore, the adoption of the above roles by participants demonstrate how they were able to adopt spontaneously a series of roles during the group interaction. The above segment of interaction also demonstrates that participants were able to switch from initiating roles to responding roles as the context demanded. These perspectives helped to create a collaborative learning context by ensuring that the group task was in constant focus and allowing each participant to contribute to the interaction in the role he/she adopted at a particular time.

The roles adopted by the participants during the three group tasks

are summarised in FIGURE 8.2 which exemplifies relationships amongst the roles.

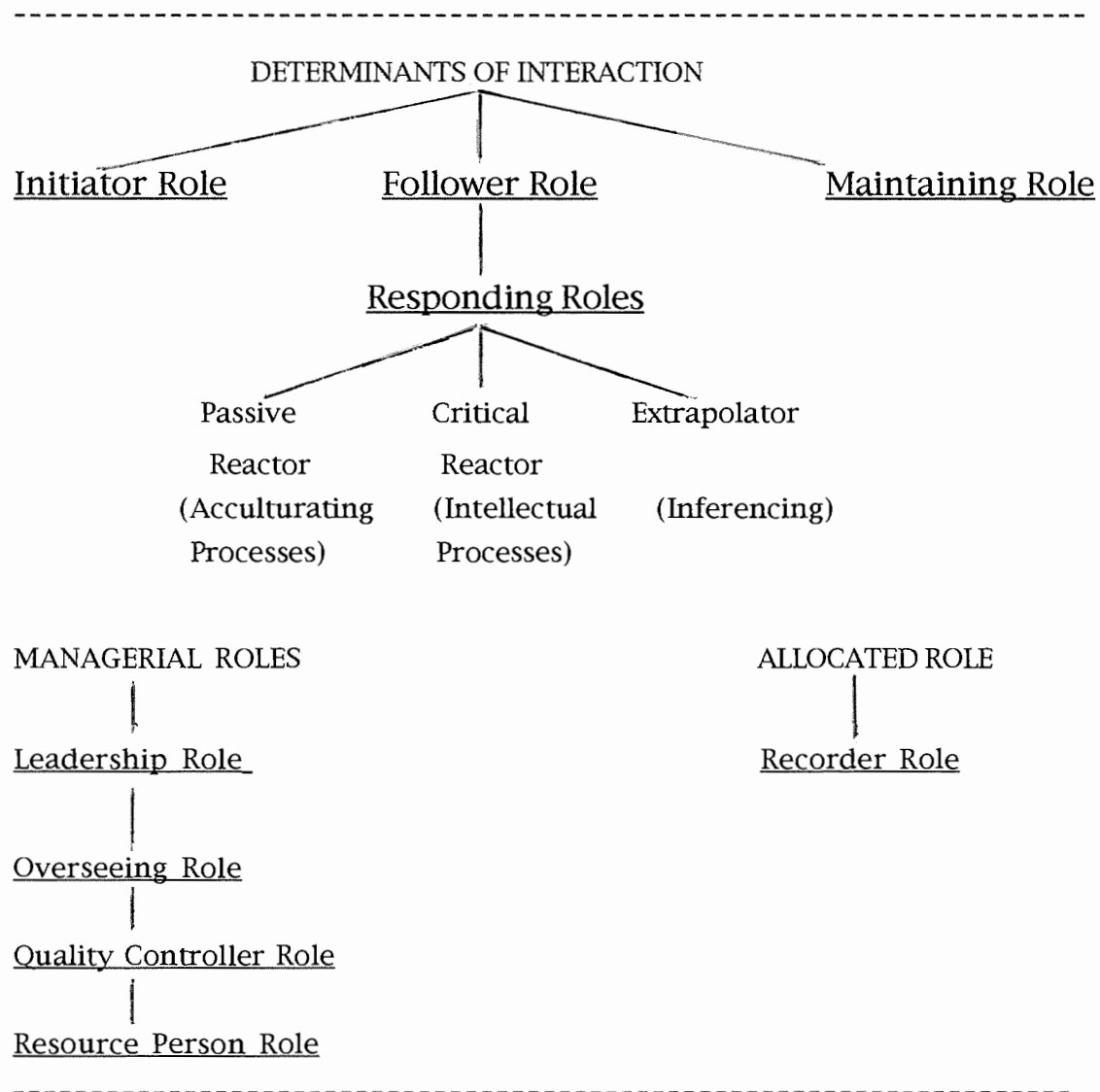


FIGURE 8.2 Group Interaction Roles: Bases of Learning

With reference to Research Questions 4(a) and 4(b), the research data indicate that, in collaborative, heterogeneous group contexts, individuals adopted a range of roles during the interaction. In the group contexts examined, the roles adopted by participants were (a) INTERACTING ROLES, which incorporate Initiating, Responding and Maintaining roles; (b) MANAGERIAL ROLES, which incorporate Leadership, Overseeing, Quality Controller and Resource Person Roles; and (c) ALLOCATED ROLES determined by the group context

all of which provided participants opportunities to contribute to the group interaction.

It is concluded from the above findings that group contexts have potential for providing opportunities (a) for participants to fulfil initiating and responding roles, (b) for fulfilling roles which may be allocated or spontaneously adopted, and (c) for participants with particular role qualities to fulfil those roles e.g., a Leadership Role.

The next layer of interaction analysed was the nonverbal and extraverbal dimensions of communication.

8.6 EXTRA/NONVERBAL COMMUNICATION PROCESSES

Question 5

(a) What is the evidence for the participants' use of extraverbal and nonverbal strategies in the communication process in collaborative, heterogeneous group contexts?

(b) What body language do participants use in the communication process in collaborative, heterogeneous group contexts?

The “Extra/Nonverbal Input” dimension of the group interaction, (described in TABLES 7.1, 7.2, 7.3) refers to the extraverbal aspects of communication e.g., laughing, whispering and the nonverbal aspects of communication e.g., body language. The descriptions in TABLES 7.1, 7.2, 7.3 focus on the extraverbal aspect of eye contact established amongst participants to indicate face-to-face communication as it occurred. The Tables include descriptions of body language defined as *positions and movements of the body to communicate messages*.

In order to analyse the research questions on the extraverbal

dimension of group interaction, the following proposition was advanced on the basis of the description of the extra/nonverbal dimension of TABLES 7.1, 7.2, 7.3.

In collaborative, heterogeneous group contexts, participants engage in body movements to communicate messages and achieve the group task.

8.6.1 Body Movement as Participation in Group Learning

Following are examples of body movements, associated with the group task, in which the participants engaged during the group interaction.

- (i) Prepares the sheet for writing. (15 Rod, Science);
 - (ii) Begins to rule columns on her sheet. (44 Nola, Science);
 - (iii) Hands Rod a second sheet. (392 Nola, Language Arts);
 - (iv) Shows the Teacher the sheet. (303 Nola, Social Studies)
- Examines the sheet and hands it back to Nola. (304 Teacher, Social Studies).

In (i) and (ii) above, Rod and Nola are preparing sheets and getting ready to record for the group. In (iii), Nola offers Rod a sheet she has ruled up for the group task. In (iv), Nola hands a sheet to the Teacher who evaluates its content then hands it back to Nola. These examples may be viewed as actions engaged in by participants at a particular point in time and perceived by them as necessary to complete the group task.

Participants also engaged in actions associated with what they were doing at a particular time. These actions, with interpretations from observation of them in context, included the following.

- (i) Spells as he writes. (319 Rod, Language Arts)
- Rod is writing and has been told how to spell “Jodie” by Nola and

checks the spelling of the word as he writes it down.

(ii) Reads as he writes. (344 Rod, Language Arts)

Rod is writing as Nola dictates and he reads aloud as he writes so Nola can check what he is writing and knows when he is finished.

(iii) Shuffles papers in front of her as she speaks. (310 Nola, Social Studies)

Nola shuffles the paper in front of her to get them in order while she engages in conversation with Joe.

The actions by Rod in the above are qualitatively similar to each other because they are related to acceptable recording practices whereas Nola's actions appear to be related to her organisational strategy. The three examples demonstrate idiosyncratic actions engaged in by participants and appear to be for a particular purpose at a particular point in time.

With reference to Question (5a) the above task-related and idiosyncratic actions appear to be determined by context e.g., Nola's ruling columns is related to task achievement while her shuffling papers appears to be related to her individual organisation.

8.6.2 Body Language as Group Communication Process

The description of Extra/Nonverbal Input (TABLES 7.1, 7.2, 7.3) includes the following movements and positions effected by participants in the communication process.

(1) *Space*. during the three group tasks the participants sat around the table (shown in FIGURE 6.1) which provided the setting for eye contact amongst all participants. They were invited to be seated around the table by the Teacher and were not allocated particular positions. During the three group tasks, the participants chose to sit in the same positions. In this configuration, Nola occupied the

“head-of-the-table” position which reinforced her leadership characteristics by allowing her to attract the attention of all participants through her position and actions e.g.,

Looks straight ahead and holds sheet up. (556 Nola, Social Studies)

The position occupied by Nola within the communicative space thus made her the centre of attention and allowed her to see all participants easily. Positions occupied by the other participants allowed them either to look across the table to establish eye contact with some participants or to establish eye contact with the person beside them which was more difficult.

(2) *Eye Contact*. Eye contact established during the interaction is recorded in detail in TABLES 7.1, 7.2, 7.3. This description of eye contact indicates how participants effected face-to-face communication with individuals. It appears that eye contact was deliberately established because, in most cases, the messages, particularly responses, were directed towards individuals by the speaker establishing eye contact with that individual. The description of eye contact thus indicates the face-to-face interactions that occurred in the group contexts across the three knowledge domains.

In some specific contexts, face-to-face communication included accompanying facial expressions e.g.,

(a) Smiles at Con as he speaks. (579 Rod, Social Studies)

Rod has asked Con a question by quoting it from a television advertisement hence his smile to encourage Con to join a non-serious interlude, maybe as an interlude from the task.

(b) Laughs then Kay laughs. (263 Nola, Language Arts)

Nola and Kay have interacted by creating a make-believe,

exaggerated scenario to reinforce their evaluation of the characterisation of the story. In this case, the facial expression reinforces meaning expressed through language by expressing the utterers' feelings and indicating the non-serious nature of the interaction.

(c) Yawns as she waits for Rod to record. (357 Nola, Language Arts)
Nola, who is dictating to Rod, appears to display her boredom from waiting.

At times, statements by participants were directed to the group rather than to an individual e.g.,

Looks around the group. (13 Kay, Social Studies)

In this interaction, Kay has made a general statement and looks around the group in order to gauge their response before Nola responds by agreeing and adding information.

In some cases, the interaction became more focused by participants using eye contact to gain the attention of the individual to whom the message was directed so that he/she would listen and, if inclined, respond e.g.,

279 *Nola* How many are there? (Eye contact with Con)

280 *Con* Thirteen. (Eye contact with Nola) (Science)

At times, a question was directed to a particular individual and eye contact established but another participant replied e.g.,

289 *Kay* What if bait and tackle are a long way away? (Eye contact with Nola)

290 *Rod* They'll have it. They'll have it. (Eye contact with Kay) (Social Studies)

(3) *Gesture*. In the context of ongoing interaction, participants used

a range of gestures to express meaning. The following are examples of these gestures.

(a) Head movement e.g., Nods her head in agreement. (148 Kay, Social Studies)

Nola has made a statement re car transport and Kay reinforces her verbal agreement with a nod of agreement.

(b) Assuming a position e.g., Leans forward on the table with her head on her hands. (154 Nola, Language Arts)

Nola is describing characters in the story and leans forward. It appears, from the context, that she is getting closer to the other participants to capture their attention.

(c) Arm/Hand movements e.g., (i) Moves his arms backwards and forwards. (164 Joe, Science).

Joe is informing the group that astronauts use strap bikes to exercise and explains how they work which includes his demonstrating the arm movements of the user thus illustrating his explanation.

(ii) Looks at Rod's writing and points to a word. (146 Con, Science)

Rod has omitted an "r" in the word "learn" and Con is pointing this out to him and focusing on the word by pointing to it.

(iii) Waves her right hand in front of her. (318 Nola, Social Studies)

Nola is searching for a word from the group, rejects a word proffered by Con and continues to probe for the right word which includes her moving her arm which appears to indicate a feeling of pleading.

(iv) Waves both hands in the air. (202 Nola, Language Arts)

Nola is acknowledging Kay's listing of the characters in the story verbally and, from the context, appears to express enthusiasm by waving both her hands in the air.

(v) Moves her pencil around in front of her. (128 Kay, Science)

Kay is talking about procedures for testing food and, from the context, appears to move her pencil around to help her find the right words to express her ideas.

(d) Touch. e.g., Lifts Kay's arm from the sheet. (36 Nola, Social Studies)

During this interaction, Kay starts to write down ideas expressed by participants but Nola informs Kay that she is going to do the writing and lifts up Kay's arm to see exactly what she is writing. This is the only time touch is used during the interaction and reinforces Nola's interest in Kay's actions while asserting her authority as recorder.

In answer to Research Question 5(a), the data indicate that, in collaborative, heterogeneous group contexts, the verbal interaction is accompanied by a range of task-related and idiosyncratic movements which include (a) actions related to completing the group tasks and (b) actions related to achievement of particular tasks by individuals within the context of the group task.

In answer to Question 5(b) the data indicate how participants: (a) used space deliberately to position themselves to interact with other participants; (b) engaged in actions which they perceived as necessary for achieving the group task; (c) engaged in idiosyncratic movements which accompanied their interaction; (d) established eye contact with participants they were addressing thus establishing face-to face interaction; (e) engaged in gestures that accompanied verbal interaction and communicated messages. Thus

the group interaction consisted of verbal interaction accompanied by body language and, at times, idiosyncratic and task-related actions by participants.

Question 6 was related to the student questionnaire and is discussed in the next section of this chapter.

8.7 TEACHING/LEARNING IN THE KNOWLEDGE DOMAINS: STUDENTS' PERCEPTIONS

Question 6

(a) What kinds of responses characterise students' utilisation of instruction while learning the disciplines in collaborative, heterogeneous group contexts?

(b) In collaborative, heterogeneous group contexts, to what extent and in what ways do participants display evidence of the use of instructional guides in the group interaction?

The sources, nature and focus of analysis of the data are presented in TABLE 6.4 and data relevant to Question 6 are presented in TABLE 6.5. The transcribed responses to the audiotaped interviews of the questionnaire are recorded in APPENDIX I and student responses to the written questionnaire are recorded in APPENDIX J.

The following propositions, based on students' preferences for learning strategies in the three knowledge domains and perceptions of the group learning process, were formulated for analysis of this data.

(a) Students have (a) preferred strategies for learning the disciplines of the curriculum, (b) perceptions of the group process for learning the disciplines of the curriculum and (c) perceptions of the purposes for learning the disciplines of the curriculum.

(b) In collaborative, heterogeneous group contexts, interaction is influenced by the participants' use of instructional guides.

8.7.1 Students' Strategy Preferences for Teaching/Learning in the Knowledge Domains

The following findings are derived from analysis of students' responses to parts A, B and C of the student questionnaire. In this analysis, ratings 1-5 were considered highly preferred strategies.

(1) With reference to strategy preference across the three knowledge domains, all students consistently ranked "class discussion," "group discussion," "reading," "writing," and "researching in the library" as highly preferred strategies (TABLE 6.5). Within these ratings, reading was rated higher than writing across the three knowledge domains. "Doing projects" was rated highly by three students in science and two students in social studies. These findings indicate that (a) although the above strategies are highly preferred by students, there is no clear preference across the three knowledge domains and (b) reading is preferred to writing in the three knowledge domains examined.

(2) "Watching television" was rated as a highly preferred strategy by all students in social studies, by three students in science and by two students in language arts. Although this strategy was not rated as consistently highly as the above strategies, it appears to have support across the three disciplines.

(3) The subject specific strategies, i.e., strategies included in only one knowledge domain, of "doing experiments" in science and "going on excursions" in social studies were rated as number one preferences by all students and were the only ratings on which all students agreed. These findings indicate a high level of preference

for these strategies by students in the respective knowledge domains.

(4) With reference to subject specific strategies, the sample was too small to yield definitive findings although some observations were made from the data (TABLE 6.5).

(i) In science the subject-specific “drawing diagrams” was rated highly by all students and the subject-specific “observing a life cycle” was rated highly by three students. These strategies may be preferred because of their potential for involvement by students respectively for their observation and psychomotor processes.

(ii) In social studies, the subject-specific “listening to a guest speaker” and “drawing maps” were rated highly by three students. The former could be preferred because of the potential interest level and the latter because of the psychomotor processes.

(iii) In language arts, “doing drama” was rated highly by four students and no student included “using the computer” and “delivering lecturettes” in his/her rating. “Doing drama” may be preferred because of its potential for creative expression and movement. As “using the computer” was not included in strategy preferences in the questionnaire for science and social studies, the preference for this strategy is not clear. However, this strategy was not added to the list by the students which appears to indicate a low preference for this strategy.

(5) The three strategies added to the list of strategies by students (“debate”, “using tapes” and “writing and listening to tapes”) were all in language arts. These additions were highly rated by the students who added them.

With reference to Question 6 (a), the above findings from Parts A, B and C of the questionnaire indicate: (a) there is not one highly

preferred strategy by these students across the three knowledge domains but there are highly preferred knowledge-domain-specific strategies; (b) “watching television” is highly preferred by all students in science and social studies and by two students in language arts; (c) “doing experiments” is highly preferred by all students for learning science; (d) “going on excursions” is highly preferred by all students for learning social studies.

A conclusion drawn from the above findings is that highly preferred strategies may be incorporated within the instructional program by teachers to motivate learning by students in the knowledge domains. It is inferred that strategy preference is based on individual learning experiences, therefore, teachers need to get clear feedback from students in respect to strategy preference in the context of their instructional programs. They may also determine why some strategies are preferred strategies in particular contexts in order to take them into account in planning instruction/learning in the classroom.

8.7.2 Student Perceptions of Group Learning

The following findings are derived from analysis of both pregroup and postgroup student responses (APPENDIX J) to Part E of the questionnaire to determine the students’ perceptions of group learning. This was achieved by comparing students’ responses to both the pregroup learning questionnaire and the postgroup learning questionnaire at the global level to determine their perceptions of the group learning process. Next, each student’s responses to the pregroup learning questionnaire were compared with his/her responses (recorded as he/she wrote them) to the postgroup learning questionnaire to determine any change of perceptions of group learning by individuals.

Question 1 In what ways is learning in a small group different from learning in a whole class?

Students indicated awareness of differences in interaction in group learning compared with whole class learning e.g.,

Con You can get other peoples ideas to help you along. You can just talk softly to talk to the other people. (Pregroup learning response)

Joe The teacher spends more time with you. (Postgroup learning response)

Con's response consists of two sentences with two ideas which focus on the form of the interaction and the sharing of ideas. Joe's response is one sentence which focuses on a group context with access to the teacher.

Question 2 To what extent does asking questions of other students help you to learn in small groups?

Students indicated awareness of potential for asking questions to enhance their own learning in small group contexts e.g.,

Con It helps me by getting other peoples ideas and extend it onto my ideas. They could give you examples and you can write on them. (Pregroup learning response)

Rod You get some idears of other people then get idears your self. (Postgroup learning response)

Con's response consists of two statements. In one he focuses on how responses help him to learn and in the other he explains how the responses help him to write. Rod's response also focus on getting ideas from from other students and how they stimulate ideas from him.

Question 3 To what extent does answering other students' questions help you to learn in small groups?

Students indicated their perceptions of the potential of answering questions for learning in small group contexts e.g.,

Kay If children answer other children's questions you are just answering a question you know but the other person doesn't (pregroup learning response)

Con It makes you think harder and it jogs your memory and it makes you learn. (postgroup learning response)

Kay sets up a condition in her statement but does not clearly state a benefit from it. Con's statement consists of three ideas each of which expresses a benefit from answering other students' questions.

Question 4 To what extent does discussion help you to learn in small groups?

Students indicate awareness of potential of group discussion for sharing ideas e.g.,

Nola Everyone get a say so everyone learns what different peoples opinions are. (Pregroup learning response)

Rod It helps you because you get ideas and you cooperate more and get stuff done. (Postgroup learning response)

Nola's response consists of a statement and consequence which focus on the potential of group discussion for sharing ideas. Rod's response consists of a positive statement followed by three reasons why discussion helps him in small group contexts. Included in ways it helps him is the opportunity to cooperate with other group members.

Next, each student's pregroup responses were compared with his/her postgroup responses to track changes in perceptions of group learning as shown in TABLE 8.4. In this table, an asterisk indicates the student responded to the question, whereas a dash indicates the student did not respond to the question and an asterisk followed by a plus sign indicate that information was added to the postgroup response.

TABLE 8.4 Written Questions: Pre/Post Responses						
QUESTIONS		NOLA	CON	ROD	KAY	JOE
Q1	Pre	*	*	*	*	*
	Post	*	*	*	*	* +
Q2	Pre	*	*	*	*	*
	Post	*	* +	*	*	* +
Q3	Pre	*	*	*	*	*
	Post	* +	*	*	*	*
Q4	Pre	*	*	*	-	*
	Post	*	* +	* +	*	*

Although TABLE 8.4 indicates that all students, except Kay, added information re group learning to their post group learning responses, there is no clear evidence to indicate that their participation in the three group learning sessions significantly changed their perceptions of the group learning process with respect to the questions.

With reference to the research question (6a), the data indicate that: (a) students are aware of some differences of potential for learning between group contexts and whole class contexts; (b) students have some perceptions of the potential of asking and answering questions in small group contexts; and (c) students have perceptions of potential of discussion for learning in group contexts.

The findings from the students' responses do not show that they relate potential differences between group learning and whole class learning to specific knowledge domains or particular aspects of it. That is, they did not indicate that whole class learning may be better for learning some aspects of the knowledge domain while group learning may be better for learning other aspects of it.

It is inferred from the above data that, if student awareness of (a)

differences between whole class learning and small group learning and (b) the potential of small group learning are to be developed, then opportunities for students to discuss these questions are needed to get students to think about the learning experiences in which they participate in both whole class and group contexts.

8.7.3 Students' Perceptions of the Relevance of Knowledge Domain Teaching/Learning

Analysis of the three Researcher-Student audio interviews involved examination of the student's responses to the question on each knowledge domain to determine the main reasons for learning the three knowledge domains. A transcription of the interviews with all students is presented in APPENDIX I. Following is an example of the interview questions asked in each knowledge domain.

Question 1 Why do you think it is important for you to learn science?

Science

All students related the importance of learning science to future job prospects. Nola made two statements related to the need for science as students get older and its relevance for getting a job. Kay believed it gave her an opportunity to get a highly paid job. Joe thought some students might want to do science for a living. Con considered it a prerequisite for becoming an electrician. Rod's response was not clearly articulated although he included reference to understanding science for doing jobs around the house.

Social Studies

Students related the importance of learning social studies to future job prospects, and learning about events that have occurred. Nola compared it with science as a means of getting a job. Kay related her response to getting a job in a museum. Joe believed it was related to future travel prospects. Con made two statements,

related to knowing what is happening and to getting a job with reference to history. Rod thought it was important for learning history.

Language Arts

Students related the importance of learning language arts to its need in everyday life, future job prospects and writing letters. Nola made three statements - related to everyday use, learning to write and learning to read. Kay explained that language arts, particularly writing, were needed for getting a job as a secretary. Joe's response reflected some confusion on his part as he related it to drawing. Con related it to future work as signwriter. Rod made two statements and emphasised the importance of learning language arts for writing and spelling.

Although all students articulated a range of specific reasons for learning each of the knowledge domains, they related all learning to future needs and job prospects.

Question 2 What do you think is the best way to learn science? (Follow up question: Why do you think X is the best way to learn Y?)

Science

Nola's response compared learning from experience with learning from the blackboard. She articulated preference for experiential learning, including excursions and experiments, because she could see things happening and they provided sound understanding.

Kay's response included excursions, experiments, research and projects mainly because she could learn better by being at a place than by listening to the teacher.

Joe thought experiments because he understood and could see it happen.

Con's response focused on learning by doing and experiments

because he could see what was happening.

Rod's response included watching TV, experiments and research because they were more exciting than writing.

All students articulated strategy preferences that focused on involvement by them, particularly doing experiments, rather than direct instruction from the teacher. In this context, these students appear to have captured the spirit of learning science.

Social Studies

Nola's response included experiments and experiences because they made her feel good. Her focus on experiential learning in both science and social studies appeared to indicate similar strategy preferences for both of these disciplines.

Kay thought going to the place to learn was best but did not give a clear explanation of why this was the best way to learn. She appeared to have a preference for excursions as she had included this strategy preference for science.

Joe thought a guest speaker because he could hear from a person rather than copy from the chalkboard.

Con thought watching TV and follow-up activities because he could learn more that way.

Rod thought watching TV because he could see how people lived.

There was a range of preferences articulated by the students even though both Rod and Con had a preference for watching TV. All students appeared to prefer strategies other than direct instruction by the teacher.

Language Arts

Nola thought writing from the chalkboard because she could learn how to do it. Strategy preference for Nola in this instance was different from her strategy preference for science and social studies.

Kay thought copying from the chalkboard because she could see

how it was done. Kay had a similar strategy preference to Nola which was different from her strategy preference in science and social studies.

Joe appeared to confuse the question because he thought the best way to learn language arts was by drawing maps.

Con thought the best way to learn language arts was by practising because he could then memorise them. It is difficult to know how Con interpreted language arts in this instance.

Rod's response included working in groups, talking about things and doing activities because it saved paper and provided opportunities to get other people's ideas. Rod's preferences, which were different from the other students, appeared to be well thought out and to the point.

Similar to social studies, a range of preferences was articulated by the students even though Nola and Kay had similar preferences. Except for Rod, students appeared to have strategy preferences for language arts which related more to direct instruction than experimentation and involvement articulated for science and social studies.

With reference to the research Question (6a), the above findings from the interview responses from this sample indicate that students mainly related the importance of learning science, social studies and language arts to future needs, everyday needs and job prospects.

At the global level, students had some clear ideas about what they thought were the best ways for them to learn in the knowledge domains examined and why they were the best ways which included how they felt about the learning process. In both science and social studies, students focused on strategies that involved

experimentation and active involvement by them which appeared to capture the spirit of science rather than direct instruction by the teacher. However, there appeared to be preferences for some direct instruction for language arts. It is also noted that only one student (Rod) included working in groups as a preferred strategy.

Examination of these findings in conjunction with findings from student responses to Parts A, B and C of the questionnaire indicate that (a) “going on excursions,” “doing experiments” and “watching TV” are highly preferred strategies for learning in the three knowledge domains examined. It is concluded that these students prefer strategies that entail active participation and challenges rather than direct instruction.

It is inferred from findings from this sample that these students have developed strategy preferences for learning and appear to gauge their individual learning outcomes by associating strategy and learning e.g., learning science for them is doing experiments. It is concluded from this that effective learning in the knowledge domains of the curriculum is related to strategies in which the students are actively engaged hence the need for teachers to incorporate strategies that ensure the development of appropriate knowledge, discourse and skills in each knowledge domain.

In order to examine the group process further, the interaction generated during the three group learning segments was analysed.

8.7.4 The Role of Instructional Guides to Enhance Quality Group Learning

The guided group learning segments were implemented at the beginning of each group learning session to introduce the students to a checklist (presented in APPENDIX E) as a guide for the group

learning process. All segments were videotaped (described in 5.4.8) and the transcribed data (described in 5.4.9) are presented in TABLE 6.6.

Following are observations derived from analysis of the interaction that occurred during the three group learning segments (TABLE 6.6).

During the group learning segments, the teacher acted as the group leader across the three group learning segments. This was achieved mainly by the Teacher reading the items on the checklist and the students following them on their checklists. However, some interaction was generated by the teacher by asking “check questions” to ensure the participants were following and understanding e.g.,

Teacher Why do we look at the person speaking?

Kay Because it's good manners. (TABLE 6.6, Science)

During this interaction, the Teacher has just read the guideline “Look at the person speaking.” and follows it up with the question to elicit ideas from participants and to ensure they understand the guideline.

During the interaction the Teacher also praised the efforts of participants e.g.,

Teacher And number three, “Try to answer the questions raised by other members during the discussion.” If somebody asks you a question?

Kay Answer it.

Teacher Mm try to answer it. And some of you did that well yesterday, didn't you? (TABLE 6.6, Social Studies)

During this interaction the teacher refers back to the group

learning session of the day before.

During the pre-language arts session, most of the time was spent by the teacher reading the new guides for the day and a summary of all them although the Teacher did elicit some interaction which included his confirming and elaborating on participants' responses e.g.,

Teacher "Think about what you have already learned about the topic or task and discuss this with the group. Your knowledge of the topic or task may help to complete the task." What do you think that means?

Con You've like what you read might help you with your problem.

Teacher Good. What you've read before, you mean, will help you with the present topic. Good. (TABLE 6.6, Language Arts)

Although the group learning segments were implemented via Teacher-led, group discussion and focused on a written checklist, participants contributed ideas re the group process by responding to questions raised by the Teacher. These interactions provided an opportunity for participants to think about the group process and receive feedback on their ideas.

Each group learning segment provided an opportunity for participants to focus on aspects of the group learning process and adjust to that particular learning context. That is, each group learning segment provided a readiness stage for the group task that followed. Interaction during the three group learning sessions was examined (TABLES 7.1, 7.2, 7.3) to determine the effectiveness of implementation of the checklist guidelines by participants during these sessions.

8.7.5. Articulation of Instructional Guides in the Group Process

In order to answer Question (6b), the interactions presented in TABLES 7.1, 7.2, 7.3 were examined for evidence of articulation of the guides by participants. This was achieved by making evaluative statements on the evidence of their use by participants. Following are the checklist guides and evaluative statements.

Guide 1 Examine the topic carefully. Ensure your discussion is related to the group task and do not be distracted by other issues. This requires keeping the task in mind as you discuss what is required for its completion.

Throughout the interaction across the three knowledge domains, all participants were on task and initiated, and responded to, topics/themes relevant to the group task.

Guide 2 Listen to what other members of the group have to say about the topic/task. Look at the person speaking, listen carefully and think about what he/she is saying.

In almost all cases, participants made eye contact with the person to whom he/she was speaking. Participants did not engage in activities other than the group task and demonstrated a willingness to respond to ideas/information via a range of cognitive processes which indicated that they were listening and thinking during the interaction.

Guide 3 Form an opinion and express your ideas but take your turn in the discussion. Become involved in the discussion by expressing your ideas and opinions but ensure you take your turn in the discussion.

All participants became involved in the interaction via a range of contributions which provided a diversity of ideas/information. Although some individuals were interrupted during the interaction, in most cases, participants were allowed to present ideas/information without interruption.

Guide 4 Make sure your discussion is related to the topic/task.

When you take your turn in the discussion, make sure what you say helps in achieving the group task.

Participants remained focused on the task during the interaction and included directions to individuals to facilitate achievement of the group task.

Guide 5 Ask other members questions if you are not sure about something. If there is something you don't understand, ask one of the group members to explain it to you.

Questions formed an extensive part of the interaction, were raised by all participants across the three knowledge domains and included "Seeking clarification", "Seeking confirmation", and "Seeking information" processes. Thus participants generated interaction through their asking questions.

Guide 6 Try to answer the questions raised by other members during the discussion. Listen to questions raised by group members and try to answer them. These questions may be directed to you or to the group.

This was in evidence by the extensive number of questions raised across the three knowledge domains which were invariably answered by participants.

Guide 7 Think about what you have already learnt about the topic/task and discuss this with the group. Your knowledge of the topic/task may help complete the task.

The participants did not have particular source material to read for the group tasks except the story for language arts. Therefore, they had to use their individual knowledge structures from which to articulate ideas/information which demonstrated their using what they had already learned about the task as a basis for the content of their interactions. Their use of individual knowledge structures was further exemplified, at times, by their formulating inferences based on past knowledge of the topic/theme being considered.

Guide 8 See if you can add something new to the topic. If you have a new idea for completing the task, present this idea for the group to consider.

This was in evidence across the three knowledge domains by the participants initiating new ideas/information which included the cognitive processes of “Informing” and “Suggesting”.

Guide 9 See if you can add information to what other members say. Listen to what other group members say about the topic/task and see if you can add information that they have not included.

This was in evidence across the three knowledge domains by the participants, at times, “elaborating” on and “explaining” ideas/information during the interaction.

Guide 10 Express your ideas clearly. When you are speaking during the discussion, try to express your ideas so that other

members of the group understand you. Speak clearly, explain things clearly and do not speak too quickly.

During the interaction all the participants spoke clearly and did not speak too quickly. Although there was evidence of participants explaining things, there was also evidence of participants seeking clarification of ideas/information, at times, which indicated that the meaning of some statements were not clear in some contexts.

Guide 11 Choose your words carefully when explaining something or writing about something during the group task. When you are discussing a topic/task, there will be words and ideas that are important for completing the task. Think about the best words to use in your discussion and take note of new words and ideas that are presented during the discussion.

Generally, participants used appropriate words in their descriptions but, occasionally, an “unexpected word” was used like Kay’s use of “desperate” in “You need desperate things like shelter, water and food and something.” (TABLE 7.2, Social Studies, 404). During the interaction, participants used vocabulary related to topics being discussed and concepts being raised e.g., they included the words “food”, “M and M’s”, “solid food”, “packaged” and “cans” when they were discussing the preparation of food for astronauts (TABLE 7.1, Science 129-134). An example of choosing words is Nola’s interaction with the group to find the word “hygiene” and, when she gets the word, her wanting to be able to spell it so that she could write it down (TABLE 7.2, Social Studies, 435-454).

With reference to Question (6b), there was evidence that participants had incorporated those aspects of the group process presented in the instructional guides which they had discussed.

Although the research was not structured with a control group and did not measure the effects of the guides through before and after responses, the introduction of the checklist with the instructional guides achieved the following purposes: (a) it provided an advanced organiser for each group learning session; and (b) it provided an opportunity for participants to focus on important aspects of the group process.

As the instructional guides incorporated aspects of the group process it is concluded that they have potential as elements of an instrument for evaluating aspects of the group process in the classroom.

With reference to quality of group interaction, the guides provided a focus for important aspects of the group process. The quality of these aspects of group interaction at this level of analysis could be measured by examination of each participant's implementation of the guides during the group interaction via an instrument that incorporated observation of, and evaluative comments on, each of the aspects included in the guidelines. This raises the question of expectations of group interaction at the various levels of the school system and implications for implementing collaborative, heterogeneous learning in the Primary School.

CHAPTER 9

RESEARCH AND TEACHING/LEARNING: TOWARDS A SYNTHESIS

9.1 SURFING THE GROUP PROCESS: CHALLENGES AND SOLUTIONS

9.1.1 A Collaborative, Heterogeneous Group Learning Model

The first chapter of the current study (1.4) argued that a useful model for classroom teaching/learning revolves around a communicative equation in which discipline-specific knowledge is mediated through communicative situations that are at once open and focused.

The fundamental basis for this argument was that, whereas the macro level environment is inherently competitive, the micro level offers greater cooperative potential for interaction and enhanced learning outcomes. Hence the essential challenge of the present study was to move from the macro level of the classroom with its limited potential for individuals to engage in sustained exploratory monologue or dialogue to the micro level of the small group as a “fish bowl” in which to test the proposition that communicative contexts actively develop linguistic and cognitive processes and content for learning.

Hence the subsequent path of researched discovery examined collaborative, heterogeneous group learning as a form of teaching/learning in a sample of knowledge domains of the Primary School curriculum. Perceptions of the major dimensions of group learning and their relationships emerged as each layer of the group process (presented in FIGURE 8.1) was analysed and data developed at both global and individual levels.

The research trialled a model for implementing collaborative, heterogeneous group learning in the classroom which, in this instance, occurred in a withdrawal room as part of ongoing classroom teaching/learning to provide conditions familiar to all participants. This model included pregroup learning segments during which key dimensions of group learning were discussed with participants to focus the potential of these dimensions to enhance the quality of the learning process.

This model was developed to provide an alternative to homogeneous grouping with the inherent weaknesses (discussed in 4.2.1). In the context of social interaction, participants explored the learning task by sharing ideas derived from their diverse skill levels and backgrounds. Consequently, this model provided opportunities for all to contribute to the group learning dialoguing cognitive processes to solve the group task.

Teachers may include group learning as part of the students' learning experiences in the instructional program. However, implementation of this model provides a realistic teaching/learning environment in the classroom by allowing a number of groups to operate simultaneously as well as access to all groups by the teacher. During its implementation in the classroom, the teacher needs to take account of curriculum and group emphases (see TABLE 5.2) to ensure the group learning matches the experiential level of the participants. As the research on the teacher's role in group learning is limited (4.3) the inclusion of the Teacher as a participant provided a rare opportunity to examine the nature of the Teacher's contributions to the global interaction and analysis of

the Teacher's individual contributions.

At the global level, the data (TABLES 7.1, 7.2, 7.3) indicate that, when present, the Teacher became immersed in the ongoing group learning, made contributions associated with the contexts established during those times and adopted a range of roles (discussed in 8.5.1, 8.5.2). Within his adoption of Initiating and Responding Roles, the function was mainly to reinforce what the students were doing through praising and probing, and through respecting student learning control and direction.

It is concluded that the Teacher adopted mainly Managerial Roles {including Leadership Role and Resource Person Role (see FIGURE 8.2)}. Hence the data indicate that the Teacher neither sought to interfere with the social and role structures established by the students to complete the group task nor to influence unduly their learning strategies. This supports the proposition (presented in 8.5.1) that the Teacher adopted roles appropriate to the interaction.

At the individual level, although the Teacher's contributions exceeded Con's and Joe's in volume, twenty-nine per cent (TABLES 7.1, 7.2, 7.3) of these were made as introductions to the group learning sessions. These data demonstrate the Teacher as a participant able to evaluate the state of the interaction at a particular time and contribute at that point in time thus demonstrating that, in these contexts, he was able to moderate the teacher's traditional, dominant communicative role. In the moderated role, he reinforced symmetry in learning by resisting the tendency to control the group learning via his knowledge structures

thus allowing the group task to be completed via a range of contributions from all participants. Implications for Teacher Education include examination of the teacher's role in group contexts.

Implementation of the model provides a supplement to whole class teaching/learning by creating social contexts similar to real life situations across three knowledge domains of the Primary School curriculum (science, social studies and language arts) and opportunity for cooperative interaction in the learning process. The model creates contexts characterised by (a) collaborative learning via student-student interaction with opportunities for all participants to contribute to the interaction and receive acknowledgement of, and respect for, their contributions, (b) potential for catering for cultural differences by allowing for multiple points of view and creative ideas, (c) opportunity for participants of differing abilities to work together thus breaking down social and cultural barriers through cooperative learning during which participants learn from each other, (d) a high level of control of the learning by the participants which generates creative encounters and processes which shape the pattern of the group learning and (e) a moderated teacher role that creates symmetry in learning.

9.1.2 A Focus on Group Interaction

During the derivation and testing of the data analysis system, micro analysis of the group interaction was achieved by segmentation of *conversation units* into contextually embedded components of meaning defined as *message elements* (see 5.4.10). Enhanced

sensitivity to the language and cognitive processes generated during the interaction was achieved by redefining *linguistic form* and *linguistic function* in context (6.9). The source, nature and analytic focus of data (presented in TABLE 6.4) was the basis of analysis of derived data from the interaction generated by the selected collaborative, heterogeneous group. Analysis of this data provided a focused examination of the redefined concepts of *linguistic form* and *linguistic function* as key dimensions of the learning process to be made.

Observations and conclusions derived from the research data provided pathways for effective teaching/learning in collaborative, heterogeneous group contexts. It was hypothesised (8.1) that linguistic, cognitive, content and extra/nonverbal layers of interaction were major dimensions of messages that shaped the communication system and the learning in these contexts.

9.2 RESEARCH PATHWAYS: THE NATURE OF COLLABORATIVE, HETEROGENEOUS GROUP LEARNING

9.2.1 Linguistic and Cognitive Dimensions of Group Learning

The main aim of the study focused on the linguistic and cognitive processes involved in the acquisition and development of knowledge-domain-related concepts in collaborative, heterogeneous group contexts (1.8).

The following pathways derived from examination of the research questions on the group communication with a focus on the linguistic dimension of the interaction are drawn from analysis of the data (8.2, 8.6) at the global level.

(1) Participants used a consistent range of linguistic forms across the three knowledge domains. Statements and Questions were the dominant linguistic forms used by participants to generate group interaction {85.84 per cent of the total linguistic contributions by participants (8.2)}. Participants use Statements to express a range of linguistic functions and exercise a position of control of the interaction. Participants use Questions for a range of interactional functions including entering and changing the direction of the interaction and seeking clarification of ideas/information. Consequently, these two linguistic forms are perceived as powerful components of the participants' developmental language during group interaction.

(2) Imperatives and Incomplete Utterances were respectively the next most extensively used linguistic forms. The use of Imperatives impacts on the group interaction by allowing the utterer to assume a position of control over other participants by controlling their actions and directing them in achieving group tasks. From a linguistic point of view Incomplete Utterances may be evidence of linguistic ineptitude but, in context, impact on the interaction by reflecting interruptions that occur and providing opportunities for participants to monitor ideas.

(3) Statements, Questions and Imperatives, respectively in order of volume, together constituted 90.4 per cent of the total linguistic contributions by participants (TABLE 7.6). These are perceived as core linguistic forms as evidenced by the volume of interaction and the wide range of linguistic functions generated via these forms.

Hence it is argued that communication within the group contexts is dependent, to some extent, on participants' ability to generate language, which incorporates a range of linguistic forms, to interact in group contexts. Through their linguistic control, including control of core linguistic forms, participants have the potential to engage in dialogue and contribute to group learning via cognitive processes and ideas/information embedded in the language.

As the present study could be viewed, at one level, as a case study that probes the outcomes of collaborative, heterogeneous group learning via contributions by individuals, the following pathways associated with the linguistic dimension of the interaction are drawn from analysis of the data (8.2.1) at the individual level of analysis.

(1) There is a pattern of interaction of variable input demonstrated by the volume of interaction (Nola, Kay, Rod, Teacher, Con, Joe) across the three knowledge domains. During the interaction, Nola and Kay used all the linguistic forms recorded in the study and together contributed 51.73 per cent of the linguistic interaction. It is inferred from this that their control of the language provided the impetus for them to occupy positions of control within the group interaction.

(2) During the interaction, Rod used more Imperatives than any other participant to control the actions of participants. Through this use of language he was able to influence the events that occurred and the direction the interaction took. This may mean that Rod was using a different strategy from other participants to complete the group task. On the basis of this observation, it is inferred that, in

group contexts, individuals adopt strategies which they perceive appropriate for completing the group task.

(3) Comparatively long segments of interaction occurred without contributions from Joe (the below-average student) although the fact that, at times, he corrected ideas/information suggests that he was actively listening to the interaction and able to make his contribution in this way.

Examination of the proposition on extra/nonverbal strategies adopted by participants in the communication system (8.6) provided evidence that the verbal and nonverbal dimensions of interaction operated in task-related contexts demonstrated by the following examples.

(1) The group interaction incorporates participants' engagement in task related and idiosyncratic activities determined by context (8.6.1) e.g., "spells as he writes", "shuffles papers in front of her as she speaks".

(2) At times, participants engage in gestures e.g., "head movements", "arm/hand movements" to express and reinforce meaning while communicating verbally in group contexts. The intermittent nature of these actions indicates that they are personality based forms of communication used by participants in context to emphasise his/her message intent.

(3) Face-to-face interaction is established through eye contact particularly by individuals directing responses to a particular

individual. From this it might be hypothesised that group learning creates a more intimate interaction between student and student than whole class interaction which is predominately teacher-student interaction. Often, whole class teaching occurs with students in rows facing the teacher.

The participants' use of body language to reinforce verbal interaction and express meaning provides the basis for the hypothesis that collaborative, heterogeneous group contexts have potential for participants (a) creating a dynamic communication system through which to learn and develop group communication skills and (b) learning about cultural differences in the use of body language by observing it in use by other participants.

Although some participants contributed more extensively than others, the group contexts created a learning paradigm with potential for contributions to the learning by all participants. Consequently, the group learning paradigm establishes contexts which have potential for participants to learn through language and learn the language of the discourse of the knowledge domain in which they are working. In this study, the learning paradigm incorporated knowledge-domain-specific group tasks to create texts perceived as dimensions of literacy in the knowledge domains (2.2).

The following pathways associated with the cognitive dimension of the interaction are drawn from analysis of the data at the global level (8.3.1, 8.3.2, 8.3.3).

(1) The research model adopted a group structure (described in

5.4.6) that focused on students' spontaneous generation of cognitive processes to structure their own learning rather than selected processes from TABLE 8.1. Strategies, generated from the interaction (TABLES 7.1, 7.2, 7.3) included: (a) focusing strategies typically including describing, informing and focusing; (b) elaborating strategies typically including elaborating, explaining, hypothesising and synthesising; (c) evaluating strategies typically including agreeing, evaluating seeking confirmation and qualifying; (d) maintaining interaction strategies typically including praising, repeating and thanking and (e) guiding strategies typically including correcting and directing. At the global level, the interaction is characterised by the participants' adoption of Cognitive Strategies through which Conversation Units and Interaction Segments are generated.

(2) Data from analysis of the interaction for communication of messages (8.3.3) indicate that there were both variation and commonality of usage of Linguistic Functions across knowledge domains. The five most frequently used Linguistic Functions (respectively Informing, Agreeing, Explaining, Confirming, Seeking clarification) constituted 45.67 per cent of cognitive contributions. Participants contributed to the interaction via these functions by (a) initiating, (b) expressing support for, (c) interpreting, (d) verifying and reinforcing and (e) seeking explanations re ideas/information.

(3) Overall, the group structure yielded forty-eight spontaneously generated Linguistic Functions (TABLE 7.5) which indicates that the group model has potential for spontaneously generating a range of cognitive processes by participants to introduce and develop

concepts to achieve the group task. In the overall context, the data also indicate variation of cognitive processes across knowledge domains as some knowledge domains generated more particular cognitive processes than other knowledge domains (8.3.3). From this analysis, it is hypothesised that the nature of the group task impacts on the kinds of cognitive processes generated in the group context.

(4) Analysis of the data revealed that there were twelve predominant functions (8.3.3) which constituted 67.32 per cent of the group interaction and represented core functions based on the volume of interaction and the range of cognitive processes. The suggested core processes in order of frequency are: Informing, Agreeing, Explaining, Confirming, Seeking clarification, Directing, Hypothesising, Evaluating, Seeking information, Describing, Focusing and Seeking confirmation. The “core function” concept suggests that group learning contexts generate core functions used extensively across knowledge domains by participants to analyse group tasks and exemplifies the power of group contexts in generating appropriate learning processes to achieve the group task.

(5) The total frequencies and percentages of initiating, responding and maintaining strategies by knowledge domain are presented in TABLE 7.6. At the global level, the data indicate that participants initiate and respond, including responding critically, to ideas/information thus establishing an interactive pattern of learning which provides opportunities for them to reflect on their own learning via feedback they receive during ongoing group interaction. It is hypothesised that this pattern of interaction, which includes feedback via critical responses, allows participants to reflect

on ideas/information presented and partly accounts for the generation of knowledge-domain-specific processes as demonstrated in 8.3.3.

The following pathways associated with the cognitive dimension of the interaction are drawn from analysis of the data at the individual level (8.3.4).

(1) In order of frequency, the most frequent linguistic functions generated by Nola were Agreeing, Confirming, Informing, Explaining and Dictating and the most frequent linguistic functions generated by Kay (in order of frequency) were Informing, Explaining, Confirming, Agreeing and Seeking clarification. Initiations via these processes by these two participants provided a source of ideas/information to which other participants could respond. However, their responses to other participants often focused attention on relevant ideas/information through their seeking clarification and confirmation of ideas/information.

In their interactions they demonstrated willingness to formulate hypotheses and evaluate ideas presented by other participants. The sustained interaction by these two participants indicate that group contexts have potential for extensive contributions by some participants and the use of a range of cognitive processes by these participants indicate their potential control of the content of the interaction. These findings have implications for the nature of the group interaction as some participants may dominate the interaction without due regard for the contributions by other participants hence the need for teachers to monitor the group learning process to

ensure collaboration is achieved by the group learning providing opportunities for all participants to contribute to the interaction. This may mean teachers providing opportunities for participants to examine guidelines for quality group interaction, which contain attention to collaboration, including pregroup learning segments incorporated in the research model (9.1.1).

On the credit size some participants may exercise leadership roles through participation that takes account of ideas/information contributed by all participants. In the contexts examined, the data indicate that Nola and Kay were leaders who wanted to ensure discussion occurred but listened to the contributions by others. However, the dominant nature of Nola and Kay impacted on the pattern of the group interaction, at times, by their challenging each other's ideas and other participants challenging their ideas.

(2) All participants contributed to the interaction via a range of cognitive processes (see TABLE 8.2). In the contexts examined, no participant used all the cognitive processes examined in the study from which it is hypothesised that individual interpretations in context influence the generation of particular cognitive processes.

(3) Profiling participants by analysing the data on frequencies of contributions and ability levels of participants (TABLE 8.2) indicates that gender may be a critical variable with respect to volume of interaction as demonstrated by Kay (an average student) who made the second highest volume of contributions and Con (an above-average student) who made the second lowest volume of contributions. It is concluded that ability may not be the sole

determiner of volume of contributions by individuals and that other variables e.g., gender warrant closer consideration in the selection of collaborative, heterogeneous groups (considered in 4.2.1).

From examination of the data on each individual for each knowledge domain (TABLE 8.2), it is hypothesised that participants' interest in the group task and content knowledge of the group task are also variables that impact on the composition of the group interaction. One implication from this hypothesis is that teachers need to have knowledge of students' interests and background knowledge when forming groups to ensure effective learning occurs by participants sharing ideas/information. Groups that include students with knowledge of the task and interest in it have potential for establishing active, relevant interaction. In some cases, collaborative, heterogeneous group learning could follow prior learning experiences that form a basis for participants' sharing and developing ideas/information to achieve the group task.

9.2.2 The Content Dimension

The formulation of a proposition (8.4) to explore the levels of content at the macro and micro levels respectively via Interaction Segments and Contextual Frames (TABLES 7.1, 7.2, 7.3) provided a basis for analysing the content dimension of the group interaction. The following pathways associated with the content dimension of the group interaction are drawn from this analysis (8.4.).

(1) Through their interactions, participants created themes/topics they perceived as relevant to the group to generate macro

knowledge structures (5.4.10) and introduce and develop concepts related to the task. The focused and contextualised ideas/information or concepts incorporated within the interaction segments (TABLES 7.1, 7.2, 7.3) created a semantic field (see 5.4.10) of related concepts.

The major role of interaction segments and contextual frames is to structure themes/topics and related concepts derived from the participants' individual knowledge structure. This articulation of content reflected participants' individual interpretations and provided potential for vocabulary and concept development within the framework of relevance for the group task. It is concluded from this analysis that the content of the group interaction is shaped extensively by the learning contexts and participants' interpretations in context.

(2) During the articulation of content via interaction segments and contextual frames, participants drew from the text of the interaction (Literal), the written texts associated with the group task (Textual) and individual knowledge structures derived from past learning experiences (Inferential). The group tasks thus provide potential for participants to recall relevant content and synthesise ideas/information relevant to the group task.

(3) In the establishment of interaction segments and contextual frames, participants also demonstrate sensitivity to the various knowledge domains in which they are working by including terminology associated with individual learning tasks (see 8.4.3). The established learning contexts thus provide potential for

participants to initiate and develop knowledge-domain-specific concepts to explore the structure of the relevant knowledge domain.

(4) The data on (a) initiating ideas e.g., Eliciting, Suggesting, (b) initiating information e.g., Informing, Listing, (c) initiating strategies e.g., Directing, Focusing, (d) intellectual responses e.g., Comparing, Evaluating, (e) acculturating responses e.g., Amending, Confirming, (f) response strategies e.g., Qualifying, Seeking clarification and (g) maintaining communication e.g., Apologising, Thanking are detailed in TABLE 8.3. These data indicate that 39.13 per cent were initiations, 57.69 per cent were responses and 3.18 per cent were maintaining interaction functions. It is argued that the initiations became the basis for analysis by participants who responded to them in context. This sequence suggests an Initiate-Respond interspersed with Maintain Communication (I-R-MC) pattern of interaction. However, the interaction does generate other patterns e.g., I-R, I-MC, I-MC-R. The strength of the patterns in this context is that the interaction is predominantly student-student rather the teacher-student interaction that occurs in whole class contexts (see patterns of interaction in 1.5).

(5) The data indicate that participants' intellectual responses elicited higher order processes, e.g., Classifying, Evaluating, Generalising/Synthesising, which demonstrate their willingness to form general notions, make judgments and combine and group ideas. It is hypothesised that collaborative, heterogeneous group contexts allow (a) spontaneously generated learning processes including higher order processes and (b) idiosyncratic structuring of content.

9.2.3 The Group Dynamic: Group Learning Roles

The second aim of the study focused on the roles adopted by participants in the group contexts. The following pathways of teaching/learning were derived from analysis of the data on the research question and proposition formulated in 8.5. These data include a segment of interaction that illustrates how participants adopt a range of roles to initiate and respond to ideas/information as well as roles to complete the group task. TABLE 8.3 presents the percentages of interacting roles by individuals. The predominant roles (the Initiator Role, the Follower Role, the Critical Reactor Role, the Passive Reactor Role and the Extrapolator Role) were examined in 7.6.

(1) During the interaction, participants adopted more Responding Roles than Initiating Roles (discussed in 9.2.2). As responders, they engaged in more acculturating processing than intellectual processing (TABLE 8.3) from which it is inferred that participants respond positively to ideas/information to confirm them or react critically to them.

As responders engaging in intellectual processing, participants demonstrated willingness to examine ideas/information critically to test their validity and draw inferences by respectively adopting Critical Reactor and Extrapolator Roles. Consequently, these interactions provide a context with potential for participants to examine and develop their individual learning.

(2) As initiators, all participants, except the teacher, engaged in more initiating information processes than initiating ideas processes

and initiating strategies (see 8.5.1). It is inferred from this phenomenon that the nature of the group task, which was information oriented, impacted on the processing that occurred. An implication for further research is an examination of the relationship between task orientation and spontaneously generated cognitive processes.

In contrast to other participants, the Teacher adopted an Initiator Role rather than an Informant. In group contexts, the Teacher's focus should be to facilitate the learning by eliciting ideas/information rather than transmitting them. Adoption of this role allows the Teacher to contribute to the interaction without controlling the flow of information. The Teacher's role in the research group model is discussed above (9.1.1).

(3) During the group interaction, participants adopted a range of Managerial Roles (defined in 8.5.2) which are summarised in FIGURE 8.2. The spontaneous adoption of roles (exemplified in the segment of interaction in 8.5) demonstrates the potential of group interaction to generate roles for participants through which they contribute to the group interaction. Consequently, the group interaction is partly determined by the roles adopted by participants and the ways they fulfil those roles.

(4) Following are examples of adoption of major roles (described in 8.5.2) by individuals during the group interaction.

(a) Both Nola and Kay displayed Leadership Roles through which they displayed a commitment to keeping the ideas/information flowing towards achievement of the group task.

(b) Rod displayed characteristics of an Overseeing Role through which he focused participants' attention on fulfilment of the group task.

(c) The Teacher shared an Overseeing Role with Rod and displayed the characteristics of a Quality Controller Role and Resource Person Role.

(d) Con and Joe adopted mainly Follower Roles by following the interaction and contributing to it via initiations and responses when they wished.

The segment of interaction in 8.5.2 demonstrates the spontaneous adoption of a range of roles by participants and their ability to switch from Initiating Roles to Responding Roles, as the context demands, to contribute to the group interaction.

To examine Nola's and Kay's Leadership Roles further, the interaction data (TABLES 7.1, 7.2, 7.3) were analysed for patterns of interaction via their initiations and responses across the three knowledge domains. Conversation units often contained a number of messages and did not always evoke directly relevant responses hence it was important to examine them in context to explore the extent to which particular initiations evoked consistent responses as well as the extent to which Nola and Kay responded consistently to particular types of initiations.

This exploration took the form of (a) recording message initiations by Nola and Kay and responses evoked by them in each knowledge domain and (b) their responses to messages in each knowledge domain. The linked initiations and responses were then examined to

determine whether there was a pattern of recurring initiations and responses.

It soon became evident that the interaction of individual knowledge domains had not generated sufficient data for comparison at this level as there were not enough linked-functions in individual knowledge domains to make a comparison between Nola and Kay. However, it was possible across the three knowledge domains to consider the interaction of these two participants.

Samples consisting of the highest volume of linked-functions across the three knowledge domains are presented in TABLES 9.1 and 9.2. TABLE 9.1 focuses on samples of initiating functions by Nola and Kay and the responses they evoked across the three knowledge domains. TABLE 9.2 focuses on samples of responding functions by Nola and Kay to initiations across the three knowledge domains.

TABLE 9.1

Samples of Initiating and Responding Functions Across Knowledge
Domains: A Focus on Initiating Functions

Initiator	Initiating Functions	Generated Response Functions
<u>NOLA</u>	EXPLAINING →	Agreeing, Checking, Correcting Elaborating, Explaining, Hypothesising, Informing, Specifying
	INFORMING →	Confirming, Directing, Explaining, Informing, Solving
	REFOCUSING →	Describing, Explaining
	SEEKING CLARIFICATION →	Clarifying, Directing, Explaining Informing, Negating
<u>KAY</u>	EXPLAINING →	Agreeing, Directing, Generalising
	HYPOTHESISING →	Agreeing, Completing, Disagreeing, Elaborating, Hypothesising
	INFORMING →	Agreeing, Completing, Disagreeing, Elaborating, Hypothesising
	SUGGESTING →	Agreeing, Confirming, Informing, Listing, Seeking information

TABLE 9.2

Samples of Initiating and Responding Functions Across Knowledge
Domains: A Focus on Responding Functions

Initiating Functions	Generated Response Functions	Responder
AMENDING, HYPOTHESISING, DISAGREEING	→ Explaining	<u>NOLA</u>
AGREEING, ARGUING, COMPLETING	→ Hypothesising	
COMPARING, CONFIRMING, ELABORATING, EXPLAINING, EVALUATING, NEGATING, SEEKIN CLARIFICATION	→ Informing	
AGREEING, SYNTHESISING	→ Suggesting	
DESCRIBING, ELABORATING	→ Describing	<u>KAY</u>
AMENDING, EVALUATING, SPECIFYING	→ Explaining	
AGREEING, AMENDING, CLASSIFYING, CONFIRMING, ELABORATING, REFOCUSING	→ Informing	
AGREEING, CONFIRMING, EXPLAINING, SEEKING CLARIFICATION, SOLVING	→ Specifying	

TABLES 9.1 and 9.2 yielded the following pathways of teaching/learning regarding predictable response functions in interactions involving Nola and Kay.

(1) At the global level, the data indicate that both Nola and Kay initiated learning processes that evoked a range of responses from participants and responded to participants' initiations via a range of responses. During their interactions, both Nola and Kay used higher order functions in their initiations and responses including Comparing, Evaluating, Hypothesising and Synthesising (TABLE 7.5).

(2) Nola and Kay evoked different response functions from their "Informing" initiations and Kay evoked the same responses from "Hypothesising" and "Informing" functions (TABLE 9.1). It is also noted from the data (TABLE 9.1) that Nola evoked a wide range of responses from her "Explaining" function and Kay evoked a narrow range of functions from this initiation. This data reinforces the notion of unpredictable linked-functions generated by these participants.

(3) Both Nola and Kay responded to a range of initiations by "Explaining" (TABLE 9.2) which illustrates their willingness to develop ideas/information presented by participants. The data also indicate that Nola's and Kay's "Informing" responses were generated from a wide range of, but different initiations (excluding Confirming and Elaborating) which reinforces the notion of "Informing", in these contexts, as a core function of the interaction.

It is concluded that both Nola and Kay, as leaders, did not evoke

predictable responses from their initiations and did not respond to initiations in a predictable way but did stimulate dialogue through their contributions via a range of functions which assisted the group to analyse the task collaboratively through the learning processes that were evoked by them.

9.2.4 Who Might Assume the Pedagogical Role?

The role of the teacher in the research model was considered in 9.1.1 and the teacher's role in the interaction was considered in 9.2.3. The data (TABLES 7.1, 7.2, 7.3) were examined further to determine how the group compensated for the teacher's absence.

Incorporation of collaborative group learning in the classroom provides a learning paradigm in which students work for periods of time without the teacher. During the teacher's absence, it appears that a social structure, influenced by each individual, is established within the group context and students may compensate for the teacher's absence by adopting a surrogate teacher role. Therefore, students may adopt teacher behaviours during the group learning process.

If these teacher behaviours contribute to task achievement and elicit relevant, collaborative group interaction, then classroom teachers may perceive them as desirable. However, if they prevent participants from contributing to the group learning, they may be perceived by them as undesirable.

In this study Nola was a controlling participant demonstrated by (a) her tendency to try to get her ideas accepted by the group and (b)

her extensive volume of responding contributions. Although the other participants showed a willingness to challenge her ideas at times, especially Kay with whom she had extended interactions, the group generally accepted her contributions and, at times, acknowledged her as surrogate teacher.

Although Kay and Rod, at times, influenced the direction of the interaction via their contributions, they did not do this to the same degree as Nola. Con and Joe demonstrated willingness to contribute to the interaction but did not try to control it to the same extent as the other three participants. Consequently, although Nola was a dominant contributor and, at times, adopted teacher roles, the composition and direction of the learning were influenced by all participants.

It is concluded that, at times, Nola and, to a lesser extent, Kay adopted teacher roles in the group learning by their efforts to control it. At times, Rod also adopted a teacher role by focusing on the task and drawing conclusions re completion of aspects of it. It appears that the students' concept of group structure includes a teacher figure to ensure that the group task is achieved. This may well be the result of students' learning experiences occurring predominantly in whole class contexts where interaction is mainly teacher initiated.

In the contexts examined, no roles were allocated however, participants did adopt a range of roles including a Surrogate Teacher Role. This conclusion raises questions related to surrogate teacher roles during his/her absence e.g., Should all group learning

incorporate allocated roles that include surrogate teacher/leadership roles? Who should allocate these roles? Are all participants in group learning contexts able to fulfil surrogate teacher/leadership roles?

The present study has shown that participants spontaneously adopt a range of roles but leadership roles, determined partly by volume of interaction, appear to be adopted only by participants with leadership qualities (discussed in 8.2.2). It is suggested that collaborative, heterogeneous group learning in the classroom, at times, incorporate allocated roles, including surrogate teacher/leadership roles, to provide opportunities for participants to express particular role qualities and learn and develop new roles.

9.2.5 Some Fundamental Principles of Quality Group Learning

In past research (4.3), the quality of group learning has been examined mainly in terms of the learning outcomes achieved by individual participants. As the focus of this study is the nature of the group learning process, quality of group learning included examination of each participant's contributions in context.

The concept of quality group learning has been considered via the group learning segments which were incorporated within the research model and examined in (8.7.4). It is hypothesised from analysis of the group learning segments (8.7.4) that (a) their implementation provides potential for participants to think about the group process and receive feedback re their ideas thus focusing on good group interaction practices and (b) each group learning segment provides a readiness stage for the group task that follows thus acting as an advance organiser for the group learning.

The articulation of each of the instructional guides used in the group learning segments was examined in 8.7.5. Examination of the data (TABLES 7.1, 7.2, 7.3), at an observational level indicates that group practices included in the guides were incorporated within the group interaction by participants.

From examination of the group learning segment data (TABLE 6.6) and the group interaction data (TABLES 7.1, 7.2, 7.3) it is concluded that there are key requirements for effective group interaction by participants from which it is hypothesised that these requirements may yield measures of quality group interaction.

In order to provide teachers with a guide to quality learning in collaborative, heterogeneous contexts, the following suggested indices with bases for evaluation (presented in TABLE 9.3) are advanced (a) as measures of quality group learning and (b) a basis for anecdotal records on each participant's contributions in collaborative, heterogeneous group learning in the classroom.

TABLE 9.3

Fundamentals of Quality Group Learning: A Guide for Evaluation

Focus 1 Language Facility

Basis of Evaluation Acquiring and developing the linguistic genre of group interaction by (a) using a range of linguistic forms to interact with group participants including Statements, Questions and Imperatives (core linguistic forms) which are clearly articulated and well structured, (b) using appropriate vocabulary, including

vocabulary of concepts relevant to the group task, in initiating and responding to ideas/information, (c) using body language to communicate clearly with other participants and (d) active listening to other participants' contributions.

Focus 2 Application of Thinking Processes

Basis of Evaluation Embedding a range of linguistic functions in the language created and including appropriate higher order thinking processes, comprising Analysing, Classifying, Comparing, Evaluating, Hypothesising and Synthesising, to initiate and respond to ideas/information while engaging in the discourse of the knowledge domain in which he/she is working.

Focus 3 Sharing Ideas/Information

Basis of Evaluation Fitting into, and contributing to, the social structure of the group including being sensitive to contributions by other participants and being willing to share ideas/information. Sharing includes (a) using language and cognitive processes to help create a broad base of ideas/information, (b) critically examining ideas/information in terms of relevance to the group task and (c) providing feedback to participants.

Focus 4 Contributing to the Development of a Relevant Semantic Field of Ideas/Information

Basis of Evaluation Communicating content via cognitive processes, contextual frames and interaction segments. When appropriate, (a) introducing relevant textual material into the discussion, (b) engaging in inferential thinking and (c) introducing and developing concepts (which may be knowledge-domain-specific) related to the

group learning.

Focus (5) Adopting Appropriate Roles

Basis of Evaluation Adopting Initiating Roles, Responding Roles and Managerial Roles to contribute to the group interaction and accepting Allocated Roles to facilitate achievement of the group task.

Focus (6) Process-Product Learning

Basis of Evaluation Applying strategies that facilitate achievement of the group task and engaging in learning processes appropriate for the knowledge domain in which he/she is working.

A suggested sample evaluation profile for the *Language Facility* focus is presented in TABLE 9.4. It is also suggested that teachers compile a checklist to record information that will assist them to complete a profile for each group learning focus.

TABLE 9.4
Sample Evaluation Profile: A Language Focus

<u>Language Focus</u>		Student.....
Focus Area	Evaluative Bases	Observations of Effectiveness in Context
(1) Linguistic Forms	(a) Statements (b) Questions (c) Imperatives (d) Incomplete Utterances (e) Exclamations (f) Other	
(2) Vocabulary		
(3) Body Language	(a) Face-to-Face Interaction (b) Gestures (c) Idiosyncratic Activities	
(4) Active Listening		
(5) General Comments		

9.3 STUDENTS' PERCEPTIONS OF PURPOSES AND STRATEGIES FOR LEARNING THE KNOWLEDGE DOMAINS

The third aim of the study focused on students' perceptions of purposes and strategies for learning the knowledge domains. The analysis of group learning provided a context for sampling student perceptions of, and stimulating student thinking about, learning strategies and the learning process (5.4.3) via a questionnaire administered in conjunction with analysis of the group interaction and incorporating oral and written responses.

Analysis of responses to the written questions (APPENDIX I), teacher-student interviews (APPENDIX J) and student ratings of learning strategies (TABLE 6.5) generated propositions (8.7) for examining students' perceptions of learning in the knowledge domains of the curriculum.

The data from the small sample (TABLE 6.5) indicate that "class discussion", "group discussion", "reading", "writing" and "researching in the library" were rated highly preferred strategies by students. However, there is not one highly preferred strategy by all students across the sample knowledge domains.

The data on subject-specific strategies (8.7.1) indicate (a) in science, "doing experiments" is highly preferred by all students and "drawing diagrams" and "observing a life cycle" were highly rated, (b) in social studies, "going on excursions" is highly preferred by all students" and "listening to a guest speaker" and "drawing maps were highly rated, and (c) in language arts "doing drama" is a highly preferred strategy.

The data on preferred strategies, including preferred subject-specific strategies, based on their learning experiences, indicate that, within the framework of relevance, students' learning styles incorporate strategies that entail active involvement by them in the learning process e.g., "doing experiments" and "drawing diagrams" (science), "going on excursions" and "watching television" (social studies), and "doing drama" (language arts). An implication for instruction derived from these preferences is the need for teachers to include these forms of strategies, which entail active involvement by students, in the instructional program.

"Doing experiments" include opportunities for students to engage in inductive/deductive learning, "drawing diagrams" include opportunities for students to interpret and articulate relationships among concepts, "going on excursions" locates students in the real world of experiences and "watching television" includes opportunities for them to engage in critical thinking. Consequently, these strategies have potential for providing a wide range of learning experiences. Therefore, it is hypothesised that teachers may motivate student learning and provide a range of relevant learning experiences by incorporating the students' preferred strategies in learning the knowledge domains of the curriculum. An implication for instruction is the need for teachers to be aware of students' strategy preferences and include them in the instructional program to motivate learning.

The following pathways of teaching/learning are derived from analysis of the Researcher-Student interviews, which linked purposes and strategies (APPENDIX I), on the importance of learning

in the knowledge domains of the curriculum.

(1) All students related the importance of learning science, social studies and language arts to everyday needs and future job prospects. From the sample examined, everyday needs included doing jobs around the house (science) and writing letters (language arts), and future job prospects included becoming an electrician (science) working in a museum (social studies) and becoming a secretary (language arts). These data suggest that these students partly evaluate the relevance of their learning via long-term goals hence the importance for teachers to relate the students' learning to real world situations.

(2) Data from the student interviews that related learning purposes and strategies (8.7.3) linked with data from students' ratings of strategies (TABLE 6.5) indicate that students have a range of preferences across the knowledge domains and prefer strategies that challenge them and entail active involvement by them rather than direct instruction by the teacher.

It is noted that the data do not highlight "using the computer" as a highly preferred strategy. It is concluded that access to computers and utilisation of them in learning in the knowledge domains of the curriculum are challenges for the classroom teacher. These challenges may be partly met by teachers allowing students to work in pairs at the computer to help each other master the required computer skills including accessing the internet, to achieve appropriate learning outcomes.

It is inferred from the data that there is an element of specificity

here as these students associate strategy and learning e.g., learning science for them is “doing experiments”. An implication for the teacher, arising from this, is to ensure students engage actively in strategies which develop the appropriate knowledge discourse and skills in the knowledge domains in which they work.

The data comparing students’ responses to the pre and post group learning questions (see TABLE 8.4) indicate that students (a) are aware of some differences of potential for learning between group contexts and whole class contexts and (b) have limited perceptions of the potential of asking and answering questions in group contexts.

If the effectiveness of group learning is to be developed by students’ becoming more aware of its learning potential, it is suggested that opportunities need to be structured by teachers (e.g., pregroup learning segments in the research model) to stimulate students to consider differences between group learning and whole class learning and the fundamentals of quality group learning (9.2.5).

Students’ lack of awareness of the potential for asking questions may result from whole class experiences during which they are accustomed to answering questions. Consequently, it is suggested that students need learning experiences, including group learning, to stimulate the art of asking clear, relevant questions as part of the learning process. As demonstrated in the group interaction in this study, collaborative, heterogeneous group learning provides contexts in which they have enhanced opportunities to develop the art of asking appropriate questions.

A summary of key research findings and research implications are presented TABLE 9.5

TABLE 9.5

Key Research Findings and Research implications: A Summary

Research Questions	Key Research Findings	Implications for Research
1. What linguistic forms do participants use in the group learning process in collaborative, heterogeneous group contexts?	Statements, Questions and Imperatives were used consistently by participants across the three knowledge domains examined.	Investigation of the consistency of use of these linguistic forms in collaborative, heterogeneous group contexts across other knowledge domains of the curriculum and levels of school learning.
2. What evidence does participants' use of language provide of the use of cognitive processes in the group learning process in collaborative, heterogeneous group contexts?	The language used by participants during the group process provided evidence of a range of task-oriented, cognitive processes including higher order processes of analysing, hypothesising and synthesising.	Examination of cognitive processes generated in other forms of discussion and other contexts e.g., other knowledge domains of the curriculum and social contexts within the school and other life contexts.
3. What are the roles of interaction segments and contextual frames in the articulation of content in collaborative, heterogeneous group contexts?	Individuals structured themes/topics from their individual knowledge structures to form a semantic field of contextual frames relevant to the group task.	Determination of the extent to which this characterises group interaction by examining other contexts across primary, secondary and tertiary levels.
4. (a) What roles do participants adopt in learning the disciplines in collaborative, heterogeneous group contexts?	Major roles adopted by participants were (a) initiating ideas/information, responding to ideas/information, (c) maintaining communication and (d) a range of task-oriented managerial roles.	Examination of (a) the roles adopted by participants in other discussion contexts e.g., as team members to achieve a particular project and (b) the impact of gender on role adoption across contexts?

(b) What are the functions of roles adopted by participants in collaborative, heterogeneous group contexts?	Adoption of these roles provided opportunities for participants to initiate and examine ideas/information critically.	Examination of the function of roles adopted by participants in other contexts e.g., What are the functions of roles adopted by participants in a group writing task?
5. (a) What is the evidence for the participants' use of extraverbal and nonverbal strategies in the communication process in collaborative, heterogeneous group contexts?	During the group process participants accompanied the language interaction with task related and idiosyncratic actions e.g., a participant shuffling paper in front of her as she speaks.	Examination of task related activities in other contexts e.g., an activity engaged in by participants to solve a construction problem with structured material.
(b) What body language do participants use in the communication process in collaborative, heterogeneous group contexts?	During the group process, participants supported the language interaction by using gestures including facial expressions and hand movements.	Comparisons of gestures used by participants to support verbal interaction in other group contexts e.g., homogenous group contexts at various levels of the school and friendship groups outside the school.
6.(a) What kinds of responses characterise students' utilisation of instruction while learning the disciplines in collaborative, heterogeneous group contexts?	Students expressed a dominant preference for strategies that entailed personal challenge and active involvement.	Examination of this phenomenon to determine whether it occurs at other levels of the primary school and at secondary and tertiary levels of teaching/learning.
(b) In collaborative, heterogeneous group contexts, to what extent and in which ways do participants display evidence of the use of instructional guides in the group interaction?	Students observed the norms of group interaction recommended in the students' instructional guides.	Pre and post testing of the effectiveness of students' use of instructional guides to enhance the quality of the group learning process.

CHAPTER 10

RESEARCH IMPLICATIONS

10.1 DIRECTIONS FOR EDUCATIONAL PRACTICE

10.1.1 From Teaching to Learning: The Paradigm Shift for the Twenty-First Century

As we approach 2001 in multicultural Australia, an important challenge for the classroom teacher must be an interrogation of the relationship between teaching and learning and the teacher's role in ensuring that students acquire foundations for lifelong learning in a world of rapid technological change and diverse social issues. Students have virtually unlimited access to information via television and the internet. It is critical that students acquire higher order thinking processes to enable them to access, interpret and evaluate information. Lifelong learning also involves individuals' capacity to (a) interpret the contexts in which they operate and (b) adjust to changes that occur around them.

In a world of cultural change and multicultural contexts, the Primary School has not only the mission to provide learning experiences relevant to real life but also opportunities for the achievement of excellence by each individual. If these experiences and opportunities involve the sharing of ideas/information, they enhance potential for collaborative learning, the paradigm shifts the role of the teacher from one who imparts knowledge to one who facilitates the students' learning.

The current study examined collaborative, heterogeneous group learning as one form of teaching/learning to supplement whole class

teaching/learning. At one level the study is a case study of group work probing outcomes of group process across a range of curriculum areas. At a more extrapolative level, however, the data also generate the formulation of hypotheses relating to language group behaviour modalities, and discipline-specific pedagogic strategies. Consequently, principles of teaching/learning derived from this research suggest implications for further research in the implementation of group learning.

10.1.2 Implications for Further Research

In establishing collaborative, heterogeneous group learning as an effective adjunct to whole class teaching/learning for enhancing students' social development and learning outcomes, this study extended previous research bases by focusing on the learner and the learning process in a selected group at a particular year level of the Primary School. Examination of group learning in differently structured groups and other knowledge domains of the curriculum should be implemented to test the findings and applicability of the model and data analysis strategy and consistency of findings.

The generation of linguistic and cognitive processes could be investigated further at both group and individual levels by examination of other contexts in the Primary School e.g., friendship groups. For example, "How do the linguistic and cognitive processes generated in friendship groups differ from linguistic and cognitive processes generated in collaborative, heterogeneous groups?"

Studies of collaborative, heterogeneous group learning could also be undertaken in other knowledge domains of the curriculum e.g.,

mathematics, which incorporate the use of structured material to gain insights into the ways students generate linguistic and cognitive dimensions of learning.

Further studies of collaborative, heterogeneous group learning could also be undertaken in Secondary School contexts in which participants are normally older with more extensive repertoires of knowledge structures from which to draw. Replication in a specific, cultural context, e.g., Aboriginal students in an island school could yield insights into the ways these students generate culturally-determined communication processes.

It would be useful for additional research to examine other potential dimensions of group communication, for example, the prosodic features of the language used by participants.

The role dimension of group interaction could be examined further by examining a range of allocated roles to determine specifically how participants accomplish allocated roles in the group process.

Given the dominance of the girls in the interaction in this study the role of gender on the communication system in group contexts merits further analysis. For example,

- (1) Do females/males interact predominately with males or females?
- (2) Do females contribute more statements, questions and imperatives than males in collaborative, heterogeneous group contexts?
- (3) Do females engage in more higher order learning processes (Analysing, Comparing, Evaluating, Hypothesising, Synthesising)

than do males in collaborative, heterogeneous group contexts?

10.1.3 Implications for Teaching/Learning: A Primary School Focus

The following principles, derived from this study, are presented for teachers to consider in the implementation of collaborative, heterogeneous group learning as effective teaching/learning as an adjunct to whole class teaching/learning in the classroom.

The model of collaborative, heterogeneous group learning (9.1.1) articulates (a) the school level, (b) differentiation re gender and ability of participants, (c) the teacher's role, (d) the curriculum emphases, (e) focused group learning and (f) role of support systems for group learning. Issues to be considered in the establishment of a school policy for implementing collaborative, heterogeneous group learning in the Primary School are as follows.

(1) Participants in the present study had previously engaged in a range of group learning experiences and thus experienced little difficulty in consequently adjusting to the group activities of the research. It is possible, however, that participants with little group experience may not adjust so readily to group contexts. Hence teachers should take into account students' background of group learning experiences in facilitating the transition from whole class learning to group learning. This includes providing opportunities for students to adjust to a focus on the resources in the group for guidance and feedback rather than teacher feedback.

Following are suggestions for teachers to assist students make this transition.

(a) In the Lower Primary School, structure group experiences that focus on the development of social skills which underpin group learning.

(b) If students have adjusted to group practices by the time they reach the Middle and Upper Primary School, more emphasis could be placed on specific areas demands including planning strategies, articulating group aims, and initiating learning to achieve the group task.

(2) Data from the present study point to a number of variables, including ability, gender and background experiences, which influence the individual's contributions to the group learning process. These variables should be considered in the selection of group members and group goal setting.

(3) Careful selection of appropriate and clear group tasks by the teacher will help students to focus. During pregroup learning sessions it is suggested that, as an advanced organiser for group learning, participants consider the content of group learning by analysing the group task and associated cultural interpretations associated with it thus laying foundations for a semantic field of relevant ideas and contributions from all participants.

(4) Monitoring of each student's adaptation to group learning through careful observation and application of appropriate support systems is necessary to ensure that students develop the ability to contribute to group learning. It is important for the teacher to examine the nature of group roles and effective ways of helping participants to adjust to the role structure and learn new roles in

group contexts.

(5) As part of fostering sensitivity to the group process it is suggested that teachers provide regular opportunities for students to discuss the nature of group learning. A checklist similar to the one used in this study (see 6.8) provides a framework for articulating important aspects of the group process to be discussed by students. In the upper grades, these opportunities could include the students viewing and critically examining videotapes of extracts of their group learning in relation to: (a) other participants' desire to contribute to the interaction; (b) gender, ability and cultural differences in the group; and (c) culturally specific content. There are thus implications for both process and learning outcome levels of group learning. It is important that neither teacher nor students lose sight of both the group and individual learning outcomes.

(6) Enhancement of literacy across all knowledge domains may be facilitated by teachers providing collaborative, heterogeneous group learning with potential for students to develop language and learning processes and task specific frameworks associated with each of the knowledge domains.

(7) Evaluation should include (a) student evaluation of the group learning process and its outcomes, (b) student self-evaluation of his/her learning outcomes, (c) teacher evaluation of the group learning process and its outcomes and (d) teacher evaluation of individuals' learning outcomes. Indices of quality group learning (e.g., 9.2.5) should also be incorporated in the evaluation program.

(8) Challenges for the teacher associated with implementing effective collaborative, heterogeneous group learning include making adjustments for the resultant classroom organisation and determining his/her role in the teaching/learning (discussed in the research model, 9.1.1) to ensure participants have opportunities to develop a structure in which they may contribute to the group learning.

10.1.4 Implications for Teaching/Learning: Focus on Inservice

The following are suggested topics to be considered in the formulation and implementation of a school-based Inservice Program to provide opportunities for teachers to re-examine the collaborative, heterogeneous group process and its implementation in the school.

- (1) Examination of research findings
- (2) The aims of collaborative, heterogeneous group learning with reference to social, linguistic, intellectual, role and collaborative learning development
- (3) Classroom management with reference to adjustments by teachers and students including adjustment to noise levels and classroom management
- (4) Procedures for forming groups and selecting group participants including reference to ability, gender, and culture
- (5) Catering for learning in all knowledge domains including

planning for (a) knowledge-domain-specific activities, (b) utilisation of media and structured material, (c) role development and (d) individual differences and learning outcomes

(6) Assessment procedures and feedback mechanisms including assessment of the group learning process and individual learning outcomes

10.1.5 Preparing for the Future: Preservice Teacher Education

If teachers in the twenty-first century are to operate in classrooms shaped by social and technological change, preservice teacher education must prepare teachers who are sensitive to these changes and able to make meaningful links between classroom teaching/learning and to the real world. This requires preservice teacher education institutions developing preservice teachers' sensitivity to changing curricula and pedagogy to lay foundations for lifelong learning. Consequently, preservice teacher education policy of training institutions should include:

- (i) Opportunities for preservice teachers to acquire competency in the use of technology and an understanding of its role in effective teaching/learning;
- (ii) Inclusion of learning experiences that sensitise preservice teachers to their role in effective teaching/learning towards lifelong learning;
- (iii) Establishment of meaningful partnerships between training institutions and schools to help preservice teachers establish links between current theories and classroom practice.

Effective teaching/learning must ensure that students form opinions based on knowledge and sound judgement. Students should thus participate in communicative contexts in which they develop language and cognitive processes to formulate views of, and bases for, contributions to society.

The current study created a real world context in which participants of different abilities and gender came together to share ideas/information towards a common goal; this context was shaped extensively by the group task, the teacher's role, and the ability and gender of the participants. In this context, each participant adapted to this interaction environment in order to make his/her contribution to the group learning. Collaborative, heterogeneous learning is thus arguably a pathway of learning with potential for preparing students to manage and structure their own learning via group interaction. Consequently, preservice education needs to include opportunities for preservice teachers to acquire and develop knowledge of the research and pedagogy of group learning as effective teaching/learning practice.

If collaborative, heterogeneous group learning as effective teaching/learning practice is to be integral to the preservice program, the following areas provide a useful foundation:

- (i) Introduction to Collaborative Heterogeneous Group Learning - current state of research and its implications for teaching/learning and curriculum;
- (ii) Collaborative, Heterogeneous Group Learning - the

interactive processes of group learning - social, cultural, linguistic, intellectual and role development;

(iii) Group learning as an adjunct to whole class teaching/learning;

(iv) Developmental Foci of Collaborative, Heterogeneous Group Learning (TABLE 5.2) - guidelines for planning collaborative, heterogeneous group learning at various levels of the Primary School - selecting participants (4.2.1);

(v) Implications for curriculum and teaching/learning;

(vi) Evaluating the Group Learning Process and Learning Outcomes - teacher self- evaluation, student self-evaluation, teacher-student evaluation;

(vii) Guidelines for evaluation and feedback (see 9.2.5).

10.2 REFLECTIONS ON AN EFFECTIVE TEACHING/LEARNING PARADIGM

This research was motivated by the researcher's desire to examine the potential of group learning as an effective teaching/learning paradigm for students' lifelong learning. In thus analysing the group learning process, its potential for generating linguistic and cognitive processes by male and female participants of different ability was highlighted.

Analyses of the relationships between language and cognitive

processes in learning in the knowledge domains of the curriculum suggest that these are dual processes for communicating and articulating content and strengthens perceptions of these processes as fundamental in the development of literacy in the knowledge domains of the curriculum.

The recent UNESCO report on Education for the Twenty-first Century (Delors, 1998) proposes that the four pillars of education in a world context are: *learning to know, learning to do, learning to live together and learning to be* (p.97). The current study indicates that collaborative, heterogeneous group learning pathways provide a learning context with potential for developing the following competencies which are included as recommendations for strengthening these pillars of education (Delors, 1998): (i) learning to learn; (ii) competence to work in teams; (iii) developing an appreciation of interdependence; (iv) learning to manage conflicts; and (v) being able to act with autonomy, judgement and responsibility.

Data from this case study have served to strengthen the researcher's commitment to the desirability of creating learning experiences which focus on the learning process during which students take a proactive leadership role in the sharing of ideas/information towards common goals.

In the context of a world that is increasingly dominated by technology (Delors, 1998) it is important for students not only to master this technology as a source of learning but to interact with peers and teachers to share ideas/information in order to receive

feedback to help them structure their learning. Therefore, it is imperative that teachers conceptualise their roles as creators of pathways of teaching/learning for students.

As we approach 2001 within a global context, a challenge for teachers is to examine their role as teachers in effecting a paradigm shift which is sensitive to the world's expanding knowledge sources and impacts on the teaching/learning process in times of change and diverse challenges. A focus for the Primary School teacher is examination and reexamination of his/her role in laying foundations for lifelong literacy relevant for technological change and social development in a world of economic unrest. This challenges the education professions to create permeable boundaries between real world and classroom experiences and thus facilitate the processes of a seamless series of ducts to lifelong learning.

APPENDIX A

Student Questionnaire

In column 1, please put a tick in the box beside each of the ways you have used to learn science, social studies and language arts.

Write in besides the numerals 11 and 12 other ways you have used to learn science, social studies and language arts.

In column 2, please write in the numerals 1-10 or 1-11 or 1-12 by putting 1 in the box beside the way you like best, 2 beside the next best and so on up to 10, 11, or 12.

Part A Science

- 1 doing experiments
- 2 class discussion
- 3 group discussion
- 4 observing a life cycle
- 5 doing projects
- 6 reading about science
- 7 writing about science
- 8 drawing diagrams
- 9 researching in the library
- 10 watching television
- 11 -----
- 12 -----

1	2

Part B Social Studies

- 1 going on excursions
- 2 watching television
- 3 class discussion
- 4 group discussion
- 5 listening to guest speakers
- 6 reading about social studies
- 7 writing about social studies
- 8 drawing maps
- 9 researching in the library
- 10 doing projects
- 11 -----
- 12 -----

Part C Language Arts

- 1 class discussion
- 2 group discussion
- 3 watching television
- 4 reading
- 5 writing
- 6 using the computer
- 7 researching in the library
- 8 doing drama
- 9 delivering lecturattes
- 10 doing projects
- 11-----
- 12-----

1	2

Part D Interview Questions

Why do you think it is important for you to learn science?
What do you think is the best way to learn science?
Why do you think it is the best way.

Why do you think it is important to learn social studies?
What do you think is the best way to learn social studies?
Why do you think it is the best way?

Why do you think it is important to learn language arts?
What do you think is the best way to learn language arts?
Why do you think it is the best way?

Part E Written Questions

- 1 In what ways is learning in a small group different from learning in the whole class?
- 2 To what extent does asking questions of other students help you to learn in small groups?
- 3 To what extent does answering other students' questions help you to learn in small groups?
- 4 To what extent does discussion help you to learn in small groups?

APPENDIX B
Students' Responses to Written Questions

Question 1 *In what ways is learning in a small group different from learning in the whole class?*

Tariah Discussion is quicker and you don't have to speak twice and you can learn faster. and noise level doesn't get so high that you can't concentrate!

Ben In a whole class discussion you get more questions and answers and ideas than in a small group, so you learn a bit more.

Anthony Because there is a lot of people in a class and a small amount of people in a group. So only a few people are speaking in a class and there is lots of people in a class.

Rebecca When you learn in a small group it is easier to get a message across. When you are learning in the whole class there is more listening involved.

Kylie You are learning more and I don't take as long.

Question 2 *To what extent does asking questions of other students help you to learn in small groups?*

Tariah To see if you know what they're asking you or to find out something, and for your own knowledge to see if you know it yourself.

Ben It helps me more in small groups because I know the people that I'm asking.

Anthony --

Rebecca I think it is good to ask questions to find out information, because it helps people to understand.

Kylie --

Question 3 *To what extent does answering other students' questions help you to learn in small groups?*

Tariah To help them learn about what they're asking you and to see if you know it as well, so then it helps both of you.

Ben You get to think about their question and see it in a different way.

Anthony I think answering questions helps me better in groups because there is a few people giving you different answers.

Rebecca Because when you have small group discussions, it revolves around asking and answering other people's questions, it helps other

people and myself to co-operate.

Kylie Everyone gets longer turns and they get more time.

Question 4 *To what extent does discussion help you to learn in small groups?*

Tariah To help solve the problem or situation that the discussion that is was about. and things dont have to be taken as fair with smaller groups around 5 people!

Ben You get to talk and ask questions, and it helps me to learn.

Anthony I like to learn in small groups because things get done quicker because it is not as loud as when you are in a whole class.

Rebecca Discussing different subjects in small groups helps other people and myself to get their messages across and to share ideas.

Kylie You get to tell every-one how you feel and discuss it with your group.

APPENDIX C

Sample Researcher-Student Interviews

Tariah

R. Why do you think it is important to learn social studies?

Tariah So you can learn about countries and different types of people and what they eat.

R. Good. What do you think is the best way to learn social studies?

Tariah By projects and discussion and having discussion with your partner.

R. That's good. Why do you think doing projects and discussion are the best ways to learn social studies?

Tariah So it gives you a chance to read books and write down what you know about countries and people.

Anthony

R. Why do you think it is important to learn language arts?

Anthony So when you get older you know how to read and write for your job.

R. And what do you think is the best way to learn language arts?

Anthony Getting in a group and reading it to the parent or teacher who's taking you and writing a book report about it.

R. And why do you think that is the best way? Why is that the best way to learn it?

Anthony Um because if you're in groups, um there'd be lots of people answering the questions and they wouldn't give anyone else a go.

R. So you would like to do it as an individual?

Anthony Yes.

Ben

R. Why do you think it is important for you to learn science?

Ben Well, it could help you in your jobs and help you in the future.

R Good. And what do you think is the best way to learn science?

Ben Um through experiments.

R. Why do you think experiments are the best way?

Ben Because you can see exactly what you're doing and you can learn a bit more.

R. That's good.

Rebecca

R. Science. Why do you think it is important for you to learn science?

Rebecca I think science is a very interesting subject and I like doing research on it. I think in whatever career you have you've got to know a little bit of science anyway.

R. That's a good answer. What do you think is the best way to learn science?

Rebecca I think the best way to do science is by doing experiments and projects to find out research on them.

R. And why do you think experiments and projects are the best ways?

Rebecca Well, I think they are the most interesting ones and the most fun to learn about anyway.

R. Good.

Kylie

R. The next one is social studies. Why do you think it is important to learn social studies?

Kylie So when you go to different countries you know how they work.

R. And what's the best way to learn social studies?

Kylie Um projects.

R. And why are projects the best way to learn social studies?

Kylie So you know how they work what they eat and stuff.

R. You learn more through projects you think?

Kylie Yes.

APPENDIX D

Group Learning Segments

Objectives

1. To introduce students to a checklist of aspects of group learning as a guide for enhancing group discussion through teacher-student discussion.

Planned Outcomes

1. Ask the students:
 - (a) why it is important to discuss some things,
 - (b) with whom they could discuss problems when they are learning something,
 - (c) what are some important things they need to keep in mind when they are discussing something as a group (elicit student ideas on good group discussion).
2. Introduce the checklist with guidelines for enhancing group discussion.
3. Through discussion, consider what each guideline means and why it is important for good group discussion (elicit student ideas).
4. Conclusion
Inform the students that they may refer to the checklist during their group learning to improve the discussion and help them accomplish the group task.

APPENDIX E

Guidelines for Enhancing Quality Group Learning

Session 1

Examine the topic/task carefully. Ensure your discussion is related to the group task and do not be distracted by other issues. This requires keeping the task in mind as you discuss what is required for its completion.

Listen to what other members of the group have to say about the topic/task. Look at the person speaking, listen carefully and think about what he/she is saying.

Form an opinion and express your ideas but take your turn in the discussion. Become involved in the discussion by expressing your ideas and opinions but ensure you take your turn in the discussion.

Session 2

Make sure your discussion is related to the topic/task. When you take your turn in the discussion, make sure what you say helps in achieving the group task.

Ask other members questions if you are not sure about something. If there is something you do not understand, ask one of the group members to explain it to you.

Try to answer the questions raised by other members during the discussion. Listen to questions raised by group members and try to answer them. These questions may be directed to you or to the group.

Session 3

Think about what you have already learnt about the topic/task and discuss this with the group. Your knowledge of the topic/task may help complete the task.

See if you can add something new to the topic. If you have a new idea for completing the task, present this idea for the group to consider.

See if you can add information to what other members say. Listen to what other group members say about the topic/task and see if you can add information that they have not included.

Express your ideas clearly. When you are speaking during the discussion, try to express your ideas so that other members of the group understand you. Speak clearly, explain things clearly, and do not speak too quickly.

Choose your words carefully when explaining something or writing about something during the group task. When you are discussing a topic/task, there will be words and ideas that are important for completing the task. Think about the best words to use in your discussion and take note of new words and ideas that are presented during the discussion

APPENDIX F

Group Learning Sessions

Year 6

Diamond Discovery

Social Studies

Objectives

1. To use collaborative group discussion to solve a social studies problem related to planning a mining village.
2. To discuss and classify important considerations in planning a mining village in the north of Canada.

Planned Outcomes

Using information to solve a social studies problem:

- . discuss and critically examine the problem
- . use background knowledge to suggest important factors related to planning a mining village in the north of Canada

Making decisions:

- . evaluate and choose ways to complete the learning task
- . list and classify important considerations for planning a mining village
- . select then record the classification

Learning collaboratively:

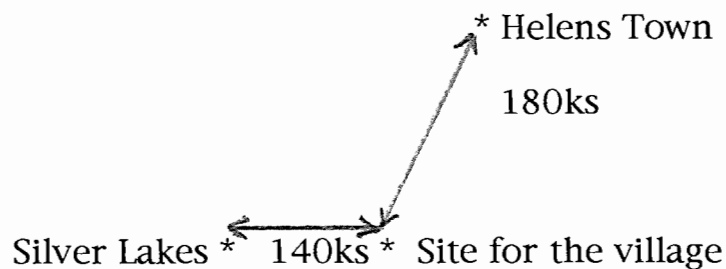
- . discuss planning a mining village with other members of the group
- . ask questions about the topic to improve understanding
- . answer questions and explain issues raised by group members when appropriate
- contribute to writing a classification of considerations in planning a mining village in the north of Australia

Year 6 Group Assignment Diamond Discovery Social Studies

Group Members,

Your social studies assignment is to help a mining company to establish a mining village in the north of Australia. The company will be employing 15 mining engineers and their families, approximately 40 mine workers who have families, and approximately 50 mine workers without families. You are requested to assist the company to plan the village for the people. As a group, you are asked to list and organise into appropriate groups the important things the company needs to consider in planning the village.

The company expects to work the mine for approximately 15 years before the diamonds run out. The nearest town to the mine site (Silver Lakes) is 140 kilometres away and has an airstrip. The nearest seaport (Helens Town) is 180 kilometres from the village site.



Group Task

As a group, discuss then list and classify the important things the mining company needs to consider to plan the village successfully for the mine workers to live in. Write your classification on the paper supplied. Write only one draft of the classification based on your discussion.

Objectives

1. To use collaborative group discussion to solve a science problem related to training astronauts.
2. To discuss and collaboratively draw up a training program for astronauts.

Planned Outcomes

Using information to solve a science problem:

- . discuss and critically examine the problem
- . use background knowledge to suggest activities for a training program for astronauts

Making decisions:

- . evaluate and choose activities for an astronaut training program
- . select and write up a training program for astronauts

Learning collaboratively:

- . discuss an astronaut training program with other members of the group
- . ask questions about the topic to improve understanding
- . answer questions and explain issues raised by group members when appropriate
- contribute to writing a training program for astronauts

Group Members,

Your science assignment is to assist a group of people engaged in training astronauts. This group is not responsible for the scientific training of the astronauts but is responsible for training them to adjust to living in a space station for three weeks.

Some of the adjustments they have to make are: isolation from the world and their families; weightlessness; surviving on a special diet; engaging in forms of relaxation; and the need to exercise.

Group Task

Your group task is to draw up a training program to assist the people engaged in training the astronauts. This means, you are to draw up a program, which includes each of the foregoing adjustments, for the people training the astronauts so that they can use the program to help the astronauts prepare for space travel to ensure a successful space station mission.

Discuss the training procedures you recommend for each of the adjustments and then draw up the overall training program as a group to help the people in the training of the astronauts.

Objectives

To use collaborative group discussion to solve a language arts problem related to choosing a short story.

To discuss and write a brief report on the short story The Quick Descent.

Planned Outcomes

Using information to solve a language arts problem:

- . discuss and critically examine the problem
- . use background knowledge to examine plot, setting, characterisation and language of The Quick Descent

Making decisions

- . evaluate plot, setting characterisation and language of The Quick Descent
- . write a clear, brief group report on the story

Learning collaboratively

- . discuss the short story The Quick Descent with other members of the group
- . ask questions about plot, setting, characterisation and language of the short story to improve understanding
- . answer questions on plot, setting, characterisation and language on the short story when appropriate

Group Members,

Your language arts assignment is to write a group report on the attached short story. Your information will be used by a committee to help them select a number of stories for inclusion in a book of short stories for year six students.

You are requested to discuss each of the following aspects of the story to include in the report and then write a brief, clear, group report on the story. That is, your report will include (a) what you think of each of the following aspects of the story, (b) what you think of the story as a whole. and (c) any other comments you wish to make. In your conclusion of the report, clearly indicate whether the story should or should not be included and why you came to your conclusion.

Setting _ where the events took place

Plot _ the events that occurred in the story

Characterisation _ characters in the story

Language _ descriptions and words used in the story

Group Task

Write the report as a group on the paper supplied and write only one draft of the report based on your discussion.

APPENDIX G

Permission to Conduct the Research

ADMINISTRATIVE DOCUMENTATION HAS BEEN REMOVED

ADMINISTRATIVE DOCUMENTATION HAS BEEN REMOVED

APPENDIX H
Parental Consent

H (1)

Dear Parent/Guardian

..... has been selected to participate in a research project initiated within the School of Education, James Cook University of North Queensland.

The participants will be requested to:

- (a) respond to a questionnaire on learning in Year Six (four written questions and nine interview questions to be answered on audiotape);
- (b) participate in three group discussion, learning sessions (social studies, science, language arts).

The group discussions will be videotaped and all videotapes will be confidential and used only for research purposes. All sessions will take place during normal school time.

Advantages of students' participation in the research include:

- (a) opportunity for them to think about ways they learn social studies, science and language arts;
- (b) opportunity for them to improve group discussion skills;
- (c) opportunity for them to cooperate with other students for learning within the knowledge domains of the curriculum.

A consent form is attached and its completion is requested if you approve participation in the research. Enquiries may be directed to the classroom teacher or

H (11)

James Cook University of North Queensland

Permission to Participate in Research

ADMINISTRATIVE DOCUMENTATION HAS BEEN REMOVED

APPENDIX I
Researcher-Participant Interviews

NOLA

Science

R Why do you think it is important for you to learn science?

N People when they get older they need science ah they need to know science to get a good job.

R What do you think is the best way to learn science, Nola?

N Um I think the best way is experiencing it because if you just sit there and write it all off the blackboard then you're not really learning anything you're just writing things down you're not exactly memorising it or anything. When you experience it like if you go on an excursion and do experiments you can see it happening.

R I think that is a good answer. Ah, could you say anymore about why it is the best way? I think you have really answered it. Can you say anymore- why you think it is the best way?

N It gives you a good understanding of things.

R Thank you.

Social Studies

R Why do you think it is important to learn social studies?

N Um like science you just might need it for a job or education if you want to become um like if you want to become something that involves social studies and you don't know much about it then you wouldn't get that job that you wanted.

R Good. What do you think is the best way to learn social studies?

N Um just doing experiments-and experiments and experiences and things because they make you feel good and that.

R You think that is the best way. That's why it is the best way is it

because it gives you a good understanding?

N I think so.

R Right.

Language Arts

R Why do you think it is important to learn language arts?

N Um well you use language arts like every day um in like language arts teaches you writing and things like that and you just do reading and you just use it every day so it's a good way.

R Good. What do you think is the best way to learn language arts?

N Um writing it off the blackboard because you learn how to do it you see it done.

R Right, and that's why you think it is the best way because you see it done? Right, thanks Nola.

KAY

Science

R Why do you think it is important for you to learn science?

K ' Cause when you're older and want to get a job science is a good thing to look for because it is a good high paid job and you get a lot of money for it.

R What do you think is the best way to learn science?

K The best way to science I think is to go on excursions and do experiments research and do projects.

R Thank you. And why do you think it is the best way?

K Because if you sit down and listen to your teacher you don't really learn it but if you go to a certain place you can learn a lot more if you're actually there.

R Good answer. Thank you.

Social Studies

R Why do you think it is important to learn social studies?

K 'Cause if you learn social studies and you want to go like get a job in a museum and you realise what social studies is it's quite easy to get there if you know all your social studies.

R What do you think is the best way to learn social studies?

K Ah the best way to learn social studies is going to the place where social studies is.

R Good. And why do you think it is the best way? Why do you think going to a place is the best way to learn it?

K I think going I think going to the place you're actually planning on going like like somewhere with social studies in it like the old days and that um is the best way.

R Right.

Language Arts

R Why do you think it is important to learn language arts?

K It is important to learn language arts because if you are going to get a writing job and a secretary job or something it is very important that you know that because if you don't know that you won't be able to get one.

R What do you think is the best way to learn language arts?

K Copying off the blackboard.

R And why do you think copying off the blackboard is the best way to learn language arts?

K Because um there is really one place to go to learn language arts and if you see someone doing it you'll really know what how it's done.

R Thank you, Kay.

JOE

Science

R Why do you think it is important for you to learn science?

J Because when you grow up you might want to be do science for a job.

R And what do you think is the best way to learn science?

J Doing experiments.

R Why do you think doing experiments is the best way?

J Because you understand and see it happen.

R Good.

Social Studies

R Why do you think it is important to learn social studies?

J Because--

R Social studies-about countries and people.

J Because you might want to be like travel and find out all that.

R Right. And what do you think is the best way to learn social studies?

J Um a person talking.

R Talking to you explaining? Right. And why do you think that is the best way someone talking to you explaining things?

J Because instead of copying it down off the blackboard you're hearing it from a person.

R Right. Good.

Language Arts

R Why do you think it is important to learn language arts things like reading, writing, spelling?

J You might want to be a drawer or something.

R And what do you think is the best way to learn language arts?

J Drawing maps a map of the world.

R Do you think it is the best way drawing maps and things for language arts?

J If you want to be an artist when you grow up.

R Right. Thanks Joe.

CON

Science

R Why do you think it is important for you to learn science?

C If you're going to if you want to be an electrician you've got to know what wires go with other wires what insulation to use for different appliances so they don't blow out.

R Yes that's good. And what do you think is the best way to learn science?

C By doing the actual things by doing the actual experiments to learn how they actually work.

R Right. And why do you think doing them helps you to learn them better?

C So you can see the actual thing and what is actually happening and see where it actually is.

R Right. Thanks Con.

Social Studies

R Why do you think it is important to learn social studies?

C So you know what happens so you don't like missing out on anything and if you might get a job that you might need some social studies you know the history or something.

R Good. What do you think is the best way to learn social studies?

C Um by seeing watching T.V. and learning about how history and um doing activities on it you learn what actually happens.

R Good. And why do you think that is the best way? Could you add anything to that- why it is the best way?

C So you can learn more and by doing by being asked questions and doing activities, you're learning it so you're jogging your memory to think back.

R That's a good answer.

Language Arts

R Why do you think it is important to learn language arts?

C So you can do designs and if you're going to be a signmaker or um be things that need language arts.

R Right. What is the best way to learn language arts things like reading writing and so on?

C Practise a lot and write. You get other ideas from other things and make up you're own and then think of other things and you can keep practising it.

R And why do you think that is the best way practising and doing language arts?

C So you do them over and over and you memorise them and you know what to do the next time you know things.

R Good.

ROD

Science

R Rod, why do you think it is important for you to learn science?

Rod Well um if you want um get a job, you could have be a scientist and get paid a lot of money but if you don't get um that job, you could get it like helps you around the house fixing up stuff um that's gone wrong in your house and that.

R That's good, yes. What do you think is the best way to learn science?

Rod Um looking watching TV and you looking at experiments um doing research and that.

R And why do you think it is the best way?

Rod Because it's more exciting and not as boring as just writing writing in your pad and that.

R That's a good answer.

Social Studies

R Why do you think it is important to learn social studies?

Rod Because you need to know a bit of history about where you live and everything.

R What do you think is the best way to learn social studies?

Rod Um watch it on television um about how the people live and those old days and stuff.

R Why do you think that's the best way, Rod?

Rod Because you can see how they lived and how different it is to how we live.

R They're good answers.

Language Arts

R Why do you think it is important to learn language arts?

Rod Because um if you need to write a letter or something to your friend you need to know how to write good and have good spelling and stuff.

R Good. What do you think is the best way to learn language arts?

Rod Um being in groups like in pairs and just talking about um like reading books and stuff to each other and doing activities.

R Good. Why do you think they are the best ways? Why do you think you learn best that way?

Rod Because it saves um paper and writing in your pad and um you like you learn other people's ideas and then you might get some better ideas from them.

R Very good answers, Rod. Thank you.

APPENDIX J
Participants' Responses to Written Questions

Pregroup Learning

Question 1 In what ways is learning in a small group different from learning in a whole class?

Nola Learning in small group is easier because your opinion is heard more.

Con You can get other peoples ideas to help you along. You can just talk softly to talk to the other people.

Rod The differents between learning in small group than the whole class is when your in small groups you get more work doin and its easier because when your in big groups everone is shouting out and no one can hear what you are saying.

Kay You can hear a lot more and learn more.

Joe There are not many people so not many people are not talking.

Question 2 To what extent does asking questions of other students help you to learn in small groups?

Nola I think that is helps because ever person get a turn at speaking and it's much easier to listen.

Con It helps me by getting other peoples ideas and extend it onto my ideas. They could give you examples and you can write on them.

Rod If you do not know what they are talking about you can ak another person and then you might start to understand.

Kay I think it helps increase your knologe.

Joe Next time you will no.

Question 3 To what extent does answering other students help you to learn in small groups?

Nola If children can ask questions and other children answer them it should help both children so both of them can understand.

Con It makes you think harder and it jogs your memory and it makes you learn.

Rod Well if you answer it you will not forget it because you listen to it, but when someone else answers it you might hear it.

Kay If children answer other children's questions you are just answering a question you know but the other person dosent.

Joe They will know it next time.

Question 4 To what extent does discussion help you to learn in small groups?

Nola Everyone get a say so everyone learns what different peoples opinions are.

Con You can get others ideas and you can help each other learn.

Rod Because you might hear someones ideas and you might just think of a good idea.

Kay (no response)

Joe You gets ever bodys ides.

Postgroup Learning

Question 1 In what ways is learning in a small group different from learning in the whole class?

Nola Learning in a small group is easier than learning in a large group because everyone is not speaking at the same time.

Con It is easier to work because you don't have to speak so loud.

Kay Learning in a smal group helps you get more ideas and you get

more involved.

Rod Learning in a class is better because you get ideas of other people but it is bad when kids are bad and you get nothing done that is why small groups are better.

Joe The teacher spends more time with you.

Question 2 To what extent does asking questions of other students help you to learn in small groups?

Nola If asking questions to another child helps then it will help you and them.

Con You can ask one person without lots of people talking above your voice.

Kay You understand more about your decision and can help you in the long run.

Rod You get some ideas of other people, then you get ideas your self.

Joe you get everybody's ideas

Question 3 To what extent does answering other students' questions help you to learn in small groups?

Nola Answering others questions helps the other person only.

Con It makes you think back and jog your memory. This way it makes you think and makes you learn.

Kay It doesn't help you because the other people need to answer their own questions

Rod If you answer their questions it is better than other people answer it because you don't listen as much.

Joe The other people no it next time

Question 4 To what extent does discussion help you to learn in small

groups?

Nola Discussion helps learning in small groups because everyone has an opinion.

Con You can get other peoples ideas to help you writing. You can then write more and get better marks.

Kay dessicusion helps you by getting every ones points and ideas into one answer.

Rod It helps you because you get idears and you cooperate more and get stuff done

Joe you get ever body's ideaer's

APPENDIX K

THE QUICK DESCENT

Ron Brimble

John's uncle (Fred Sawyer) had promised to take him and his three friends hiking to the top of Mt. Simon during the May vacation. John and his friends, Robert, Melissa, and Jodie, lived in north Queensland, attended the same school and were all in year seven. They had made all the preliminary arrangements and were ready for the trip when Fred arrived.

Fred checked the friends' walking gear and made sure the walkers had food and water for the day's expedition. He also made sure they had a first aid kit in case of emergencies. When he was satisfied with the equipment, they all decided to meet at John's place the next day at 6:30 am. They had arranged to drive to the foot of the mountain, park the car then climb to the summit and return to the car by 6 pm. They estimated the walk to the top would take them four hours and the walk back to the car would take them three-and-a-half hours.

The next day, the group set out from John's place by car at 7 am. The sun was just beginning to light the eastern sky and the birds were beginning to stir in the trees as the walking party left the main road and headed for the mountain. As Fred stopped the car, a wallaby bounded across the clearing into the scrub then all was quiet. They were about to enter a different world.

In a short time, the five walkers had applied sun screen, put on their hats, shouldered their rucksacks and were walking in single file along the track towards the mountain. It was the party's aim to reach the summit by midday, rest there, then begin the ascent to the foot of the mountain and reach the parked car before dark.

Fred led the way. He was a school teacher and was an experienced walker. He had done a great deal of bush walking and enjoyed walking amongst the trees and watching the birds most of which he could name in this area. He had keen eyesight and saw the lizards as they

darted along the rocks and noticed the spider webs as he led the walkers towards the distant summit.

Melissa was behind Fred and Jodie was close behind her. These two girls had been friends since they met in year one. Both girls played in the school netball team and the school vigoro team. They helped each other with their homework and sometimes exchanged tapes to listen to the music. They had not been on a walk as long as this one before but they had been looking forward to it and were keen to go. They were both keen photographers and had brought their cameras with them in the hope of getting some good shots of the trip.

John and Robert lived near one another and had been friends for years. Both boys played in the school soccer team and John was the school's fastest swimmer. The boys often visited each other and played video games together. They sometimes met at the weekend and organised short bike riding expeditions to places of interest near their homes. During the wet season, they sometimes rode to the nearby dam to watch the water rushing over the dam wall. John was a good organiser and had been mainly responsible for organising the present expedition.

As the party made its way up the slope, the sun became warmer and several stops were made to allow the walkers to rest and to have a drink of water. These stops also provided opportunities for the hikers to discuss the birds and insects they had seen on the way. Fred encouraged the children to observe the countryside and examine the beauty of the trees as they walked.

Eventually, the track led them out of the trees into a clearing which was the summit of Mt. Simon. They felt as though they had landed on a different planet. In the distance they looked down on the cane farms with their patchwork of sugar cane and the river winding its way towards the sea.. An eagle could be seen hovering in the distance waiting for its prey. The walkers felt as though they had walked into a world in the heavens as they gazed at the valley below.

Fred broke the silence. "We have made good time", he said. "Now to boil the billy and enjoy a cup of tea and beef sandwiches". This was

the signal to get a small fire going in the clearing and to enjoy lunch in the beautiful surroundings. During lunch, many topics were discussed as the fire died down and the walkers became a little drowsy.

"We shall leave at 1p.m.," said Fred as he sat under a nearby tree, leaned against its trunk and closed his eyes. The two boys continued to talk quietly and the girls wandered towards an outcrop of rock on the slope to take a photograph.

When the girls reached the outcrop of rock, Jodie saw a yellow bird sitting on the branch of a tree and moved quietly forward to take a photograph of it. As she moved forward, she slipped on the rocks and, while trying to save herself, twisted her ankle and fell onto the rocks. Melissa called out and, in no time, Fred and the boys were at her side.

Jodie had a cut forehead, a grazed leg and an injured ankle and was suffering from shock. As she fell forward and saw the camera rolling down the slope, she had visions of following it down the side of the mountain and landing against a tree. The members of the party comforted her as Fred laid her gently on a ground sheet and asked John to get the first aid kit. Fred dressed her cuts and grazes but seemed troubled by her ankle injury. "Could it be broken?" he thought. It was very painful and Jodie was unable to put any weight on it.

After Jodie had been made comfortable and given a cup of tea, the group had a short discussion. It was agreed that Fred would return to the car as quickly as he could to fetch help and the rest of the party would stay with Jodie.

Fred left his gear behind except for his water bottle so that he could travel quickly, put his jacket over Jodie to keep her warm and set off for the car.

The group on the summit tried to comfort Jodie by trying to take her mind off her injuries. They had some guessing games and talked about some recent films they had seen on T.V. They boiled the billy again and shared their food to make the eating more interesting. However, they all were a little concerned and kept looking at the shadows as they lengthened as the sun moved towards the west.

What if something happened to Fred?
Would they have to spend the night on the mountain?
What would their parents be thinking?
Should they ration the food and water?
Would there be wild cats on the mountain?

Suddenly, their thoughts and the silence were broken by the sound of a helicopter as it moved quickly towards them up the mountain side. The noise became louder as the helicopter got closer and the pilot landed it in the clearing. Two rescue workers jumped from the craft and moved towards Jodie with a stretcher. Fred followed. Everything had changed. All would be fine now.

The rescue workers carefully bandaged Jodie's ankle and lifted her gently onto the stretcher which they slid into the helicopter. They then signalled the rest of the party to climb aboard. The waiting hikers needed no second bidding as they quickly gathered their belongings and scrambled aboard. This was better than hiking!

Fred checked the remains of the fire, made sure it was completely extinguished and followed them into the noisy craft. The pilot looked over the side then guided the machine down the side of the mountain. In a short time the helicopter landed in a clearing near a waiting ambulance-it had been a quick descent.

The parents of the hikers were standing anxiously at the side of the ambulance and showed clear expressions of relief on their faces as the children jumped from the helicopter. Jodie was put into the ambulance and taken to hospital with her parents by her side.

Jodie's ankle was badly sprained but not broken and she was allowed to go home from hospital the next day. She was wheeled out to the car in wheelchair and she had to take two crutches with her to ensure she did not put any weight on her injured ankle.

Her three friends visited her the next day when she returned home and relived the previous day's events as they sipped coke and had lunch around the patient with the propped-up leg. A description of the

rescue had appeared in the local newspaper and they all agreed that it had been an adventure. They talked about the ride in the helicopter and agreed that it was something to remember but also agreed that they were lucky people to have been rescued through the efforts of Fred and the rescue workers. Furthermore, they decided to try do something in the future to show their appreciation towards the rescue squad that carried out their rescue.

APPENDIX L

Learning Processes

Process Skills Chart

SCIENCE

YEAR							
1	2	3	4	5	6	7	
***	***	***	***	***	***	**	Observing
*	**	**	**	**	***	**	Communicating
**	**	***	***	***	***	**	Inferring
**	**	**	*	*		**	Classifying
	*	**	**	**	**	**	Measuring
			*	*		*	Using Numbers
**	*	**	**	*	**	**	Predicting
						*	Using Space/Time Relationships
				**	**	**	Interpreting Data
					*	*	Defining Operationally
				**	*	**	Controlling Variables
				**	*	**	Hypothesising
						*	Experimenting

BASIC PROCESSES

INTEGRATED PROCESSES

The number of asterisks denotes the amount of emphasis given to each process skill in each year level.
A blank space indicates that the Sourcebook does not place emphasis on this process skill in this year level.

Knowledge and understanding

Forming the following generalisations:

- Change is part of our way of life.
- Ideas and knowledge change as people's awareness and understanding change.
- Technological development changes the world and the lives of its people.
- Changing methods of communication and transportation influence people's knowledge and understanding of the world.
- Some countries have experienced social or political change.

Academic skills

Communicating:

- selecting relevant information from fiction and non-fiction literature;
- acquiring information by listening and observing, and using the information to identify the main ideas, make comparisons, identify points of view, independently extract main ideas from class discussion, and distinguish between fact and opinion;
- participating in and contributing to whole-class or small-group discussion;
- asking effective questions to find information;
- gathering and interpreting data from simple interviews that have been constructed with teacher direction;
- presenting material by role-playing or drama, by making plans, models, murals, drawings and paintings, and by composing stories, compiling simple projects and brief reports, preparing summaries, giving lecturettes, participating in simple debates, and selecting and organising newspaper cuttings.

Gathering data:

- using parts of a resource as a guide to contents;
- using audio-visual equipment to obtain information;
- using knowledge of special reference books to obtain information;
- undertaking guided research for details;
- reading newspapers and pamphlets discerningly to select material that is pertinent to class activities;
- extracting information from newspapers, vertical files and magazines.

Interpreting pictures:

- using pictorial information to make comparisons;
- identifying characteristics and discussing features of pictures;
- sequencing events portrayed in pictures in order to gain information;
- collecting and arranging a series of pictures to illustrate aspects of the past, present and future.

Using graphs and tables:

- constructing bar graphs using a scale, a title and labels;
- interpreting graphs by reading the values from scale, comparing the values, and using the results to answer questions;
- recording and constructing a table from raw data;
- extracting relevant data from a variety of tables;
- interpreting data presented in tables by making comparisons.

Mapping:

locating places on a wall map

Social skills

Learning how to relate to and communicate with others

Learning how to work with others

Thinking processes

Comparing:

- identifying the attributes, qualities or properties of two or more different entities;
- considering the same entity at different points in time.

Classifying:

- grouping, labelling, regrouping and relabelling;
- arranging items along a continuum according to some criterion.

Imagining:

proposing alternative possibilities for existing realities

Inferring:

- identifying facts and inferences;
- generating logical inferences and identifying the evidence on which the inferences are based.

Hypothesising:

- formulating suppositions on the basis of evidence;
- modifying an hypothesis when collected data does not support an initial hypothesis.

Generalising:

- determining causal links that explain or support inferences;
- using evidence and logical argument to make generalisations.

Attitudes, feelings and sensitivities

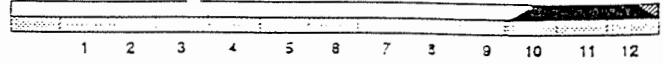
Developing a positive self-concept

Showing sensitivity to other people

Developing and exploring attitudes

LANGUAGE ARTS

4. Strategic planning



Students generate original courses of action that take account of personal and contextual factors. They build on experiences in decision-making, problem-solving and critical appreciation to plan activities that will further develop their language use. All children engage in strategic planning with support from the teacher or peers. Some do so independently. Strategic planning is used particularly in non-narrative literary genres and persuasive genres.

What is the related knowledge?

Students will develop concepts related to decision-making, problem solving, critical appreciation and strategic planning.

Processes	Years 1—3	Years 3—7	Years 7—10
decision-making	question knowledge procedure choice expectation	priority effect purpose cause logic comparisons	election prediction determination relevance consequence system
problem solving	trial imagination pattern query goal idea invention	understanding analysis simplification hypothesis success test contrast comparison	description brainstorm generation controversy divergence analogy synthesis conclusion solution evaluation
critical appreciation	use pattern preference comparison	difference identification consultation argument judgment quality bias	viewpoint review contrast tentativeness refinement implication belief balance values ideology validation
strategic planning	plan	recollection prediction imagination	speculation perspective alternative design divergence convergence anticipation monitoring

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