PEER TUTORING IN THE ESL CLASSROOM
WHAT DO THESE STUDENTS TELL US?

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ABSTRACT

This study explored the usefulness of peer tutoring among elementary school-aged non-native speakers of English (NNS). In this study, the more proficient NNS of English tutored their less proficient NNS peers. I explored the usefulness of peer tutoring in the natural classroom environment of the English as a second language (ESL) students in Grades 4 to 7. The study focuses on how and to what extent the ESL students can assist each other in the academic and language learning of a science study on the human body during peer tutoring sessions.

Taking an ethnographic research approach, the study employed a variety of data collection methods such as classroom observations, formal and informal interviews with the participants, tape recording peer tutoring sessions and collecting writing samples of the students' work. Eighteen ESL students, the classroom teacher and the researcher as participant observer were the participants in this study.

Seven themes emerged from the data for discussion of the findings of the study. The results of this study demonstrate that with teacher scaffolding, such as modelling strategies, explicit instruction, and contextual hands-on group tasks for experiential learning and sharing, that NNS of English can and do assist their NNS peers during peer tutoring. Further to this, results indicated that the matching of tutors and tutees is complex and requires careful consideration when forming the tutoring dyads. An interesting aspect of the study revealed that discourse and “concepts” were being scaffolded at the same time and that students were able to include description and causal discourse in their writing about topics on the human body.
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Chapter One

Weaving the Context

And

Research Questions

Together

Introduction

My study on peer tutoring comes from years as an educator with an interest in peer-assisted learning strategies. I explored these strategies within the classroom environment in an effort to provide opportunities for students to interact with each other and learn through their discussions about their tasks. These peer-assisted interactive learning tasks empowered the students and gave me an opportunity to observe how they interacted and assisted each other within, for most of these students, their first language (L1) classroom environment. Then I entered a new phase of my career teaching English as a second language (ESL) to elementary children. Clearly, I needed to weave the pedagogy I knew together with strategies that would assist learners acquiring a second language within the ESL classroom. Could peer-assisted tasks be a productive strategy for students who are learning content information and the English language within the second language classroom? This question along with others began to shape my research. In this Chapter I set up the framework of my study.
Purpose of the Study ~ Weaving the Context

The purpose of this research is to explore the usefulness of peer tutoring among elementary school-aged non-native speakers (NNS) of English with the more proficient NNS peers tutoring less proficient NNS peers. More specifically, I explored the usefulness of peer tutoring among ESL students of intermediate grades 4 through 7 at a time when learning academic information along with the English language is crucial (Cummins, 1981). Within a dyad of NNS, to what extent can a tutor assist a peer in the course of learning academic information?

I investigated the usefulness of peer tutoring among ESL students from the perspective that peer tutoring facilitates opportunities for meaningful communicative interaction or interactive “talk” and is a means for more knowledgeable peers to assist others in language and content learning within the classroom. Peer tutoring unlike other methods of co-operative learning or mentoring is characterised by specific role taking of a tutor and tutee. Interest in this type of teaching strategy stems from the potential for developing literacy skills and providing opportunities to develop content knowledge. Viewing peer tutoring and cognitive development through Vygotsky's (1978) peer-assisted socio-cultural perspective, and language learning tasks from the language socialisation perspective of Schieffelin & Ochs, (1986) it is through interactive “talk” that children can attempt to make sense of their world and construct meaning.

Peer Tutoring within Vygotsky’s Socio-cultural Framework

Essential to peer tutoring within the socio-cultural perspective of Vygotsky (1978) is the role of language-based social interaction in the process of language development and “higher mental functioning”. His view was that “higher psychological processes unique to humans can be acquired only through interaction with each other” (Leontiev, 1981:55-56, cited in Wells, 1994).
Among the other theorists who share this view is Halliday (1993) who proposed that children simultaneously engage in "learning language" and "learning through language" for "language is the essential condition of knowing, the process by which experience becomes knowledge" (p.93-94).

Vygotsky maintained that a child's cognitive growth is contingent on the mastery of language as a semiotic process, which means language is a tool in the development of the mind. This process involves a relationship between social speech, inner speech and individual thought. "Social speech" refers to interaction with others as social interaction or "talk". From "social speech" a child progresses to "inner speech" during which a child may talk aloud to her or his self as a monologue or interact with others through "talk". "Inner speech" which Vygotsky also called "verbal thinking" or thinking out loud, is considered the last stage in the internalisation of social language that leads to internalised individual thought. Thought then becomes a means for self-directed mental activity (Wells, 1994). When considering the student in the classroom in the difficult task of learning another language, "inner speech" through dialogue provides an opportunity for this learner to practise language and then internalise the "verbal thinking" as thought. As well, by participating in conversations that result from a shared activity, a student learns to use culturally encoded language.

Vygotsky (1978) also made an important distinction between development and learning, a notion to explain the distinction between a child's actual development level and the child's potential development level (Foley, 1991). His theory of child development took the view that while the child is developing and maturing he or she is within a "zone of proximal development" (ZPD). During this period in their lives Vygotsky believed children require the assistance of someone more capable or someone who is more knowledgeable to guide them through their
learning experiences. This form of assisted learning he claimed "awakens a variety of internal and developmental processes that are able to operate only when the child is interacting with people in his or her environment and in co-operation with peers" (Vygotsky, 1978:90). In terms of my study on peer tutoring, the more capable students are class peers who are more proficient in their English language development. Bruner (1985, cited in Wells, 1994) maintained learning takes place when there is an appropriate social interaction framework of "scaffolding" using familiar contexts and proceeding at a reasonable pace within the capabilities and capacities of the student. Furthermore, school tasks need to be selected so they validate and build on the socio-semantic functions that a child has mastered while introducing ones that are to be developed (Tharp & Gallimore, 1988).

Parallels may be drawn concerning Vygotsky’s theory of language development and higher mental functioning and Cummins’ notion of second language learning. Cummins (1992) referred to basic communications skills (BICS) as language of social interaction, and cognitive academic competence (CALP) as the language of more cognitively demanding tasks. The significance of his distinction between BICS and CALP indicated that ESL students who are competent in social communication may not be as readily prepared to understand the academic language that is to a greater extent more cognitively demanding. These, however, are the tasks, language and knowledge that prepare students for their future demands in high school or college. In order for ESL students to bridge the social language to the academic knowledge they require tasks that are cognitively demanding yet provide information in such a way that is comprehensible. By scaffolding information in context-embedded tasks, such as the Knowledge Framework (Mohan, 1986) or Cognitive Academic Language Learning Approach (CALLA) (Chamot & O’Malley,
1996), during peer tutoring ESL students will be more readily prepared to talk through the task, develop their "inner speech" and individualised thought.

Vygotsky's emphasis on language development, the social construction of higher mental functioning and the role of teachers in the learning process intrigues me. I perceive they are crucial factors to understanding a focus for peer tutoring in classrooms today. Through language-based social interaction in our classrooms, students can talk, share their understandings of activities or events and construct meanings.

Research on interactive talk among peer tutors has examined various aspects of language-based interaction. The benefits from the interactions among ESL students and native speakers (NS) of English have been noted for elementary aged ESL children. Flanigan's (1988) research on peer roles with kindergarten, second and fourth grade children demonstrated that limited English proficient (LEP) children who were enrolled in pull-out ESL classes were able to effectively acquire their L2 through interactive talk with native speakers of English, the notion being that social interaction provided meaningful comprehensible input. Similarly, studies conducted by August (1987), Johnson (1983) and Wong Fillmore (1979) of Mexican-American Spanish speaking students affirmed that natural situations that promote peer interaction are conducive to language learning and that English speaking peer tutors are important resources for second language acquisition. These studies all concur that exposure to the target language increased comprehensible input and resulted in greater output of the target language. In other words, as a result of exposure to the English language the students were able to hear more English spoken and in turn were able to practise using their English. These studies focus on second language acquisition in peer tutoring situations whereby native speakers of English were peer tutors for non-native speakers in socially based school tasks.
Recent qualitative studies of diverse populations of students have examined peer talk and interaction during peer revision of writing (Lockhart & Ng, 1995; McGroarty & Zhu, 1997), literacy learning (Klinger & Vaughn, 1999; Raphael, Brock, Wallace, 1997; Schneider & Barone, 1997), while other studies have been concerned with peers scaffolding during learning and exploring Vygotsky’s ZPD (Kermani & Moallem, 1997; Wollman-Bonilla & Werchaldo, 1999). Analysis of the data from these sources revealed peer talk and interaction facilitates the expression of students’ thinking in a non-threatening environment, clarification of meaning, building literacy knowledge and engaging students in participating as active constructors in their own learning.

Contrastive analysis of the research on the benefits of peers as tutors does exist. Research that has examined adult-child tutoring dyads argues adults use more verbal instruction, provide more information and elicit greater participation (Ellis & Rogoff, 1992, cited in Woods et al. 1995). However, the benefits of interactions among peers during tutoring have been widely examined and indicate clearly support for students’ learning, especially in regards to L1 research (Goodlad, 1995; Goodlad & Hirst, 1990; Topping & Ehly, 1998). Furthermore, L2 research of native speaker – non-native speaker of English (NS-NNS) dyads indicates tutors contribute to the learning of their peers by negotiating meaning, applying strategies taught to them, and clarifying meaning (Blake, 1992; Flanigan, 1991; Klinger & Vaughn, 1999; Lockhart & Ng, 1995; McGroarty & Zhu, 1997; and Peck, 1987).

Although the benefits of peer tutoring have been explored extensively among L1 speakers and more recently, NS-NNS dyads, claiming advantages for tutors and tutees in the dyads, few studies have investigated peer tutoring among NNS-NNS elementary school-aged students. Considering for many L2 learners opportunities to interact with NS are few, especially within the
ESL classroom or within schools where non-native speaking children are the majority, the potential for peer tutoring among ESL students needs to be explored.

**Weaving a Language Socialisation Perspective of Task Analysis**

The discourse task analysis that I employ in my study of peer tutoring is that of language socialisation (Schieffelin & Ochs, 1986). Language socialisation approaches the learning of language and the learning of culture as a simultaneous process during mediated social interaction. Since language socialisation means “socialisation through language and socialisation to use language” (Schieffelin & Ochs, 1986) then children learn linguistic and socio-cultural knowledge through participating and interacting in tasks or activities such as those during peer tutoring.

Task within the socio-cultural perspective of the Vygotskian (1978) framework is “both a unit of cognitive organisation within the individual and as a unit of social organisation within the culture” (Mohan & Smith, 1992). In other words the analysis of task for a student is central to the development of both knowledge and culture. When analysing task within the language socialisation orientation I examined the socio-cultural aspects of tutoring a peer in the classroom and if in fact the students felt they were able to gain knowledge through this interactive study. I also explored discourse the students used during their interactions while working on their tasks, how they worked together on the tasks, and how the tutors were able to scaffold information for the tutees. I looked for patterns that emerged in the data that would reflect what happened during my ethnographic study of peer tutoring in the ESL classroom.
Qualitative Research Methodology

I addressed the questions of this study by using qualitative research methodology with an ethnographic approach. McMillan and Schumaker (1993) describe qualitative research methodology as "naturalistic enquiry, use of non-interfering data collection strategies to discover the natural flow of events and processes and how participants interpret them" (p. 372). Using an ethnographic approach of intensive, detailed observation of a setting for a long period of time (Hammersley & Atkinson, 1995; Spradley, 1980; Watson-Gegeo, 1988), I immersed myself in the daily school lives of the students, by teaching and observing them, listening and talking to them. I collected data as a participant observer (Spradley, 1980; Watson-Gegeo, 1988), observing while interacting with the students on an ongoing basis throughout the study. I audiotape recorded the students' interactive "talk" during peer tutoring and observed their behaviours while they worked and socialised. Audiotape allowed me to analyse the students' discourse and look for patterns that emerged in their interactions during peer tutoring. Students' work samples were also collected from their tasks that provided me with a link between the interactive "talk" and the writing task. I conducted formal interviews that were recorded on tape and in notes so I could understand the students' points of view. Formal and informal discussions with the students and teacher were ongoing to get feedback on a regular basis. Through discussions, the teacher and I were able to share our observations of the students, the situation, the process, and so on.

Interactions with and my observations of the students in their classroom allowed me to attempt to understand their "social situations" and "cultural meanings" (Spradley, 1980). That is to understand the meaning of the patterns of behaviour and the knowledge the students have learned from participating in peer tutoring and talking and writing about science within their classroom setting. In other words, how and in what ways has peer tutoring impacted their
cultural knowledge and behaviour? Through these discussions and observations I was able to reflect on what was happening in the classroom during the study. Reflection allowed me to step back and gain further understanding of the process and the students within that social situation.

In this study I focused on patterns that emerged in peer discourse during tutoring interactions in terms of the content of the interactive “talk” produced. Were the tutors able to support the learning of the information for the tutees by scaffolding and if so, to what extent? Were they able to negotiate meanings? Who controlled the talk and to what extent? For the purpose of this study, interactive “talk” refers specifically to the discourse and content features of the comments and questions exchanged between a tutor and tutee. The analyses of syntax, grammar or morphological features of second language acquisition (SLA) were not part of the scope of this research.

Secondly, I focused on non-verbal factors that may have influenced content understanding while the students were discussing the language and content of the science study and generating ideas for a writing task. I was interested in their possible use of graphics, body language or other means of conveying content information. How did the tutors get their message across to their peers when they did not understand?

Finally, I investigated students’ attitudes as a means of further understanding ESL peers as tutors and tutees within the classroom. The attitude of a tutor or tutee conveys their commitment and understanding of their role which may reflect on their presence in the study, participation in gaining understanding of the content and generating ideas for the task.

Within this qualitative study, I am able to construct meaning and learn how and to what extent the tutors were able to scaffold learning for the tutees, assist them with understanding the meanings of what was happening in the science study and generate ideas for their writing task. I
would learn the interaction patterns as they developed within the context of the students’ classroom and school environment.

**The Research Questions**

This qualitative study investigates the interaction between NNS English tutors as they communicated the language and content of a classroom science study to their NNS English peers during tutoring sessions. Eighteen ESL students, ranging in ages from 9 to 13, studied “Our Human Body” in their classroom environment. The basic research question was:

In what ways and to what extent do NNS English tutors assist their NNS English peers with language and content learning within the context of an elementary science study?

I posed four specific research questions to guide my investigation.

1. What types of interactive “talk” were generated between the tutor and tutee?
2. To what extent were the tutors able to scaffold learning for the tutees?
3. To what extent did the tutees’ writing tasks reflect the interactive talk between the tutor and the tutee?
4. What attitudes did the tutors and tutees have towards the tutoring experience?

**Significance of the Study**

My aim in this study is to contribute to the theory and practise of peer tutoring among elementary school-aged NNS of English. In a practical sense my goal is to contribute to the knowledge and practise of peer tutoring in the classroom as a teaching methodology. Since many elementary classrooms have such a diversity of learners, classroom teachers look for means in which to address their students’ individual needs. Given that both adult and teacher resources are
not abundant in schools our resource is within the students themselves and their abilities to assist each other in learning. If peer tutoring were a means in which ESL students can interact and assist each other in the learning of the language and content of their daily work then this study would inform pedagogy and the daily practices of teachers in classrooms.

Secondly, in an academic sense, researchers have validated the effectiveness of tutoring (Goodlad, 1995; Topping & Ehly, 1998; and more). Peer tutoring has been used effectively in NS-NS and NS-NNS dyads. However, despite the fact that Flanigan's (1991) research indicated a value for second language learners interacting in a peer tutoring situation with both NS and more proficient NNS of English, few studies have explored how and to what extent elementary-aged ESL students can assist each other. Furthermore, few studies have explored NNS-NNS interactions of elementary student peers as they talk about their academic study. This present study attempts to address these gaps in the research and further inform pedagogy for ESL learners in their real academic learning environment. By exploring alternative ways of providing information so ESL students think about and learn content may ultimately have an impact on how teachers facilitate learning and empower ESL students.

This study also has personal significance. Several areas of research have motivated my study on peer tutoring. First, my study on peer tutoring was motivated by research on the crucial importance of providing ESL students with opportunities to use language and learn content information to stimulate cognitive development (Cummins 1981; Mohan, 1990). Secondly, researchers who have contributed to alternative instructional approaches for stimulating cognitive growth for Limited English Proficiency (LEP) students also motivated me (Chamot & O'Malley, 1996; Mohan, 1986). Finally, the work of researchers and classroom teachers as researchers in second language acquisition that interests me has explored ways in which students can interact
with each other (Chesterfield & Chesterfield, 1985; Flanigan, 1991; Klingner & Vaughn, 1999; Pica, Lincoln-Porter, Paninos & Linnel, 1996; Raphael, Brock, & Wallace, 1997). Building on the research of others I can pursue my academic interest.

Organisation of the Thesis

The organisation of this thesis is as follows. Chapter Two reviews the relevant selected literature of peer tutoring, peer interaction and language socialisation. I examine research in L1 and L2 learning in order to address the issues. In Chapter Three I discuss the study, which includes an ethnographic approach to qualitative research design, setting and participants, and the process of data collection and analysis. In Chapter Four I discuss the findings of the conduct of the study and the seven themes that emerged from the data. In Chapter Five I discuss the research questions, draw conclusions that I have found from my study and discuss how these conclusions hold meaning for me as an educator.
Chapter Two

A Selective Review
of the Literature

Introduction

In order to attempt to understand my topic on peer tutoring in depth I researched the literature on the following topics. The research literature will form the foundation through which I can support my study. First, since my study focuses on ESL peer tutoring I needed to understand the importance of peer discourse with ESL learners in the classroom. Then, I explored the research foundation of historical trends that could support peer tutoring. As well, I needed to investigate L1 and L2 studies that indicated the effectiveness of tutoring, cognitive and affective gains, with a focus on elementary-aged students. In particular, I referred to the extensive work of Topping (1988, 1998) and Goodlad (1990, 1995), whose research in L1 tutoring has spanned three decades or more and whose guidelines on tutoring provided structure to the process of peer tutoring in my study. Next I investigated individual differences among participants in peer tutoring schemes. Finally, I reviewed selective studies on how elementary students can and do assist each other, particularly from language socialisation and Vygotskian (1978) perspectives.

In this chapter, I will present a selective and not exhaustive review of the literature, primarily focusing on research of elementary students, in the following order: 1. Interactive peer talk with ESL learners in the classroom; 2. An overview of trends in peer tutoring research; 3. Cognitive benefits and the process of peer tutoring in the classroom; 4. Affective benefits of peer
tutoring; 5. Individual differences among participants in peer tutoring; 6. Patterns of developing expertise for peer assistance; 7. Language socialisation and scaffolding tasks through training peer tutors.

**Interactive Peer “Talk” with ESL Learners**

The importance placed on classroom interactive talk has prompted interest from researchers and classroom teachers-as-researchers, especially in regards to peer learning and the roles of teachers and students in peer-assisted learning. This interest stems from a desire to address the individual needs of the diversity of language learners in an effort to develop their skills in the area of literacy and increase their content knowledge. Strategies such as peer tutoring and small peer-group discussions have been investigated for the benefits of interactive talk for language and content learning. Peer tutoring requires that two students communicate through interactive talk in the classroom. This provides opportunities for a student acquiring a second language to communicate through meaningful, focused, interactive “talk” with another student. Interactive “talk” is a means for students, learning a second language and academic knowledge, to practise language and be supported in their content learning by another more capable student (Cazden, 1988; Pica, 1994; Vygotsky, 1978).

Looking at talk through Vygotsky’s (1978) theory that individual thinking and the development of higher functions originates as social interaction, then over time as inner thought, we can see that talk is crucial for abstract learning such as writing and comprehending text. A continual interactive process of internalising language, transforming ideas into meaningful information, re-expressing language through communication with another and then receiving
feedback is the process of learning (Vygotsky, 1978). For ESL students learning-content information, focused interactive talk would be an important means for students to practise the language and internalise the ideas with the assistance of another student before they could comprehend text or attempt a writing task.

Raphael, Brock and Wallace (1997) in their classroom research on peer talk with elementary students claim that ESL students can engage in meaningful talk about text that leads to complex thinking. In their study, elementary Grade 5 NNS and NS of English read and discussed novels within peer dyads and then small groups. The novice language learners in the dyad demonstrated that they were able to make contributions to the topics being discussed and “challenge the thinking of their peers identified as more competent literacy users” (p. 188). Talking about text is one way that students can clarify their understanding of a concept and make contributions to conversations. By being involved, students are actively engaged in the nature of the discussion that also facilitates their peers’ thinking and learning.

Furthermore, students’ literacy learning can be supported and extended through peer talk and ESL learners can reveal leadership within these situations as well as benefit from the support of their peers. Based on their classroom research Klinger and Vaughn (1999) and Raphael, Brock and Wallace (1997) report on the importance of peer assistance through classroom talk for facilitating language learning. Klinger and Vaughn (1999) noted in their study of 10 and 11 year old ESL students, and students of diverse language needs, that with a supportive environment of both teachers and peers, students become increasingly more proficient at applying comprehension strategies and constructing knowledge while reading academic information. They concluded that by teachers modelling strategy usage, clarifying difficult words and modelling a helpful attitude first, students were more readily able to assume their leadership roles of assisting their peers in the
class with the language and content of science and social studies. Raphael, Brock and Wallace (1997) found ESL students relied on more knowledgeable peers to clarify meaning within text in order to support their learning. However, within small groups the ESL students themselves demonstrated confidence and leadership by drawing classmates into conversations, eliciting opinions and ideas, and guiding thinking. Through talk, more knowledgeable peers can assist ESL classmates in learning new vocabulary by helping them label diagrams and write ideas on a web as meaningful tasks (Klinger and Vaughn, 1999) therefore revealing that peer talk forms a bridge to the writing process.

Lockhart and NG (1995) argue that social interaction is a prerequisite for learning to write and that peer negotiation can provide student writers with “an opportunity to discover their own meaning and how to convey that meaning through the written mode” (p. 606). Since written language requires abstract thought, peer responses are seen as a way of intervening thought and writing during the writing process. Interactive talk about writing provides a means for the development of “higher mental functioning” (Vygotsky, 1978). At the college level, Lockhart and Ng (1995) qualitatively analysed oral peer interaction in ESL peer response dyads to identify stances expert peers may take when assisting novice language learners in their writing. They found that when the expert in the dyad took a collaborative stance to peer response they not only helped the writer to clarify, expand and shape the intended meaning but also to build ideas through negotiation. Negotiation is defined as a term used to “characterise the modification and restructuring of interaction” (Pica, 1994). It takes place between learners and their interlocutors when, during the course of their interaction, either one signals with a question or a comment that they did not understand what has been said and require clarification. Negotiation allowed the writer to build on previous thoughts and discover new ones. This stance engaged the writer in “a
fuller understanding and deeper reflection of the writing process” (Pica, 1994:647). They outlined the implications and benefits of three other stances during ESL peer interactions and indicated that students approach peer response in different ways depending on their perceptions, goals and motivations. However, they concluded interactive peer response offered benefits to the ESL students.

At the elementary school age level, Blake (1992) argued that talk between non-native (NNS) and native (NS) English speakers facilitates the students' experimentation of talk around their writing. According to Blake (1992) this talk is crucial for helping students revise their work. Furthermore, she claimed that talk in peer writing dyads could lead to “a greater sense of community in the classroom as students learn to become critical of, supportive of, and responsible for their own writing” (p. 605). This may be similar to what Lockhart and Ng’s (1995) described at the college level as a “fuller understanding” of the writing process. Urzua (1987) found that the process of peer response in children within the ESL dyad lead to the development of the writer’s sense of voice, awareness of audience and the power of language. Further to this, Blake (1992) suggested the use of oral language in peer writing conferences “may give us an important link in beginning to generate hypotheses specific to the importance of oral language in writing in general and among non-native speakers of English in writing in particular” (p. 609).

Researchers and classroom teachers have advocated the importance of peer interactive talk for language learners. When we look at language learning from the perspective of Vygotsky’s (1978) theory of language development, ‘language and thought’ or speech and thinking, we can see that interaction among peers during a task in a classroom setting can facilitate learning through speech to develop comprehension of text and construction of writing. Most studies have examined peer interaction between NS and NNS in classroom or pullout studies. Few studies
have been conducted in order to explore peer interaction during peer tutoring within the ESL classroom at the elementary level between NNS-NNS dyads. Furthermore, little research has examined these students’ interactions with each other in order to understand how they can and do assist each other with language and content learning during the course of their studies, and how they can contribute to the learning process of their peers. This study examines these issues through the data collected in an elementary ESL classroom as they studied science, discussed and wrote about what they learned.

An Overview of the Trends in Peer Tutoring Research

Peer tutoring has attracted a vast number of researchers and teacher-as-researchers to investigate L1 and L2 learning in a collaborative setting. They have researched peer interaction with a variety of participants and in a variety of settings, from the natural setting of a classroom to experimental settings. Research into the effectiveness of peer tutoring schemes and peer interaction in collaborative settings has been investigated from many perspectives in education, psychology, linguistics and so on. Some of this research that was produced from L1 learning situations has formed a foundation for research in L2 settings. Furthermore, research by Goodlad (1990, 1995) and Topping (1988, 1998), who have contributed to our knowledge of L1 peer tutoring during the past three decades as an effective strategy for L1 learning, has also contributed to our knowledge on the practical process of conducting peer tutoring for both teachers and researchers.

Though the focus of my study is understanding peer tutoring in the ESL classroom, how and to what extent peers in L2 learning can assist each other, I cannot ignore the trends that have occurred in L1 research that have informed theory and pedagogy of peer tutoring in the
classroom. As well, research has informed the process of conducting peer tutoring—and the conditions under which it may be most successful. Therefore, the following sections of my selective review of the literature provides a historical overview of the trends that have led to research in L1 and L2 and thus my research on peer tutoring in the L2 classroom. Following these trends, I briefly discuss selective research on peer tutoring that sheds light on the cognitive and affective benefits. This selective review is not meant to be an exhaustive review but an overview of trends and a review to research that brings to focus studies on effectiveness.

Historical research indicates that tutoring has existed as a socio-cultural practise for centuries. Throughout the world, cultures practised an apprenticeship or mentoring philosophy whereby an elder or more skilled member of the group passed down cultural knowledge and skills to the young. This is true of First Nations communities where skills such as beading, blanket-making and carving were passed on to the young and that the history of their nations was passed on through stories. Within African cultures older experienced members passed on the teachings of playing instruments, hunting rituals and healing wisdom to young members of the communities who were deemed to inherit the roles. Language and cultural meanings were communicated within these socio-cultural practises of mentoring or tutoring.

Andrew Bell's (cited in Topping, 1988) name is associated with the first systematic use of peer tutoring in 1789 in an academic setting. Bell (cited in Topping, 1988), an Anglican clergyman, was appointed superintendent of a charity school in Madras for orphaned boys of soldiers where he implemented his new ideas using a system of peers as tutors. He organised a hierarchy of people, students ranging in age from 7 to 14, which included tutors to teach tutees for each class, as well as an assistant teacher who was to monitor and instruct the tutors. Bell (cited in Topping, 1988) noted in his journal, the academic, affective and social benefits attained
by the boys through his model of peer tutoring. He claimed that it "cultivates the best dispositions of the heart by teaching children to take an early and well-directed interest in the welfare of one another" (Bell in Topping, 1988, p.14). Bell’s moral-driven philosophy of educating students was modelled again in London, under the guidance of Joseph Lancaster.

In 1801, Joseph Lancaster, a Quaker schoolmaster, established the Borough Road School for educating boys of working-class families of London (cited in Gerber and Kauffman, 1981). Since public education was not known to exist at this time, Lancaster’s funding was gathered from private supporters. Due to the financial restraints of such an academic setting, Lancaster began a system of peer-mediated learning. Older, more knowledgeable students took the role of educating the younger children in the school while they themselves were learning. The tutors were noted as using structured materials such as visual aids to present a lesson. Students were grouped according to individual curriculum areas such as reading, spelling, writing or mathematics. They were then placed in graded levels where they were tutored by students who themselves were slightly above the levels of the students they were tutoring. When the students mastered one level of skills they were advanced on to the next. Lancaster’s system of cross-age peer teaching was formulated from Bell’s system and had an impact on future schemes in peer tutoring.

Not until the 1960s, during the school reform movement era was there a resurgence of interest in peer tutoring in the United States. Gartner, Kohler and Riesman (1971) described the development of modern peer tutoring in the context of the educational reforms, such that motivation towards the concept of peer tutoring was an attempt to address the social problems and underachievement of students, particularly those from low-income families. The movement towards ‘individualisation of instruction’ became a key phrase in the public schools, although achieving direct instruction was difficult due to the limited resource of teachers. Student peers
were thus viewed as an educational resource and possibly a means to improving the academic outcomes of other students. The trends of education in the 60s, within the context of anti-poverty, individual instruction and educational politics, were the impetus for research explorations that led to the tutorial community scheme of Melaragno and Newmark (Melarango, 1976).

Melaragno and Newmark (Melaragno, 1976) proposed a tutorial community within an elementary school setting. The target children within the school were ethnic-minority students who the teachers felt were not being successful within the existing system in the school. Similar to Lancaster (cited in Gerber and Kauffman, 1981), their idea was also directed towards children from low socio-economic families and they too had a plan for a structure with peers as tutors. The teachers trained the peer tutors and the programme was curriculum-based with the learning objectives based on the analysis of tasks. However, their deliberate approach to a peer-tutoring scheme in an educational setting was in contrast to Lancaster's moral-driven, organised-monitorial approach. The students achieved academic, affective and social gains. Their study of peer tutors, though unable to withstand longevity of time, was one that began to provoke thought about education as an institution and a process (Gerber and Kauffman, 1981).

During the 1970s there was a surge of interest among L1 researchers regarding tutoring and consequently a plethora of studies emerged. Research efforts during this time attempted to establish the conditions under which peer tutoring led to gains in academic, behavioural or social development. Significant reviews of the research were published by Cohen, Kulik & Kulik (1982), Ehly and Larsen (1980), Feldman, Devin-Sheehan and Allen (1976), Gartner, Kohler and Riessman (1971), Gerber and Kauffman (1981), Goodlad (1979), and Sharpley and Sharpley (1981, cited in Topping, 1988). These research studies spanned the United States and Britain and were viewed from psychological, behavioural, sociological and educational perspectives.
Researchers have studied the effectiveness of peer tutoring for tutors and tutees. They have explored the many variables affecting outcomes such as which personal trait combinations worked best, which personal factors were significant, whether students should be gender-paired, whether tutors should be trained, and what content areas tutors are most effective for tutor and tutee gains. Concerns and discussions arouse around methodology and research design, “soft” data and “hard-nosed” empirical data, structured and unstructured tutoring situations. A tension emerged between action and research (Feldman, Devin-Sheehan & Allen, 1976; Goodlad, 1979).

Research interests in L1 throughout the 1980s continued to focus on characteristics of peer tutoring that yielded cognitive, affective and social gains for tutors and tutees as a means to establish a solid research-based foundation for peer tutoring in education. Goodlad (1990) and Topping (1988) advocated the cost effectiveness of tutoring during this time of budget restraints in educational spending. Along with their decades of research they published textbooks to prepare teachers who might be interested in pursuing a peer tutoring scheme (Goodlad, 1995; Goodlad & Hirst, 1990; Topping, 1988; Topping & Ehly, 1998).

Researchers at this time began to investigate peer tutoring and collaborative learning for ESL children within the elementary school years as a means for second language acquisition (August, 1987; Chesterfield & Chesterfield, 1985; Flanigan, 1991; Johnson, 1983; Peck, 1987; Wong Filmore, 1979). They investigated and generated interest in environmental factors for SLA linguistic input and interaction with native speakers, discourse investigations into the types of talk such as tutor talk, caretaker language, foreigner talk and motherese, learner output, and efficacy studies among NS-NNS dyads. Flanigan’s (1991) study supported “the value for second language learners of obtaining linguistic input not only from native speakers but also from more proficient non-natives, even when that input is not really negotiated” (p. 152). Her findings along
with the other researchers stimulated a greater interest among teachers and researchers to investigate peer interaction and L2 learning.

The 1990s is seeing an interest in peer tutoring as a means to address teachers' interests for individualising students' learning, personalising instruction, enabling students to reach their individual goals and providing instruction to meet the individual differences among learners. In essence, the 90s and as we approach the new millennium of the 21st century, teachers-as-researchers and academic researchers are investigating many forms of collaborative learning experiences and for our diverse student population that will enable their learning.

Cognitive Benefits and the Process of Peer Tutoring in the Classroom

Peer tutoring has been studied and measured qualitatively and quantitatively over the past three decades by researchers, theorists and classroom teachers in order to gain a clearer understanding of the teaching strategy and benefits to the students. Efficacy studies measured quantitatively, attest the gains of peer tutoring in facilitating learning for L1 students (Cohen, Kulik & Kulik, 1982; Ehly and Larsen, 1980; Feldman, Devin-Sheehan and Allen, 1976; Gartner, Kohler and Riessman, 1971; Gerber and Kauffman, 1981; Goodlad, 1979, 1985, 1990; Goodlad & Hirst, 1995; Sharpley and Sharpley, 1981, cited in Topping, 1988; Topping, 1988, 1990; and Topping & Ehly, 1998). In addition to improving literacy skills in reading comprehension, vocabulary, spelling and writing skills, (Schneider & Barone, 1997; Taylor, Hanson, Justice-Swanson & Watts, 1997; Topping, 1988, 1998) peer tutoring has been used to improve scores and content understanding in math (Fitz-Gibbons, 1990) and science (Goodlad, 1985), and provide opportunities for more analytical thinking in problem solving (Joiner, Messer, Light & Littleton, 1995). Researchers Tabacek, McLaughlin and Howard (1994) have made assertions
that "peer tutoring has become one of the most soundly documented procedures of our time for facilitating academic and social gains for children" (p. 62). Though much of this evidence has been gathered from L1 studies, research with elementary students indicates that potentially both tutors and tutees can gain cognitive, affective, and social benefits from tutoring. Researchers and classroom teachers discuss the issues.

Topping & Ehly (1998) for example, claim that a structured peer-tutoring programme can provide cognitive gains, improved retention, greater meta-cognitive awareness and better application of knowledge and skills to new situations for both the tutor and tutee. A structured programme is organised and monitored by the teacher, and tutors are trained to support or scaffold the tutees during the interactive learning process. Scaffolding during the learning process refers to the support the tutor provides during each step of learning experience. Because of the structure of the task the tutors follow a series of steps that eventually enables tutees to be self-managing and independent in the learning process and develop greater meta-cognitive awareness (Topping, 1998). In structured peer tutoring literacy programmes such as ‘Paired Reading’, tutees select their own reading material to read to a tutor who has received training in the steps of the paired reading programme. Topping’s (1990) quantitative results, in ten L1 ‘Paired Reading’ projects with 8 to 10 year old students, revealed cognitive gains for both the tutees and the tutors in reading skills at approximately four times above the average of the control group. There were no significant differences in outcomes when data from peer tutored students were compared to parent tutored students (Topping, 1998).

All tutoring schemes do not require such structure in order for the students to benefit. Tutors and tutees in other tutoring programmes have also demonstrated significant gains. Academic researchers and classroom teachers-as-researchers have employed a variety of methods,
set different objectives and evaluation criteria. Goodlad (1990, 1995) claims that tutoring schemes do not have to adhere to rigid steps during the process, though training and monitoring by the teacher are crucial components for success. This flexibility of implementing a peer tutoring programme has attracted the attention of classroom teachers (Goodlad and Hirst (1990).

During peer tutoring the tutor and tutee talk to each other about the subject content. The tutor reinforces the content and language tasks during the study. Since the tutor is reviewing the material while reinforcing the information with the tutee, the tutor is also learning by tutoring. The tutor’s role is to explain a limited and usually prescribed set of information after being trained in the content or skill. During this tutoring process the tutors and tutees are able to reflect and then reformulate their thinking during the task. The tutors have more opportunities for concepts to be integrated into the tutees’ framework of conceptual understanding, for example through hands-on and real life experiences. Benefits to the tutees included greater confidence in their ability to talk about and understand the concepts, practise in oral and written communication skills and the opportunity for individual attention so that tutees ideas could be discussed immediately (Goodlad, 1990). Diverse learners as tutors can be effective within this less-structured scheme.

An example of Fitz-Gibbon’s (1990) L1 controlled study of fractions showed that both tutors and tutees made significant cognitive gains. This study revealed that although the tutors of 14 years and the 9 year old tutees were low-achieving maths students, the tutors knew a little more because they were trained on the content of fractions and shown methods for tutoring the information. After a 3 month retention test the tutors produced significantly higher scores than did the non-tutors who received classroom instruction. In Kennedy’s (1990b) study of low-achieving L1 readers, 14 to 16 year old tutors whose language skills “fell a long way short of
functional literacy" revealed significant reading attainment gains when they tutored 11 and-12 year old tutees. This efficacy research indicates that students of various abilities might be tutors.

Peer tutoring interventions have been productive and successful for improving reading, comprehension skills, vocabulary development and writing skills in the natural classroom setting of elementary diverse learners. Taylor, Hanson, Justice-Swanson and Watts (1997) found that peer tutoring of 7 to 9 year old struggling readers resulted in significant gains in reading ability. Furthermore they noted that the tutors themselves improved their reading scores. These scores made a significant impact on how the teachers in the school restructured their reading programmes to incorporate peer tutoring. Schneider and Barone (1997) suggested that peer tutoring provides a genuine purpose for reading and writing. Their study of 8 to 11 year old classroom peers tutoring children in Grades 1 and 2 resulted in a greater engagement in and interaction with story reading as well as more extended response activities. Besides cognitive gains the tutors and tutees experienced significant affective gains. The teachers noted that as the children became more aware that they could assist each other they “moved from being passive learners to becoming active learners” and “they began trusting each other and valuing each others’ opinions” (p. 142). Taylor, Hanson, Justice-Swanson and Watts (1997) and Schneider and Barone (1997) made changes in the way they approached classroom instruction to include student-centred peer tutoring strategies.

In L2 learning, peer dyads of NS-NNS within social situations have been explored in the natural setting of the classroom. For example, in a qualitative study, Wong Fillmore (1982) suggested that child-centred activities promote interaction among peers and that children who speak English can be an important resource for peers who are learning a second language. Johnson (1983) found peer tutoring promoted English verbal interaction when NNS elementary
students were paired with NS in the classroom setting. In her study of Spanish speaking children learning English, Wong Fillmore found those who initiated interactions with the NS of English gained more English than those who did not. In a further study of Spanish speaking students in Grades 3 and 5, Wong Fillmore (1985; cited in August, 1987) concluded that the more opportunities the children had to speak English with their peers the greater their gains were to acquire English production and comprehension. She argued that her study validated peer tutoring as an intervention to promote L2 learning.

Blake (1992) claimed writing in NS-NNS peer dyads became more elaborated and clearer as a result of peers working together and talking about their compositions. Blake (1992) found that interactive talk was an integral part of the writing process that produced the student's coherent work. Recent theses have also produced positive gains in literacy skills for elementary and secondary ESL students in peer tutoring programmes. Geimer, Krzystofczyk, Luczak & Talach (1998) noted an increase in students' reading comprehension, an improvement in the use of graphic organisers and an increase in the understanding and use of peer tutoring. Rominski & Vazquez (1997) revealed mainstreamed grade 8 ESL students showed improvements in writing processes, confidence in class discussions, and listening and recall skills. Moore's (1996) study indicated that by building on LEP students existing knowledge and experience and using active learning concepts in peer tutoring situations the students' rates of oral proficiency increased.

Goodlad and Hirst (1990) argued that both the tutors and tutees may attain cognitive gains. Cognitive gains made by tutors may be a result of learning by reviewing, processing or reformulating information, consolidating learning or finding a meaningful application for the subject they are studying. By organising their thoughts to explain the information to a peer, tutors enhance their own understanding. When students find a meaningful use for their knowledge, it
becomes more interesting. Students may therefore become more interested in acquiring more knowledge and thus improving their motivation and attitude towards the subject area they are tutoring. Kennedy (1990b) observed that the tutors were “fully and actively engaged in reading text and reviewing its meaning”. Cognitive gains made by tutees may be the result of receiving more individual attention and feedback they require to understand (Goodlad, 1995). Tutors may review the information at a slower pace for the tutees to learn, allowing them time to reflect and process the information.

**Affective Benefits of Peer Tutoring**

Affective gains for tutors and tutees are often gathered through anecdotal evidence such as observations, interviews, tape recordings, written reports or journals by the students or teacher-as-researcher and thus qualitatively measured. An affective gain refers to the positive attitude or behaviour tutors or tutees may experience through tutoring. Students may reflect more positively on their self-concept or self-image, attitude towards learning, behaviour or understanding of the role of a teacher. Researchers have proposed theories in an effort to understand the role students assume and feel as the “role of tutor”. Researchers reflect on their findings in the classroom.

Sarbin & Allen (1968, cited in Allen & Feldman, 1976) proposed that peer tutoring fosters affective roles such as a feeling of ‘status’ and therefore the affective rewards for the tutor may be revealed in an improvement in the task that is the focus of tutoring. Flanigan (1991) found that NNS students who tutored NNS students within their classroom environment revealed a sense of status when the tutors realised they knew more language than the tutees, who were starting where they once were. Flanigan (1991) revealed that the tutees viewed the tutors as “being instructed by
a survivor, a fellow traveller who has arrived or is at least a long way down the road" (p. 152). Blake (1992) found students began to “feel more responsible for their own writing and for that of their peers” during peer writing conferences. She noted students would show concern for each other’s work and follow-up with assistance.

The idea that tutors may benefit affectively due to the effects of ‘status’ within their role as tutor has been examined (Fitz-Gibbon, 1990; Goodlad, 1979). The idea that role refers to the possible empathy and understanding for the role of teacher a tutor may feel. In a controlled experiment examining the effects of the ‘role of tutor’, Fitz-Gibbon (1990) revealed a ‘responsibility effect’ whereby tutors felt anxious, worried or nervous about their need to know the work and to help their tutees understand the concepts. Other non-cognitive effects from the study that demonstrated affective outcomes for tutors were ‘insight-into-learning’, ‘teacher-empathy’, ‘relief-of-boredom’ and ‘peer-tutor-appreciation’. Furthermore, participating as a tutor may have been a positive experience in so far as enjoyment and attitudes were concerned and that “tutors had not provided tutoring at the expense of their own learning” (p. 47). Similar to the Fitz-Gibbon study, Kennedy (1990b) noted personal enjoyment and a desire to continue, enthusiasm and an absence of discipline problems may be attributed to the tutor’s role as teacher.

Taylor, Hanson, Justice-Swanson and Watts (1997) found children often reported that they liked working with their partners and gave them positive feedback for encouragement. Tutors also learned to work with their partners to solve problems such as partners “talking too softly”, “not paying attention” or “not sitting still”, roles that teachers often assume. Schneider and Barone (1997) found four areas of attitude change that affected the tutoring experience for both the tutors and tutees. Similar to Taylor, Hanson, Justice-Swanson and Watts (1997) they noted that their students “became more responsible for the children they were tutoring”. The
tutors initially complained about their tutees because they were “walking around” or “not paying attention”, however when the tutors began to plan with their tutees and consider their interests in reading the tutees responded positively. Tutors realised their role was to consider the tutee and “they learned to become better teachers”.

Studies investigating the sensitivity of the learners needs have been conducted. Allen’s (1976) role theory approach focuses on the closeness in age and competence between the tutor and the tutee regarding similar match. Using this role theory approach, Allen and Feldman (1976) investigated the ability of children to decode non-verbal behaviour. Studying 96 children in Grades 3 and 6, as well as 36 adults as they watched film clips of children listening to either an easy or difficult math lesson, revealed that both the third and sixth graders were more accurate in their ratings than the adults. They found that children are better able at decoding non-verbal cues that signal a lack of understanding given by other children than are adults.

Empirical research and the qualitative research from the classroom settings reveal that tutors can consider their tutees in tutoring situations and that they can assume the role of tutor. There are other factors, such as individual differences in the learners that may affect the participation of a tutor and tutee in peer tutoring. However, Harrison (1997) believes gains for tutors and tutees are because tutoring nurtures a sense of belonging and a keener sense of community among those within the programme.

**Individual Differences among Participants in Peer Tutoring**

One of the themes that have spanned three decades of research in tutoring has examined gender issues. How should students be paired? Do same-gender dyads work more effectively than mixed-gender dyads? Which pairing of the dyads promotes greater gains academically? A
significant review of research by Feldman et al. (1976) on the individual characteristics-in peer tutoring indicated there was little empirical data to support the claim that same-gender pairings facilitated tutoring better than mixed-gender pairings and that mixed-gender dyads do not perform better than same-gender dyads regarding academic gains. Personal attitudes of the students in the dyads as they relate to one another may effect the tutoring performance, however they indicate that further research was needed on this issue.

Kennedy (1990), however, found that gender pairing was an important factor in a controlled evaluation of 8 to 10 years old students during peer tutored reading. Reading-accuracy was significantly greater in the pairs of gender-opposites than same-gender pairings within the tutored group and the tutees reading attainment improved significantly more compared to those who were in the control group. Similarly, the pairs of gender-opposite groupings in the tutored group attained significantly higher reading-attainment scores than the non-tutored group. Kennedy (1990) feels this may be due to the opposite-gender pairings having nothing more in common than the task itself. Their time engaging in the task may have been greater.

Berliner and Casanova (1986) examined the gender issue qualitatively and suggested same-gender pairings in both same and cross-age tutoring dyads provided students with comfort, and furthermore, House’s (1988) effectiveness study of tutee and tutor gender on grades in mathematics and science suggests same-gender pairing especially important for girls. In a study conducted by Rekrut (1992), the Grade 9 female tutors indicated they were more comfortable working with same-gender peer tutees. A further study reported by Rekrut (1994) of cross-aged dyads, suggested that a tutee paired with the same-gender tutor was most successful. Yet contradictory to these studies, in a study conducted by Kermani and Moallem (1997) of ten cross-
age dyads of Kindergarten and Grade 5 students paired by gender and ability levels, analysis of the data indicated that gender was not a factor in the learning outcomes.

The research literature on gender pairing of dyads indicate such mixed results that possibly there are multiple factors contributing to the differences in cognitive and affective outcomes. For example, Wong Fillmore's (1979) study of five Spanish-speaking students paired with other classroom peers who spoke English uncovered the complexity of individual differences of children who are acquiring a second language. Motivation to learn, individual personalities, exposure to the target language and opportunity to use English were factors within the peer dyads. Chesterfield & Chesterfield (1985) investigated spontaneous peer teaching among Grade 1 Spanish speakers and found that individual personalities played a significant role in whether a child would accept the role of learner.

Individual differences are important factors in a peer tutoring dyad and affect the gains that may be attained from the interaction. However, examining how peers can assist each other in a dyad has been recognised and discussed by researchers and teachers-as-researchers. In the following section I will discuss the studies that contribute to the focus of the present study of how and to what extent peers contribute to the learning process.

**Patterns of Developing Expertise for Peer Assistance**

Peers engage in assisting each other in the classroom and use one another as resources in attempting to learn. In order to understand how and to what extent peers as tutors could assist peers in learning, I selectively reviewed research from psychology and language learning and applied them to Vygotsky's (1978) theories of language development and ZPD. Since the focus of my study is to investigate how and to what extent ESL peers interact and assist each other
during language and content learning in peer tutoring within the classroom, then an examination
of the research of peer interaction during tasks would inform my study.

Research into the nature of the differences of peer interaction in tutoring has been
explored in the areas of task expertise, general intellectual ability and age. From a Vygotskian
(1978) perspective researchers argue that older or more expert peers can facilitate the
development of children’s cognitive skills and understanding of concepts. For example, in
Azmitia’s (1988) study examining task expertise among children with equivalent abilities and of 5
years in age, significant gains occurred when novices at the task were paired with task experts.
The skills the novices used in this study were observation and imitation, as well as depending on
the expert’s guidance, in order to learn from their peers. Furthermore, these children were able to
identify who was the expert so that both novices and experts could watch and learn. Wood,
Wood, Ainsworth and O’Malley (1995) concurred with Azmitia’s (1988) study and found that
tutors 3 years of age used infrequent verbal instructions so that tutees learned through careful
observations of the tutor. Studies by Ellis & Rogoff (1982) show that young peer tutors often
used non-verbal demonstrations and used concrete items for instructional tools.

Unlike the tutors of 5 years of age who demonstrated tasks, the tutors of 7 years used
explanation rather than demonstration as a means of instruction. They were also able to leave the
tutee with time and space to work through the task, offering specific instruction when needed.
Wood et al. (1995) argued that children who show more expertise in a task will prove to be more
effective tutors than those who have less expertise.

Verba and Winnykamen (1992, cited in Wood et al., 1995) examined unequal intellectual
ability and unequal expertise of tasks and found that when a higher-ability child as task expert was
paired with a low-ability child as a task novice then tutoring took place. However, when the
higher-ability child was the novice and the low-ability child the expert, then more collaboration during the task was evident.

Kermani and Moallem (1997) found that the types of tasks seemed to impact on the extent and quality of tutors' scaffolding behaviour during tutoring in their study of cross-age dyads of grade 5 and kindergarten children. The Grade 5 tutors were unable to provide verbal definitions or explanations during abstract tasks. However, when the tasks involved hands-on problem solving or other concrete conceptual tasks the tutors were able to scaffold the tutees. They suggest that 10-11 year old tutors can be effective tutors but they may not be as effective in scaffolding abstract tasks. In an abstract problem-solving task, Shore (1995) revealed that although a tutor was able to initiate some skills to scaffold a child of 4 years old a lack of scaffolding expertise in the “abstract learning tools” of observing, questioning, contingency management, feedback and cognitive structuring were evident. The lack of these skills did not allow the tutor to give the responsibility to the child when he/she indicated the child was ready to be independent at the task. Shore (1995) indicated that it takes time for a tutor to develop these skills.

An examination of discourse patterns has provided evidence of teaching behaviours among NS of English and bilingual speakers paired with NNS children. For example, Wong Fillmore (1979) found in her study of five Spanish-speaking children paired with NS that one child spontaneously assumed the ‘role of teacher’ by providing words, answering questions and modelling repetition for her Spanish-speaking peer. Olmedo-Williams (1983, cited in Chesterfield & Chesterfield, 1985) found that a bilingual Puerto Rican child, fluent in Spanish and English, used code-switching, to clarify instructions, focus attention, model and translate when tutoring less proficient peers. Code switching refers to using the first language to express an explanation,
clarification, and so on before switching back to the target language. The use of L1 to clarify meaning when engaging in content learning has been found to increase comprehension, with the conceptual knowledge transferring to English when the vocabulary is learned (Cummins, 1992).

In contrast, Chesterfield and Chesterfield's (1985) study of spontaneous peer teaching among grade 1 students revealed that code-switching occurred infrequently as a teaching strategy and was used only after several other strategies such as demonstration, modelling and directing in English were employed. Furthermore, they found that children of all proficiency levels used English with greater frequency when English was the classroom language of instruction. These studies suggest that students use strategies within peer tutoring situations that may vary given the individual differences among the children.

Training of tutors provides these students with socio-cultural skills and knowledge they can use to help their peers. The next section reviews some of the literature that concerns sharing of language and knowledge in the social activity of peer tutoring.

Language Socialisation and Scaffolding Tasks through Training Peer Tutors

Schieffelin and Ochs (1986) define the concept of language socialisation to mean “socialisation through language and socialisation to use language” (p.2). Within this definition children are active participants in social interactions and acquire knowledge of their socio-cultural environment by participating in language-mediated interactions. Therefore language learning and cultural knowledge learning occur simultaneously, language being the major conveyor of socio-cultural knowledge and an important medium of socialisation.

Language is structured by the activity that is taking place. Children learn these social language structures within the activity or task and at times language is the activity (Schieffelin and
Ochs, 1986) for example, when a child is negotiating, explaining, or telling. Therefore—children learn to use the language appropriate for their role in order to communicate with others. Vygotsky (1978) emphasised the role of social activities as fundamental in developing thought or socio-cultural knowledge. Adults in society facilitate children’s participation in activities or tasks by guiding them or teaching them the socio-cultural language for the situation. Children then learn the language and the knowledge from the experience. These practices Bruner (1975, cited in Schieffelin and Ochs, 1986) calls “scaffolding” which is a crucial component of Vygotsky’s ZPD.

Vygotsky (1978) conceptualised learning as occurring in a child’s ZPD. A child at this point requires the assistance of an adult or more capable peer to support them beyond what he or she can do on their own. The child receives assistance and feedback that builds success as he or she participates in learning tasks. The term scaffold describes the support of a child by a more capable peer within that ZPD. As the more capable peer adjusts the support, the child becomes increasingly more skilled with the task. A peer can support another during interactive talk by elaboration of ideas and helping the child to understand unfamiliar or new concepts (Cazden, 1988). Peer sharing allows children to use their “inner speech” so they can practise language, listen to new interpretations of ideas and share their thoughts, reaffirming their inner thoughts.

One way that students learn how to scaffold is by adults modelling the process. Wollman-Bonilla and Werchadlo (1999) claimed that by modelling responses to reading and writing, teachers could demonstrate for children how to “achieve one’s intentions in writing” and model reflections on the text before writing. They found that teacher modelling made a significant difference in children’s thinking and peer sharing about text. The children were able to write extended responses to literature and go beyond what they were capable of doing alone.
McGroarty and Zhu (1997) investigated whether specifically training students in peer-revision would enhance its effectiveness. They revealed that students trained for peer revisions provided significantly more and better comments on writing tasks. Furthermore the students participated more actively during peer revisions, attended more concerns regarding writing, engaged more in extended negotiation and applied strategies they were taught by their teachers.

Brown and Palincsar (1989, cited in Wood 1995) claimed training young tutors in “Reciprocal-Teaching” method could lead to effective tutoring sessions. For example, Rogoff (1990, cited in Wood 1995) trained tutors who were 9 years old to the same level of performance as adults. Rogoff (1990, cited in Wood 1995) found the dyads with a trained peer showed the equivalent sophistication to that of a child-adult dyad when preparing a planning task. Adults, however, are able to involve children in verbal strategic thinking. Wood et al. (1995) suggested that adults may be better at scaffolding tasks than children when “effective instruction involved the progressive transfer of responsibility from tutor to learner as they developed in task competence” (1995:568). In other words, tutors sometimes experience difficulties understanding when children can take responsibility for a task and perform it independently. Shore (1995) found tutors required time to use the “skilful tools” of knowing when to hand over a task to a learner. This she claimed requires “analysis, complex judgement, appropriate action and reflection”. Furthermore, she noted that “students as tutors must not be expected to have developed assisted learning tools to the same extent as a skilled, experienced teacher; therefore the tasks they are expected to perform must reflect their developing capabilities (p.190).

Kermani and Moallem (1997) indicated from their research that training tutors to scaffold information might have increased the tutors’ effectiveness during abstract tasks. In essence the type of task, training of the tutors to understand the concept to be taught and scaffolding the tasks
to the level of the tutee are important considerations. Kermani and Moallem (1997) examined the nature and dynamics of peer tutoring which revealed that tutors were unable to orient tutees to the tasks and provide introductory information that could familiarise the tutees with the task. Secondly, tutors were not able to provide the verbal definitions and elaboration that abstract tasks require. They found tutors gave simple short commands rather than elaborate with explanations and demonstrations. Finally, the level of tasks the tutors facilitate must be relevant to the level of understanding for the tutees, in other words within their ZPD. This research suggested the unsuccessful scaffolding could be due to the tutors' lack of training and that those tutors must be trained in certain basic skills if they are to be effective.

Focussing on peer tutoring within a particular ESL classroom, the students were engaged in tasks that involved peer interactive talk, constructing a writing task, and communicating socio-cultural language and knowledge within their ZPD. From the perspectives that language and knowledge are learned through social interaction (Vygotsky, 1978) and that language is constructions of socio-cultural knowledge (Schiefflin and Ochs, 1986) the students engaged in teacher modelled tasks as expert tutors and novice tutees. Together they constructed their understanding of a science task within this framework.
Chapter Three

The Research Process
and the Context of the Study
in the ESL Classroom

Introduction

In this chapter I will first weave my understanding of the ethnographic approach to qualitative research which I employed in my study, through a selective review of the literature. Then I describe the context in which the study was conducted and the participants within the study followed by the procedure for data collection and analysis.

An Ethnographic Qualitative Research Design

Ethnography shares long-standing traditional roots in anthropology and sociology as a means to understand the social and cultural lives of people in their naturalistic environment (Hammersley & Atkinson, P., 1995; Johnson, 1992; Spradley, 1980; Ramanathan & Atkinson, D., 1999; Watson-Gegeo, 1988). This form of qualitative research, with an aim “to produce true accounts of social phenomena” (Hammersley & Atkinson, 1995:263), is a way of investigating issues that would otherwise be difficult to address through experimental quantitative research. Ethnography involves “the ethnographer participating, overtly or covertly, in people’s daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on issues that are the focus of research” (Hammersley & Atkinson, 1995:1).
Defining ethnography as "the study of people's behaviour in naturally occurring, ongoing settings, with a focus on the cultural interpretation of behaviour", Watson-Gegeo, (1988:576) applies her L2 perspective to address six principles of ethnographic research; the sixth principle is that language socialisation underlies the other five principles of ethnographic research. Therefore, language is learned through social interaction with other members of that cultural setting, and language is the primary conveyor of social and cultural knowledge learned from these interactions. By extending this concept to the L2 elementary classroom setting, taking the perspective that students learn knowledge from exposure to and participation in language interactions or interactive "talk" (Schieffelin & Ochs, 1986), and that experts in the class assist the novices through these interactions (Vygotsky, 1978) I explore peer tutoring using ethnographic research methods and design. I chose this design for my study on peer tutoring because of its potential for examining patterns that emerge from peer interaction during the academic study and for the perspective that language and learning is a socio-cultural process within the second language classroom setting.

Clearly, ethnography as social research brings tension and conflict between quantitative and qualitative methodology (Hammersley & Atkinson, P., 1995; McMillan and Schumacher, 1993; Ramanathan & Atkinson, D., 1999; Watson-Gegeo, 1988). Central to quantitative research is the concept of the scientific method, modelled particularly on physics and concerned with the testing of theories. In contrast, qualitative research has been criticised as lacking this rigour of scientific quantitative inquiry and that the data and findings it produces are subjective. The process of scientific testing implies comparing what theory says should occur to what does occur, with every attempt to eliminate the observer and any biases. On the other hand, researchers can be participant observers in qualitative methods and do so with respect to the nature of the setting,
using non-interfering data collection strategies to see how the participants in the study view their own actions and those of others around them. Quantitative researchers argue that explicit and standardised procedures must be used, and if they are not, as in participant observations, knowing how to interpret the responses is impossible. Furthermore, quantitative researchers argue a valid and conclusive body of knowledge is produced only through statistical and rigorous measurement.

Given the contrasting views of qualitative and quantitative research I needed to assess the value of an ethnographic research design in terms of my research in the classroom. Ayers (1989) noted that “doing ethnography” is gathering notes, establishing rapport, selecting participants, and so on. Ayers (1989) also noted that the essence of ethnography is in producing or “being there” and “portraying a different life in the context of a specific culture – conveying the insiders sense-making view” (p. 11). Hammersley & Atkinson (1995), also saw ethnography in terms of “the routine ways in which people make sense of the world in everyday life” (p. 1). Both use “making sense” as a means of understanding the social behaviours within a cultural context, as I attempted to do in the ESL classroom.

As an educational ethnographer, I take to this classroom my understanding of pedagogy, teaching experiences, training and personal knowledge, so therefore I make sense of education through the eyes of an educational “connoisseur” (Eisner, 1985). In “doing” ethnographic research, by collecting rigorous and disciplined data, I need to be aware that I am not predicting what I think will happen, but rather uncovering emerging patterns and understandings of what has happened. Therefore making sense and understanding meaning involves a complex in-depth study of the students, the setting and other variables or behaviours. In doing so, from the richness of my study or “thick description” (Ryle in Ayers, 1987), will come my understandings of the patterns that emerge from exploring peer tutoring among ESL students in the classroom.
The Cultural and Linguistic Setting of the School and the Classroom

This study was conducted in an East Vancouver elementary school in the Vancouver School District of the province of British Columbia. At the time of the study in 1996, the school population was approximately four hundred and fifty students and approximately eighty percent of these children spoke English as a second or other language. Languages and dialects such as Cantonese, Mandarin, Vietnamese and Tagalog were well-represented first languages spoken by the children and their families of the school.

Of the twenty Kindergarten to Grade seven classrooms in the school during this study, two were designated as ESL reception classes and the remaining eighteen classes were regular mainstream classes. My study took place in one of these two ESL classrooms. An ESL reception class in the Vancouver School District, is a provincial government funded class of intermediate students who are age-appropriate for grades four to seven. In an ESL reception class there are approximately twenty ESL students who are more than two years below the grade level norms in English reading, writing, speaking and listening skills. The British Columbia Ministry of Education defines the students attending this class as “those students whose English language performance is sufficiently different from standard English to prevent them from reaching their potential” (Vancouver School Board, 1996). Furthermore, students can be considered as ESL as long as they are “receiving identifiable support as per form 1701 used for generating funding” (Vancouver School Board, 1996). According to the 1701 Ministry of Education form, the students that may be included in this class are new immigrants to Canada, refugees and Canadian-born students who speak English as a second language.

In accordance with the guidelines set out by the British Columbia Ministry of Education, the Vancouver School District (1996) model for service delivery defines reception level students
as “students with minimal English who require intensive linguistic and cultural immersion.” Since ESL students are on a continuum of learning some of the students in the class may attend some regular mainstream classes such as mathematics or music. These students are the more advanced language learners in the classroom and are considered in transition. Transition level students “can handle material and tasks within some regular classes and are approaching grade level norms with ESL support” (Vancouver School District, 1996). These students are preparing for full integration with ESL teacher support within the mainstream grade-appropriate classes. ESL students within the ESL reception class and those in the mainstream classes require teaching materials and strategies that support the learning of language and content. Intermediate ESL students in Grades 4 to 7 usually attend an ESL reception class for one or two years before being integrated fully into a regular mainstream class. Once integrated, these students compete on the same plain as the native speakers of English.

The teacher in the ESL reception class adapted classroom teaching materials and strategies in order to meet the educational needs of the students who were learning English along with academic content. Students from the reception class were integrated into a mainstream class when the ESL teacher felt their proficiencies in English would allow them to be successful at their age appropriate grade levels. Some of the students in the ESL class in my study were partially integrated and preparing for full integration with ESL teacher support for the following school year.

The Teacher as Participating Collaborator

The classroom teacher, with whom I collaborated and discussed each child in this study, was very interested in ESL research and in taking part in a study on peer tutoring. She has
teaching experiences of over twenty years with elementary students and rich lifetime experiences as an ESL student herself. As I watched her interact with the students in her class she was able to break many of the barriers and anxieties of ESL students with her sense of humour and demonstrated an intuitive understanding of the students. As we discussed the possibilities of the study I felt a sense we could easily collaborate and share our understandings and reflections of what would transpire during the course of the research.

This teacher had completed courses at university and attended professional development training on teaching ESL students through Vancouver School District initiatives and implemented her understanding of the course work into the daily classes for her students. She used key visuals and the Knowledge Framework (Mohan, 1986) in her class as a means of organising thinking skills, modifying content information and teaching the content language thus reducing the barriers that ESL students face. She had not explored the idea of peer tutoring in the class as a means for her less proficient English speaking students to work through and discuss content information with the more proficient ones. She had organised her students to work in co-operative groups, arranged by grade level or activity, in order for them to share their understandings of their work and to co-operatively complete it together. Therefore working together in small groups was not a new concept to these children. She also encouraged her students to help one another with areas they themselves found difficult and did not discourage the use of their first languages which students often used to clarify information. I found her to be ready to explore new ideas and challenges that would help her students to be successful in acquiring the skills they would need in order to meet the challenges of the regular mainstream classroom.

The classroom teacher integrated reading, writing, speaking and listening skills within each content area. Prior to this study, I observed that the students had been working on various
content area topics with the classroom teacher. They were learning about the muscles of the body in science and the Haida Nation in social studies. In order to help the students comprehend the academic language and content information, the teacher presented the material by using key visuals such as webs, labelling diagrams and displaying pictures. She presented academic information within the realm of her understanding of the Knowledge Framework (Mohan 1986), the use of key visuals and graphic organisers as a means of representing content information to make it more comprehensible (Early, 1991; Tang, 1992).

I observed this teacher demonstrating to the students the web as a graphic organiser by placing information on it that the students had generated as a group. With repetition, she commented that the students with more proficient language skills in English had learned how to generate their own webs as a pre-writing strategy. These same students could also complete a writing task that reflected the information on the web. She expressed a desire for the students who were less proficient in English language skills, to be able to construct a web that showed their academic learning on a topic. She felt these pre-writing skills could be useful when preparing a writing task. She also felt a web would be one way in which the students could demonstrate key academic language on a topic as a means of beginning to express what they had learned regarding a content area. This teacher expressed a desire to learn more in the area of integrating language and content and especially the exploration of peer tutoring as a strategy and a means for students to practise and learn academic language and content.
The Students as Participants

The ESL class where my study on peer tutoring was explored there was a wide range of English language literacy levels and the openness of the classroom teacher to explore new initiatives.

Some of the younger students in the class were at the initial stages of reading and developing stronger oral communication skills in English while other students in the class had developed a good foundation of English literacy skills. The more proficient students were being prepared for full integration into the regular mainstream classes for the following school year. Some students had experienced more formal schooling in their first language (L1) and thus had a foundation of literacy skills in those L1, whereas others had not experienced the same amount of formal schooling. This appeared to me to be a good blend of literacy skills where potentially the more proficient students could assist the less proficient students.

At the onset of the study there were twenty students whose parents agreed to have their children participate in the study, however, shortly after the beginning of the study one student was fully integrated into a mainstream class and another student chose not to participate. The remainder of the eighteen intermediate elementary students ages 9 to 13 completed the study. The student who did not participate was not considered in any of the data, however, she did participate in all of the activities and chose to complete her work independently. Both students left the study at the beginning so there was little or no disruption to the pairings of students when the peer-tutoring component of the study began.

The students in this class were placed in age-appropriate Grades from 4 to 7. Some students were in the process of partial integration into the mainstream classes and attended specific subject area lessons such as social studies, math, debating skills, physical education or
music outside of their classroom. The students represented four different language and dialect backgrounds: 13 Cantonese speakers, 3 Vietnamese speakers, 3 Mandarin speakers and 1 Spanish speaker. Two of these children spoke two languages or dialects, one child spoke Vietnamese and Cantonese and the other spoke Mandarin and Cantonese. This accounted for the representation of twenty languages spoken. For the students coming from uni-cultural and perhaps uni-linguistic countries this may have posed a considerable adjustment. I observed that all of the students in the class were at various stages of learning to work together and adjusting to the expectations and learning environment of their new Vancouver school. Within the context of this study the exploration of how peer tutors relayed information to peer tutees given cultural and language differences or similarities was of interest to me and may bare some significance on how children received academic information.

**Researcher: Teacher-as-Researcher**

Meeting with the ESL teacher and sharing our understandings of teaching ESL students allowed us to realise that embarking on a collaborative journey in educational practise was something that we both wanted to do. We shared a common interest in the Knowledge Framework (Mohan, 1986) and graphic organisers as a way to reduce language barriers for ESL students, organise their thinking skills and integrate language with content. We also had a shared interest in the theory and practise of co-operative learning and wanted to explore the possibility of peer tutoring with non-native speakers tutoring non-native speakers of English in the content area of science.

We discussed our ideas about the content of the study and decided on the area of the provincial science curriculum that focused on the human body. I prepared the hands-on tasks for
our science studies and taught them in the students' classroom. Some of the tasks required the classroom space and others required the expanse of the school grounds. Though science tasks were planned and prepared with the provincial science curriculum objectives in mind, how and to what extent the students worked through their tasks and the peer tutoring process within their own environment was their experience in learning. My learning precipitated from the experiences of the students within their natural learning environment.

My study on peer tutoring provided for me an opportunity to attempt to link educational theories on peer tutoring, tasks and theories on second language acquisition to the practise of teaching. The reflective thinking for me during this study involved sharing with the teacher as collaborator, observing and listening to students as they worked through their learning experiences and listening to students as they themselves reflected on their learning experiences.

Reflective practise during this study has re-shaped the way I teach, facilitate learning experiences for students and think about educational practise. By developing a more informed understanding about peer tutoring in the ESL classroom the way in which I create learning experiences has changed and continues to evolve in my current teaching practise working with ESL students.

Since this study I have taken further opportunities to explore peer tutoring. I have organised tutoring with ESL students of the same L1, used peer tutors in the mainstream content classroom with students who speak the same L1, and provided an opportunity for an adult to tutor a child with the same L1. For learning to be meaningful for me as a researcher I continue to reflect on my own personal learning experiences. Therefore my research as a teacher continues to be re-shaped as I continue to develop new understandings about peer tutoring.
The Research Process

The students were engaged in the formal research study for a period of ten weeks, during the months of April, May and June of 1996. I worked with the students for four, forty-minute periods a week. This was the time that was allotted for their regularly scheduled science classes therefore there would be no disruption to their time table organisation or the expectation of the students to have science at a particular time. The science tasks were carried out in the students’ classroom and outside in the play area of the school. The peer tutoring tasks were carried out in the classroom and in the library.

The classroom teacher and I decided we would explore peer tutoring within the context of a science study focused on the human body, a curriculum area of life science that could be adapted for ESL students in grades four to seven. Pre-study preparation included 1) observation of the students and 2) peer tutor training (Figure 3.1). Peer tutoring discussions groups and large group teacher modelling were ongoing throughout the study. The study of the human body consisted of four sections: 1) the body on the outside; 2) the skeletal system; 3) the heart; and 4) the lungs (Figure 3.2).

Figure 3.1

Overview of the Pre-Study Process of the Human Body Study

<table>
<thead>
<tr>
<th>Pre-study Observations</th>
<th>Peer Tutor Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations of the students, teacher, classroom environment for 2X weekly / 4 weeks</td>
<td>Peers as tutors role and expectations</td>
</tr>
<tr>
<td></td>
<td>Content and strategies</td>
</tr>
<tr>
<td></td>
<td>“What to do if...”</td>
</tr>
<tr>
<td></td>
<td>2X plus 2X weekly ongoing brief discussion groups</td>
</tr>
</tbody>
</table>

Pre-study observations gave me an opportunity to observe the students in their classroom. I attended their class two times a week for four weeks. During this time I participated with the
teacher in classroom tasks and assisted the students. This was a way for me to become familiar with the students before the study began and also a time for the students to get to know and trust me as a teacher in the class.

Pre-study tutor training was conducted twice before the study began. During this time the tutors met with me to discuss roles and expectations of them as a tutor (Goodlad & Hirst, 1990). I wanted them to have a clear idea that they were to assist their peers in learning about our study of the human body. They also needed to have some strategies they could use to help their peers. Two strategies were discussed with them in the small training group and modelled during the whole class instruction time. The strategies discussed were the use of key visuals as well as simple questioning skills for the purpose of engaging the tutees in conversations. Goodlad and Hirst (1990) have highlighted the importance of training tutors for peer tutoring. However, they indicated training need only be "simple procedures to use while tutoring" (p. 22). The debriefing sessions (Goodlad & Hirst, 1990) that I used throughout the tutoring sessions were useful for enabling tutors to talk about problems or difficult situations they were having with their tutees.

During this training time I asked if they had a gender preference for a peer and if there was a student in the class they felt they could not work with. One student responded that he wanted a peer of the same gender, while the others did not indicate a preference for either gender or person. This I felt was a crucial factor in establishing a harmonious tutoring relationship.

After the tutors were trained they were ready to practise their skills. Skills training continued as whole group teacher modelled instruction. The following is the process of the study of the human body Unit.
Figure 3.2

Overview of the Process of the Study of the Human Body

<table>
<thead>
<tr>
<th>Section 1: Week 1 &amp; 2</th>
<th>Section 2: Week 3 &amp; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Introduction: The Body on the Outside</td>
<td>Teacher Introduction: The Skeletal System</td>
</tr>
<tr>
<td>Hands-on: Drawing life-sized models of the body (small group/pair)</td>
<td>Hands-on: measuring the bones of the body &amp; gluing the shapes of the bones on the model (small group/pair)</td>
</tr>
<tr>
<td>Label the parts on the model</td>
<td>Label the parts on the model</td>
</tr>
<tr>
<td>Label a diagram of the parts (with peer tutor)</td>
<td>Label a diagram (with a peer tutor)</td>
</tr>
<tr>
<td>Teacher modelling activity: whole class web</td>
<td>Teacher modelling activity: whole class web/writing</td>
</tr>
<tr>
<td>Tutor conference with teacher: 15 min. 2 X week</td>
<td>Tutor conference with teacher: 15 min. 2 X week</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 3: Week 5 &amp; 6</th>
<th>Section 4: Week 7 &amp; 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Introduction: The Heart</td>
<td>Teacher Introduction: The Lungs</td>
</tr>
<tr>
<td>Hands-on: Measuring the heart rate (small group/pair)</td>
<td>Hands-on: Measuring breath rate (small group/pair)</td>
</tr>
<tr>
<td>Label a diagram of the heart (with peer tutor)</td>
<td>Label a diagram of the lungs (with peer tutor)</td>
</tr>
<tr>
<td>Teacher modelling activity: whole class web</td>
<td>Teacher modelling activity: whole class web</td>
</tr>
<tr>
<td>Student web &amp; writing task: with peer tutor</td>
<td>Student web &amp; writing task: with peer tutor</td>
</tr>
<tr>
<td>Tutor conference with teacher: 15 min. 2 X week</td>
<td>Tutor conference with teacher: 15 min. 2 X week</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 9</th>
<th>Week 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of tasks ~ Closure</td>
<td>Interviews</td>
</tr>
</tbody>
</table>

Within each section was a series of tasks from which I collected my data. A section refers to the 2-week blocks of tasks, for example section 1 occurs during week 1 and 2. Components of
topic introduction, small group or pair hands-on discovery tasks, peer tutor recording tasks, teacher modelling, web and writing task with peer tutor, and teacher and tutor conferencing time. Figure 3.2 represents the overview of tasks during each section of two weeks. The last two weeks of the study were split into task completion and oral interviews.

Our goals were to provide for the students many opportunities for learning. The students experienced opportunities for hands-on learning, interactive talk, to question their science study, and complete specific tasks that would demonstrate the use of written English language skills thus uniting the academic content with language learning. These experiences were set up in teacher modelled whole group instruction.

First, I presented the content information and language to the whole class. At this time I modelled strategies for the tutors such as questioning techniques and the use of key visuals in presenting information for discussion within the peer tutoring dyads. This served a dual purpose that was to inform the tutors with strategies, but also to explicitly teach information to the whole class. Since this was a whole group activity all students were present to participate in the questions and learn the content information and language presented in the key visuals. I continued to model the strategies and assist tutors during peer tutoring sessions.

Second, the students gained information about their human body study by participating in active learning tasks that involved kinaesthetic, tactile and visual experiences. During the hands-on learning activities or tasks the students were asked to work with a partner of their choice in the class. Some groups consisted of two students and others three students. Often the groupings were quite fluid as students talked, shared supplies and information about the activity. Examples of these types of tasks were constructing a life size shape of the student's body and labelling it, measuring parts of the body using a standard metric tape measure, and participating in exercises
to increase and decrease the heart rate. Labelling and organising information in-graphic organisers were ways in which the students were expected to record information and learn the academic language. (Appendices 1-6) These types of tasks were accomplished with peer tutors if the students could not do this activity on their own.

Third, the whole group gathered together near the chart stand to talk about the hands-on tasks. Here I modelled questioning to engage the students in thinking about what they had learned and to demonstrate how to construct a web. Sentences were formed from the information on the web. This type of explicit instruction and modelling focused the students on their peer tutoring tasks.

Finally, the students were paired into tutees and tutors in order to complete writing tasks. During these tasks the tutees were assisted by the tutors to construct webs of information and then to write sentences using that information. Figure 3.3 is an example of a student’s web and Figure 3.4 shows the writing task.

**Figure 3.3**

*Web Showing Information About the Heart*
Figure 3.4

Same Student’s Writing Sample About the Heart

The heart is in part of our body. The heart give us blood and oxygen around our body. The heart has own muscular, too. When we sleep, the heart will work by its self. When we do exercises, our heart will beat faster. When we rest the heart go slowly. The heart look like a fist.

Peer Tutors and Tutees

The students were given a brief list of criteria to think about in order for them to be considered a tutor. The classroom teacher and I developed the criteria for the tutors demonstrating: 1) good work habits and organisation skills in the classroom; 2) ability to work co-operatively and independently; and 3) advanced English skills to assume an “expert role”. The tutors and tutees were asked if they had a preference of working on their assignments with a boy or a girl in the class and if there was someone with whom they felt was not a good match for them personally. These questions were addressed to the group as a whole with responses to be given to the teacher or me in confidence. Only one student expressed a desire to work with a same-gender partner. I felt these were important considerations for students to be comfortable working together and for the potential success of the peer tutoring. Peer tutors were arranged and the discussion of the pairings involved the classroom teacher and myself. These pairings were rigid once the peer tutoring process began.

The peer tutors met at the beginning of the study to learn about their expectations as tutors. This was their training session. A week before the tutoring process began the tutors took
their assignment to the library and gathered the information they felt they needed and completed their work. In a sense they became the experts of the information. Formal tutoring group discussions were held once a week so the tutors could raise questions and address problems. All the students worked on the hands-on tasks until they were completed, then the peer tutoring sessions began.

The tutors assisted the tutees to accomplish the following English language learning objectives:

1) To generate a web of information that included the academic language on a specified topic, and

2) To write sentences, at an individual level, using the information on the web

The tutors were responsible for completing the unit assignments with the same goals; however, their writing skills were expected to vary according to their individual English skills. Both tutors and tutees were to participate in all of the learning experiences and complete the in-class assignments that provided the foundation for the learning of the academic language and content of the study on the human body. I would assess the work for the study and share my results with the classroom teacher. She would use their work for reporting purposes.

Data Collection: Classroom Observations of the Students

Before the students began the formal part of this study I observed them socialising and working in their classroom. I attended their classes for two days a week for a period of four weeks, observing and sharing what I saw with the classroom teacher. During this time I assisted the students during their regular assignments, listened to them read to me and worked with small groups of students on academic tasks. I wanted them to get to know me in their environment.
This entire interaction with the students enabled me to observe them in their classroom setting as they worked on assignments at their own ability levels. I observed how they worked, with whom they chose to work and how they interacted with each other. I was able to observe the various language ability levels of each of the students when they worked with me on their assignments. I observed their work behaviours when working independently and co-operatively. I also took notes of the first languages students spoke and if they chose to speak in their first languages at school. What was meaningful to me as well was if the students chose to speak their first languages during socialising times only or during academic learning and with whom. All of these observations factored into the pairings of the tutor / tutee partnerships.

During the time I was working with the students and learning about them, they were becoming more familiar with me. Initially the classroom teacher encouraged the students to include me as a teacher in the class whom they could refer to for help. After the first week of my visits they felt more at ease with my presence in their classroom. They began initiating conversations with me and felt comfortable asking me to help them with their assignments. This whole period of adjustment was crucial to the study in order to break down any barriers, to reduce as much disruption as possible and for the students to see me as another teacher in their classroom.

After this adjustment period the teacher and I discussed which students in the class needed the assistance of another student in order to complete a task, required considerable language skills building and would benefit from a classroom peer tutor when working through an assignment. We also discussed which students had stronger English language skills, could work independently and co-operatively and showed leadership skills in work habits and organisation when working alone or with others. A list of possible tutors and tutees was developed. During the next class
meeting we asked the class who would be interested in being a peer tutor to someone in the classroom given the same set of criteria we had used ourselves in determining a list of possible tutors and tutees. Interestingly, our lists matched, which was a positive sign for me that the students could self-assess and determine their own level of needs. From here as a class, we could begin to set up our peer tutors and tutees.

Therefore the matching of the tutors to the tutees for the peer tutoring sessions was completed during several steps. First, I observed the students working and interacting in the classroom, making note of each child's work habits, friendships, spoken L1, and L2 skills. Next, the teacher and I drew our criteria, as previously discussed, for the tutors and tutees and talked between ourselves who would match. Then we asked the students, given the criteria we had outlined, if they saw themselves as a tutor or a tutee. We also asked the students if each had a preference to work with a boy or a girl and secondly if they had a personality conflict with a member of the class with whom they felt they could not work. All students but one said they would work with either a boy or a girl and no one revealed a personality conflict or preference not to work with any member of the class. The one boy who indicated his preference to work with a boy was then matched with a boy whom he felt was a suitable match. Finally, when the teacher and I made the final decisions for matching the tutors with the tutees we considered the overall picture of gender, personality compatibility, novice-expert, L1 and age differences. For this study we could not match male tutees with older female tutors with an age difference of two to three years. Figure 3.5 shows a description of the tutors and tutees.
## Figure 3.5

### Description of the Tutors and Tutees

1. **AH**
   - **Grade**: 6
   - **Age**: 11
   - **L1**: Cantonese
   - **Profile**: Tutor (M) Independent worker; completes thorough & extensive written work; likes research type work; serious student; enjoys learning; does not participate in frivolous conversations in class; prefers to work with a boy
   - **L1 & L2 strengths**: science, reading, math

2. **JA**
   - **Grade**: 5
   - **Age**: 10
   - **L1**: Spanish
   - **Profile**: Tutee (M) New to the school; not independent worker; poor organisation skills; weak L2 skills

3. **JS**
   - **Grade**: 6
   - **Age**: 11
   - **L1**: Mandarin
   - **Profile**: Tutor (F) Conscientious student; excellent organisation skills & work habits; easygoing
   - **L1 Strengths**: reading & writing

4. **JL1**
   - **Grade**: 6
   - **Age**: 11
   - **L1**: Cantonese
   - **Profile**: Tutee (M) poor organisation skills & work habits; weak L2 skills

5. **IW**
   - **Grade**: 7
   - **Age**: 12
   - **L1**: Cantonese
   - **Profile**: Tutor (F) Focussed, conscientious student; excellent organisation skills & work habits; in the top 10 writers in the school; gr. 7 award for achievement & improvement in the school; L1 Strengths: writing stories, art

6. **GF**
   - **Grade**: 6
   - **Age**: 12
   - **L1**: Cantonese
   - **Profile**: Tutor (M) very poor work habits; experiences difficulties in classroom & personal organisation skills; does not complete work; parents indicated this was a pattern in L1.
Description of the Tutors and Tutees

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Age</th>
<th>L1</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT</td>
<td>6</td>
<td>12</td>
<td>Vietnamese</td>
<td>Tutor (M) hard working student; good work habits &amp; organisation skills; friendly; considerate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L1 Strengths: math, spelling reading, writing</td>
</tr>
<tr>
<td>SH</td>
<td>4</td>
<td>10</td>
<td>Cantonese</td>
<td>Tutee (F) hard worker; weak L2 skills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Age</th>
<th>L1</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>6</td>
<td>11</td>
<td>Cantonese</td>
<td>Tutor (F) conscientious student; good work habits &amp; organisation skills;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L1 Strengths: writing</td>
</tr>
<tr>
<td>AC1</td>
<td>4</td>
<td>10</td>
<td>Mandarin, Cantonese</td>
<td>Tutee (F) hard worker, weak L2 skills</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Age</th>
<th>L1</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC2</td>
<td>6</td>
<td>12</td>
<td>Mandarin, Cantonese</td>
<td>Tutor (F) excellent student, good organisation skills &amp; work habits; reading tutor for gr. 3 student;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L1 Strengths: math, art</td>
</tr>
<tr>
<td>NL</td>
<td>4</td>
<td>10</td>
<td>Vietnamese, Cantonese</td>
<td>Tutee (F) weak L2 skills; hard worker</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Age</th>
<th>L1</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>7</td>
<td>12</td>
<td>Cantonese</td>
<td>Tutor (M) good work habits; developing stronger L2 skills; feels math, writing &amp; art are his L2 strengths</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L1 Strengths: Math, art, writing</td>
</tr>
<tr>
<td>CL</td>
<td>4</td>
<td>10</td>
<td>Cantonese</td>
<td>Tutee (F) hard worker; weak L2 skills</td>
</tr>
</tbody>
</table>
I collected qualitative data by observing the students’ classroom behaviours and peer interactions, talking with the students and the classroom teacher informally and by conducting formal interviews, audio-taping peer tutoring interactions, and collecting samples of the students’ web and writing tasks.

During this period of study the students engaged in the following types of activities:

1) Teacher-directed whole class lessons and modelling of strategies that focused on the science content and language of the human body study. Strategies modelled were the use of key visuals for use during tutoring sessions.
2) Hands-on tasks that involved students communicating and constructing meaning through visual, tactile and kinaesthetic experiences as a means of reinforcing content language and new concepts.

3) Teacher training of peer tutors to:
   a) provide strategies for assistance to tutees
   b) discuss a set of expectations of tutors, and
   c) provide an opportunity for tutors to discuss problems, progress and to receive feedback

4) Whole group discussions to model construction of a web and sentences, review and reflect what had been done during the activities, assignments and tutoring sessions.

5) Peer tutor and tutee work time to discuss the science study concepts and generate a web and a writing task

Time for discussion with the students and the teacher during the process enabled me to think, reflect, change my perceptions and form new understandings within the patterns of what was taking place in the learning environment.

Data Collection: Informal and Formal Interviews

Individual interviews were conducted once at the end of the sessions with the students and the teacher. The questions were open-ended so that the participants could elaborate freely and not be constricted in any way with their answers. The tutors and the tutees were asked the same set of questions so I could see any patterns that may emerge through the interview process (Appendix 7). The interviews were conducted in the classroom for the duration of about twenty minutes. All interviews were audiotaped and I took notes as well of the interview. I thought that
the students' voices may not be clear or there may be body language during the interview that may merit recording on paper.

Informal interviews were conducted regularly to provide overall feedback on the sessions, the students, and how they felt throughout the process. These informal interviews were brief but a necessary way to acquire what the students were thinking throughout the process. Being informal these brief interviews were very short in duration.

Data Collection: Audio Taping

Each dyad of students, tutor and tutee, were asked to tape each session on their tape recorder. They were asked to turn on the tape machine and not turn it off. Each dyad was trained in the use of the machine and how to tape. Most importantly, they all taped a test run so they could listen to their voices on tape because many of the students had not heard the sound of their voices on tape before. I perceived that this experience of taping could have been a distraction to the tutoring sessions and from their work in science, or stop the natural flow of their discussions. All tapes were returned to me at the end of their tutoring sessions so they would not be lost or misplaced and this seemed to be an effective organisational plan. All tapes from the nine dyads were transcribed and examined for patterns in their interactions that emerged during the tutoring sessions.

Data Collection: Writing Samples

A writing sample in the form of a web was a task to be completed from each of the tutees. As well, tutors were asked to assist the tutees during a writing task that reflected the ideas in the web. This would take the form of a paragraph. I analysed the writing samples on a very basic
level, whether the tutees were able to create a web of ideas that reflected the scientific vocabulary that occurred in the science study. Secondly, I analysed the paragraph writing to see whether the tutees were able to write a paragraph that reflected the ideas they generated from the web. (See Figures 3.3 & 3.4) This activity could be done with the assistance of a more capable peer and not to be done alone, for the tutees were at various stages of learning to write. Since I was interested in the content of the writing, the analysis of these tasks did not include grammatical structures or spelling. They were to be completed, as rough drafts, because editing skills were not part of this learning experience.

The analysis reported in this study focused on the interactions of eighteen students in nine peer tutoring dyads and the teacher, researcher and students’ perceptions of what took place during the ten weeks of study. In Chapter Four are the findings from the analysis of the data.
Chapter Four

Findings of the Conduct of the Study
and the Emerging Themes

Introduction

In this chapter I will report on the findings of the conduct of the study and the results by exploring seven themes that emerged from the data I gathered during the classroom and peer tutoring activities. The themes emerged from the interactions among the students, the classroom teacher and myself and the perceptions each had as we explored peer tutoring in the study of science and writing about science within the classroom. The data for the emerging themes came from observing the students working on activities in the classroom, audio tape recording students as they worked together, students’ work samples, and discussions with the students and teacher. By writing about the themes, I will describe the theme and then present supporting data. The themes flow from the beginning of the study to the end. However, at times the themes seem to overlap each other.

The seven themes of findings are as follows:

1) Teacher modelling and explicit instruction influence tutors’ use of modelled strategies.
2) Tutors use interactive “talk” to negotiate and clarify meanings and scaffold tutees learning.
3) Tutors help tutees with beginning L2 skills to visualise language and content.
4) Peer tutors become responsible for their tutees learning and completing of the writing tasks.
5) Greater age difference is a factor for successful tutoring dyads.
6) Tutors become “experts” in their roles.
7) Students acquire a vision for teaching and learning from peer tutoring.

**Theme One: Teacher modelling and explicit instruction influence tutors’ use of modelled strategies**

Each of the 4 two-week task sections of study contained two explicit teacher modelling components for the whole class, first during the introduction and second during the large group webbing and writing activity (Figure 3.2 and Figure 3.3). During this time I emphasised resource materials to use, questions that encouraged thinking about the tasks, how to collaboratively talk to produce ideas on a web and finally how to transfer the ideas from a web to sentences. All of the students then had an opportunity to participate in their classroom community (Raphael, Brock, Wallace, 1997). I felt the students needed the structure of strategies to draw upon when they were working in their small group work or peer tutoring dyads. I felt these were very difficult tasks especially for the students in grade 4 who had not attempted a web before.

Tutors employed the strategies of using books and charts when assisting their tutees. First I introduced the lesson section (see Figure 3.2), for example the heart, by using pictures from books which the teacher and I displayed in the classroom, and picture and vocabulary charts which we hung on the walls. By using these key visuals (Mohan, 1986) I was modelling resources the tutors and tutees could use when they were working together and talking about information they needed to include in their web and writing tasks. Furthermore, key visuals, such as pictures and information charts, serve as a focus for explanation and clarification for both the tutor and tutee. By drawing their attentions to these types of information materials, I was empowering them to be resourceful as learners and tutors.
As I observed the students, during our first two-week section of constructing the full-scale models of the body and labelling the parts, they initially depended on the classroom teacher or me as their only forms of resources. The resources I had modelled were simply viewed as fancy pictures with words and not as classroom resources for information. As we withdrew our support for questions such as, "How do you spell...?" and "What is the name of...?" and "Where is the...?" they turned to the books and charts I had modelled as resource materials for the section and these types of questions subsided.

The tasks during peer tutoring demanded that tutors employ strategies to convey meaning to the tutees. While visiting the peer tutoring dyads I observed students talking by the wall charts and discussing pictures in books. During formal interviews, most peer tutors reported using pictures from books, dictionaries and charts to convey meaning and gain information or to focus talk. A tutor reporting on how a tutee conveyed meaning said, "sometimes she would draw a picture because she didn't know the words" and other times "she would use a library book to help explain her ideas". One tutor "drew pictures that explained", another, "used picture books with labelled words and descriptions" to assist the tutee with learning, while other tutors explained they "read a book together to talk about ideas" or "read books together for information and thought about it". I noticed the classroom books and library books were being readily used, along with the charts. Clearly, modelling these materials reinforced the strategic importance of their use.

Tutors modelled both open and closed questioning to involve tutees in interactive talk. This second teacher-modelling component was to demonstrate student involvement in sharing ideas and creating a web of these ideas was part of the writing process. I used this event to model where tutors should begin when tutoring their peers, that is to engage the tutee in an open-ended
question so they could think about the topic, share what they knew and build on each other’s ideas. All ideas are not necessarily accurate but they are ideas to be shared. Furthermore, closed questions were modelled to help tutors gather details, scaffold learning, negotiate meaning or clarify terms. Modelling was provided as ongoing support to the tutors and tutees during whole group events and during peer tutoring sessions if either the students or I perceived a need. As the whole group of students gathered by the chart stand and sat on the carpet, the following example of conversation is typical of these events. From these ideas we created our web together.

Researcher: What are the things you can tell me about the skull?
Student: She says the skull protect all the body
Student: The skull protect the brain
Student: Skull protects the brain and the brain protects the volunteer muscles.
Student: The brain inside.
Student: Part of the head of the body.
Student: Hard tissue, bone.
Student: Jaw called mandible.
Student: Can move up and down.
Student: Cartilage is soft tissue
Student: The nose and ear are made of cartilage.
Student: The eyes are not made of cartilage.
Student: The skull protects the eye.

This example of our group conversation is an indication that the students came into peer tutoring with a bank of information. From these sessions I observed the students were prepared within their own ZPD to contribute to the peer tutoring process. All the students had participated in hands-on tasks and vocabulary building tasks before beginning their webs. Each tutee would
require his or her level of support from each of the peer tutors. I also did not expect the tutors to grasp all of these instructional strategies at once. This was to be a continual learning process for all of us. The peer tutors are not trained teachers, nor was that an expectation. They were working within their ZPD (Vygotsky, 1978) and I therefore needed to scaffold their learning tasks as peer tutors.

The dyad of tutor EL, a Grade 7 student, and tutee JC, a Grade 6 student, struggled to talk about information on the heart and EL approached me, R, to help. I modelled with the tutee an open-ended question that would help them get started and to build on the information the tutee knows. The following is our discussion.

R:  
  JC, what do you know about the heart?
JC:  
  The heart is as big as a fist.
  The heart pump the blood through the muscle.
  It brings the oxygen and the food to every muscle.
R:  
  What can you tell me about when we were exercising?
JC:  
  When we were exercising our heart go faster and when we rest it go slower.
R:  
  So, what does that tell you about how the blood is going through our bodies?
JC:  
  (1.0)
R:  
  You told me that when you exercised your heart beat faster. What can you tell me about the blood as it goes through your body?
JC:  
  (1.0)
R:  
  What does that tell you about the blood going through the heart?
JC:  
  It’s pumping.
R:  
  Is it pumping harder?
  What more can you tell me about your heart pumping blood through your body?
JC:  
  We can feel the blood is moving.
R:  
  How can we feel it’s moving?
JC:  
  We feel it through our wrist.
The following is the discussion between tutor, EL, and tutee, JC, from which they began their web.

EL:  What you know about the heart?
JC:  A heart is as big as a fist.
     Ribs protect the heart.
     A heart pumps the blood and put the blood to every muscle.
JC:  The location of the heart is the right side of the chest.
EL:  Why is it so important?
JC:  Because if our heart stops that means you’re dead.
     You die!
EL:  Why we need a heart?
JC:  We need the heart to take the food and oxygen to our muscle.

The tutor, EL, demonstrated she could follow the model. She began with an open-ended question, “What you know about the heart?” followed by several other questions to elicit information from her tutee, JC. They could begin further dialogue to create their web of information.

Another tutor, AC, a Grade 6 student and tutee, NL, a Grade 4 student, also followed the model of generating information beginning with an open-ended question. Notice how the tutor repeats the question to get the tutee focused.

AC:  What do you know about lung?
NL:  I know about smoke because it smell bad.
AC:  What do you about the lung?
NL:  I know your breath doesn’t when you no good at the lung.
     It will turn to black and die.
     I know the lung is two side.

Not every tutor was able to model a beginning open-ended question. However, I did observe the types and amount of questions. Examining the data for questions and responses, I noticed that combinations of open and closed questions were being used to create interactive talk
within the dyads. The tutors were asking open-ended questions as much as 11% in one dyad, such as, "What do you know about the heart?" "What the lung do to your body?" or "Why is it important?" to gather as much information and interaction from the tutee as possible. Clearly, the tutors asked more questions than the tutees, as high as 35% of the total interactions in one of the dyads. However, tutees responded to these questions with as much as 44% of the total statements in the interactions. Therefore tutors were able to assist the tutees by engaging them in interactive talk and by inviting them to respond to questions rather than dominating the interaction.

Interactive talk between a tutor and tutee was a cyclical process of:

teacher modelling skills → tutor interacting with tutee → building skills and confidence →

Theme Two: Tutors use interactive "talk" to negotiate and clarify meanings and scaffold tutees' learning.

Talk evolved within the peer tutoring dyads as tutors became more confident with their own skills and more accustomed to working with their peer tutee. The tutors were beginning to understand more about the learning needs of their tutees in so far as where to begin to assist them. That began to shape both the form and content of the questions.

The tutors demonstrated that there was much more to the questions they were asking the tutees. They were attempting clarity and meaningful interaction so the tutees would not only understand, but also contribute themselves in a meaningful way to the interactions. They were learning to use "spontaneous improvisations" (Cazden, 1988), which means students were spontaneously negotiating, clarifying and attempting to make the language more clear to facilitate
learning and speaking within a structure. In this case the structure is building scientific knowledge and language through interactive talk within a novice/expert peer tutoring dyad.

Tutor, SB, a Grade 7 student and tutee, JL a Grade 4 student, talked about the lungs. Observing them, I noticed they were very focused in their discussion while they were working on their web. SB made sure JL was on task and being productive with her thinking and writing. Their conversation moved from scaffold to clarification to negotiation so that SB felt confident JL understood what she was writing. JL was engrossed in the thinking, the discussion and their "spontaneous" conversation unfolded.

SB: *What protect the lung?*
JL: *The part in front of your heart. The...*
SB: *The other bone? What protect the heart?*
JL: *The, what it's called?*
SB: *You know, the bone right here. ((pointing to her chest))
JL: *The rib.*
SB: *The rib it protect the lung.*

SB: *It's very important to your body the lung.*
JL: *Yah.*
*Some people get a disease and the lung get damaged and because... (1.0)*
SB: *Oh, you mean we have two lung and then, like, one lung is damaged because you smoke and you still work with the other lung. Is that what you mean?*
JL: *Yup! We could breathe with one lung.*

JL: *When you smoke those black things it sticky and stick to your lungs and it turn black to your lungs and it might be sad. Like that's it. I'm quitting!*
SB: *Oh, you mean when you running, when you smoke, right, and then the sticky thing cover the inside of your lung that have something all over the branches, right.*
JL: *No, you mean the heart! The heart's got branches!*
SB: *And the lung, too.*
*And then it's cover up the hole so the lung can't bring oxygen to the*
body.
Is that what you mean?
JL: Yup.

As JL felt satisfied with the knowledge she gained, she began to write the thoughts that they shared together and the meanings it held for her. SB was able to direct her thinking and give her just the right amount of information within her ZPD (Vygotsky, 1978) that she needed to clarify her own understanding. SB demonstrated that he was able to assist her by keeping her involved in the interactive talk by carefully scaffolding her thinking, clarifying terms “Oh, you mean we have two lung ...”, and negotiating as we can see in the third interaction.

Tutor, EL, a Grade 7 student, also demonstrated “spontaneous improvisations” when working with tutee, JC a Grade 6 student. In the following conversation EL and JC were discussing the heart. Tutee JC searched for meaning in what his tutor EL was telling him about the veins in the heart. He kept questioning her so he could negotiate meaning and she would therefore scaffold his learning experience. Their interactive talk follows.

EL: Do your heart have vein?
JC: Yes. What’s that for?
EL: The veins is for pump the blood.
JC: And what it’s look like?
EL: Looks like holes.
JC: And what colour is it?
EL: Sometimes blue and sometimes red.
JC: Why?
EL: When the red, ... when the heart pump through the holes that when the blood blue. When it’s pumping out it’s red.

What I found interesting is that EL did not offer too much information to overwhelm JC. She was able to scaffold his learning experience to tailor to his needs at that moment.

This same sensitivity for the needs of the learner became very apparent in tutor, AC’s interactions with tutee, NL, a Grade 4 student. Similar to tutor EL, tutor AC, a Grade 6 student,
realised her tutee’s ZPD and scaffolded her learning patiently so that she could comprehend the information. In this dyad AC was assisting her tutee with the vocabulary of the science of the skeletal structure. They chose to use books at their desk because NL relied on the pictures to help her learn, so the tutor focused talk around these pictures to make them more meaningful. This interaction took place while they were labelling the diagram of the skeleton together.

AC: *This part is for the lungs and heart.*
NL: *Heart?*
AC: *The heart and lungs are inside.*
   *Do you know what this part is called?*
NL: *I don’t know.*
AC: *Okay. I’ll teach you.*
   *That called ribs.*
NL: *Ribs.*
AC: *Ribs. That’s right. Okay.*

Though this talk was more teacher initiation, student response, and teacher evaluation (I-R-E) method, it seemed to have its purpose here. The I-R-E method referred to here means that the teacher initiates the conversation then the student responds to the teacher’s comment or question. This is followed by an evaluative comment by the teacher such as ‘good work’, ‘I like your comment about …’ or ‘this needs to change’ and so on. There were new words for NL, “heart”, “ribs” and she wanted to learn and repeat every one of them. AC used repetition to help NL hear the word again so she could attempt to pronounce each one. As NL spoke each word aloud she might be using her “inner speech” to internalise these words into thought. Vygotsky (1978) considered “inner speech” or talking aloud to others or self as part of the process of language learning which in turn became thought in the mind. These interactions continued on so that NL felt supported and could do her work.

From learning the new vocabulary of the skeletal structure, AC scaffolded NL’s learning once more. By drawing comparisons between animals with and without bones for a skeletal
structure, AC wanted NL to understand that our bones formed a framework inside our body.

Using pictures to compare body structures, their conversation follows.

AC: *Does snail have bone?*
NL: *No. No bone.*
AC: *Does worm have bone?*
NL: *No. No bone. Got none.*
AC: *Does monkey have bone?*
NL: *Yep.*
AC: *How about elephant?*
NL: *Yep.*
AC: *What animal do you know have bone?*
NL: *Let me see. (2.0) Have bone.*
AC: *Does snail have bone?*
NL: *No.*
AC: *The monkey?*
NL: *Yes!*
AC: *Inside the body of outside?*
NL: *Inside.*
AC: *How about the elephant?*
NL: *Inside.*
AC: *Goose have bone?*
   *Is it inside or outside?*
NL: *It's there! (pointing to the picture)*
   *Inside!*
NL: *Inside.*

The tutor AC sensed that her tutee did not understand the concept and returned to repeating the pattern at the point "*Does snail have bone?"* Once the tutor confirmed her tutee NL was back on track by repeating the second part of her pattern "*The monkey?"* and seeing her scaffold was secure, she could then move on to building the next part of the scaffold of a human skeleton inside the body. Tutee, NL reported that AC’s questions "*helped me think*”. AC was careful to build language and the knowledge of the skeletal system with NL to prepare her for the web task.
Four of the nine dyads were paired with peers who spoke the same L1. All four-of these dyads used their first language / dialect during interactions at some point but did not rely on extensive use. Observing them talk, I noticed the use of L1 seemed to be at a point when all other strategies were exhausted. During interviews, both tutors and tutees reported using their L1 for clarification. Comments, for example, were “Sometimes I talked Cantonese so he would understand more” “I think he knew it in Chinese” “I asked her questions in Chinese”. Making information clearer and finding out if the tutees could express what they knew in Chinese was more important than becoming frustrated and saying nothing at all.

However, there was a pair who struggled as a dyad when speaking English. Tutor IW, a Grade 7 student spoke Cantonese with tutee GF, a Grade 6 student, in an attempt to connect with him. IW commented “Sometimes I would ask him ‘What do you know about this?’ and he would say, ‘I don’t know anything about that.’ I think he know it, he just don’t do it.” Clearly she was frustrated with her tutee and though they could speak the same language they could not make the tutor-tutee connection as some of the others did.

These examples indicate ESL students are resourceful in their methods of talking with their peers. They can and do negotiate meaning, scaffold learning and clarify terms for their peers. These examples demonstrated they were able to follow the models that were presented to them and carry them through in their tutoring sessions. However, they also demonstrated they were sensitive and perceptive to the learners’ needs and could begin to build language and knowledge according to the tutees’ needs.

Not all tutors, however, demonstrated they were not able to do this. One peer tutoring dyad struggled to work as a dyad and seemed unable to resolve any differences in attempting to work together. The tutor indicated that the tutee did not want to contribute and they chose often
to work in isolation. I tried to assist them with resolving the problems but I was not successful. I began to think of some of the factors that may have come into play such as personality conflicts, expectations of the tutee or tutor, closeness in age between the peers in the dyad, gender, responsibility issues and so on. As I continue through the process of reflecting and analysing the data I have collected within the themes that have emerged I may have a clearer understanding.

**Theme Three: Tutors help tutees with beginning L2 skills to visualise language and content.**

Using picture books with labelled diagrams or limited text to communicate meaning and generate talk was something the tutors and tutees began to depend on. Since wordless picture books have been suggested as a source to develop oral language skills and develop particular discourse types (Early, 1991), then using this strategy for interactive talk was a productive means for the tutors to focus the tutees’ attentions on the language of the science content. Illustrations and charts were particularly meaningful for students who were more limited in their vocabulary, as we could tell from the dyad of tutor AC, Grade 6, and tutee NL, Grade 4, who used books with pictures and charts extensively to make language and content more meaningful. Tutee NL also found that drawing pictures expressed her thoughts with less frustration when her L1 or L2 was lacking. The tutors and tutees alike found this type of key visual material easy for them to use to generate talk and help them to explain meaning when their own English was lacking.

Tutors also used a creative form of creating a visual language through the use of word imagery. Creating imagery through words proved to be most effective for those tutors who were trying to assist a tutee to understand a concept. A skeleton was compared to "the steel framework of a building", the bones in our legs were like the bones of a hen's leg. Our heart is
the "shape of a fist" "not like valentine heart" "like an oval" "like Haida oval"-(making reference to art they had just completed in a First Nations study). The lungs were described as "not like a balloon" but "are all branches ...that bring oxygen". To me, this was not only creative but required abstract thinking on the part of the tutor.

For example, tutor SL, a Grade 6 student, wanted tutee AC, a Grade 4 student, to understand what the skeleton did for our body. Through the use of imagery she was able to assist her tutee. Their discussion follows.

SL: The skeleton is the frame of the body.
AC: Of course!
SL: Is the bone make up the skeleton?
AC: Yes.
SL: The skeleton of the body can become compare to the steel of a building. The steel give the building its shape and support.
AC: Yes. It is.
SL: Can the steel framework of a building move?
AC: No! The steel framework of a building can not move.
SL: Can the skeleton move?
AC: Yes it can.
SL: What thing do skeleton help?
AC: Move. Many part of skeleton help support and protect the body.

Tutor SB, a Grade 7 student, describes the lungs to tutee JL, a Grade 4 student.

SB: They don't look like a balloon because inside the balloon there's air but in the lung there are branches. Like artery, something that brings oxygen.
The three tutors who were using imagery were tutoring students in Grade 4. Imagery seemed not to be a strategy that was used by tutors working with students in Grades 5 and 6; these students had more L2 skills. The classroom teacher assessed all three of these Grade 4 tutees at the beginning stages of reading and writing in their L2. In reflective thought, perhaps the tutors felt pictures and imagery best explained what they needed to tell their tutees.

**Theme Four: Peer tutors become responsible for their tutees learning and completing of the writing tasks.**

The tasks of constructing a web and writing sentences were employed for sections 3 and 4 (see Figure 3.2) of the study on the heart and the lungs. Though some of the dyads went on to complete a web and to write on either the skeleton or the skull, this was not required of the students. These tasks required the tutor to use a bank of strategies, to talk with the tutee and provide assistance within their ZPD, but also work with them co-operatively through the difficulties of the writing tasks. Despite the fact that the classroom teacher used various visual information maps, such as a web, in the classroom during all of her content studies and that these maps were hung in the class for the students to refer to during their studies, some of the tutees expressed feeling very nervous about constructing their own web. The five Grade 4 students had not constructed a web on their own so they were depending on the "expert" guidance of their peer tutor.

The group and peer work in sections 1 and 2 (see Figure 3.2) of the study was to allow class members who may not have worked together some time to experience co-operative work. The students completed their large full-scale figures of the body and labelled the inside and outside features within groups that may or may not have been composed of peer tutor dyads.
They completed their diagrams on the outside of the body and the skeletal framework as a peer tutor dyad. The classroom teacher and I observed, for example, students MT, a Grade 6 student, and SB, a Grade 7 student, who were both male peer tutors working together. They were assisting their peer tutees SH and JL who worked in another group of Grade 4 girls requiring assistance. The classroom teacher and I concluded this constant movement of talk and assistance between groups seemed to work out well and was a good beginning to initiating a sense of peer assisted learning in the class.

These two different experiences of hands-on construction and labelling diagrams initiated a lot of talk in the classroom. In fact, both the teacher and I commented continually on the total group production of focused talk, which at times became a little loud for the human adult ears to bear. However, what we saw were students working together and taking the responsibility to help each other. Students were excited and busy in their classroom, an environment that was for them a productive and exciting learning place. As students were measuring each other for the length of body limbs, they needed to interact and use the scientific language for the body parts.

All groups completed these tasks and were ready to move on to the next phase of studying the heart. This would be their first attempt at producing a writing task within a peer tutoring dyad. I felt anxious because I wanted this to work. Secondly, though I felt the tutors were prepared for their tasks I did not know if the students who were carefully matched in the dyads would be able to work together. The classroom teacher and I had collaborated in matching the tutors with the tutees and we both felt they were the best matches. Could these students in reality work together? What issues would surface? Could the tutors assist the tutees in creating a web and then write sentences?
My observations at first were those of students adjusting to each other in the peer-tutoring dyads. This I felt was normal, for even though students knew the tutors were there to assist the tutees, there was some attempt at posturing among the tutees in Grades 6 and Grade 7. Some students joked uneasily and demonstrated 'lack of interest' or 'I know that' attitudes. Others were slowly getting to know each other by just talking about things without getting into the content of what they needed to do. The teacher and I observed carefully and intervened when we felt a need or the tutor asked for assistance.

We began to see the tutors were feeling a sense of responsibility for their tutees learning when they started to either express frustration or ask questions. To me this implied taking action. For example, tutor IW, a Grade 7 student who worked with tutee GF, a Grade 6 student, approached us first. The teacher described the tutee GF as having very poor work habits and great difficulty completing any school tasks. He often lost assignments because of his weak organisation skills. We purposely matched GF with IW because of her strengths in organisation skills and solid work habits. IW was a conscientious student who wanted to do well as a tutor and be successful at assisting GF. Her frustration stemmed from GF not wanting to work. She commented that "He would always ask his friends to help him. I ask him 'What you know about the heart?' And he said 'I don't know anything about it.'" She felt GF had difficulty writing sentences because he said, "He doesn't like writing" and was not able to do this on his own. Furthermore she felt "I think he copied from his friends". After attempting a strategy of speaking Cantonese to GF to see if he knew any information on the study, they were able to accomplish a web of the heart as their only completed task as tutor and tutee.

Similar to tutor IW, tutor EL a student in Grade 7 experienced frustration and concern with JC, a Grade 6 tutee. She felt JC was not being 'responsible' as a tutee to work with her and
felt the pressure of needing to accomplish a task. Tutee JC, who was also identified by his classroom teacher as lacking solid work habits and organisation skills, was resisting the skills and knowledge EL had to offer him. JC was looking for another peer who he felt was be a more capable peer than EL. I, as “R”, intervened by modelling a dialogue with tutee JC that ended with tutor EL filling in the missing vocabulary. At that point he realised she may know a little more than he may.

R:  *Right, we're counting our heart rate. What was that word we used when we could feel it ... our* (1.0)
E:  *Pulse.*

This tutoring dyad completed only one web and writing task together because of their difficult start.

These two tutors’ concerns implied their willingness to assist their peers and the responsibility they felt for their role as a peer tutor. More so, they were taking responsibility for the students they were tutoring. The tutors expressed applying various strategies and managing to assist their tutees in completing only one of the two writing tasks. One of the tutors expressed a deep sense of regret when she said, "I can't help him". This situation raised some questions for me regarding age differences and gender issues within peer tutoring dyads, especially at the Grade 6 and 7 levels where students are becoming more socially aware.

In contrast to these experiences, other dyads seemed to recover from the initial uneasiness as the tutors took charge of the learning situation. By taking charge they were not necessarily dominating the tutoring situation but they were accepting their responsibility for peers as assuming the role of a tutor. These tutors began to mould the learning tasks to the needs of the
tutees. In other words they had kept the learner in mind rather than simply the task. As mentioned earlier, tutors used books, charts and pictures to help tutors express what they knew about the heart, and later the lungs. Some used imagery to help the tutee visualise the concept or vocabulary, perhaps both. They became a team of students working to accomplish a goal.

These tutors helped their peers to complete the writing tasks and supported their learning. Tutees reported the tutors assisted them by "writing sentences" "spelling of words" "helping with words I did not know" and "webbing". Other comments that empowered the tutees in their thinking and skills were "questions helped me think" "he made me do my own web" "give me hints" "showed parts for understanding" and "broke big words into small words, one by one". Tutees also commented that tutors assisted them with writing skills that included "how to make the circle and write words that we studied" "How to put the parts in order" "put the pieces in the sentence and then order them sentence after sentence". Clearly, tutees felt supported by the assistance that was being offered to them. (Appendix 8)

As tutors worked with the tutees I could see their work evolve. Tutors first took a lot of time explaining then they began filling the web. Sentences followed. The following is an example of a completed web, sentences and a discussion as to how the tutor felt he or she took responsibility assisting the tutee in accomplishing the tasks.

Tutor SB, a Grade 7 student worked with tutee JL a Grade 4 student on the heart writing tasks. Tutor SB had a sequential way of assisting JL with the writing task. First he said he helped by asking JL questions and giving her answers. They wrote down their ideas on the web and then he helped with some spelling. They shared their ideas then they wrote down the sentences.
The heart is very important to us because it helps you to breathe to live. When you running the heart working faster and the heart give you more blood around your body. It give you oxygen and it make you be stronger. The heart need nutrition (nutrition) because it will bring around the body.

The heart is not like a...
Similarly, tutor NC a Grade 7 student assisted CL a Grade 4 tutee to construct a web of ideas by first "thinking of our ideas" and "talking together" then "I helped her spell words". When writing sentences they first "talk about if it's right and then write it down". They both said they "shared what we know". The following is a web and writing of what CL was able to do.

**Figure 4.2**
The Heart: Tutee CL, grade 4

Something about the heart.
Heart is an important part of our body, we can't live without the heart. Heart uses for make the blood goes around the body. Heart pumps in different speeds when you do different things. For example, when you are sitting, your blood pumps in normal speed. When you are running, your blood pumps faster.

Tutor AC, a Grade 6 student, worked with NL a Grade 4 tutee. NL was beginning to read and write in English and was very proud of her accomplishments. They built vocabulary while they worked together on the body science study. AC felt she helped NL think about ideas
and learn new words. She helped NL with the web however they did not write sentences together for it. AC explained to me that they worked mostly on talking about the heart, lungs and skeletal systems of the body. I observed that this tutor knew NL’s ZPD and focused their discussions on what NL needed to learn and not necessarily on producing something NL was not ready to do. The following is her web.

Figure 4.3
The Heart: Tutee NL, grade 4

Similar to tutee NL, tutee AC, a Grade 4 student, was also at the beginning stages of learning to read and write in English. AC’s skills, however, were a little more advanced and therefore her tutor SL, a Grade 6 student, encouraged her to place more information on the web. Tutor SL commented that they would web together and talk together. They also wrote sentences
together that SL helped correct capitalisation and punctuation. The following is AC’S-web and writing.

**Figure 4.4**
The Heart: Tutee AC, grade 4

The Heart
The heart is the engine of the body. The heart stop and you will did (die).

Each of the tutors felt a sense of responsibility for the students they were tutoring. This was indicated in their concerns for the attitudes and behaviours of the students, desire to assist with task learning and completion and, more so, sensitivity towards the needs of the students.

The tutees’ attitudes towards the peer tutoring experiences affected the outcome of the tasks that were to be completed. Some of the Grade 6 and 7 tutees struggled to work cooperatively with a peer tutor who was close in age. In fact two of these tutees indicated that they
would not like assistance from a tutor again. One commented that he "wants and likes to work alone. I don't have to talk and I don't have to work together. It takes more time." However, contrary to this attitude were the students who saw the experience from a more positive light and reflected on it being "meaningful" and "helpful". The tutors were able to assist these students by being creative and working within their tutees ZPD and thus showing a commitment to assisting their peers.

**Theme Five: Greater age difference is a factor for successful tutoring dyads.**

The data from the previous themes indicated that peers with greater age differences from their tutors enjoyed more successful and positive learning experiences. Of the five Grade 4 students, three were placed with students in Grade 6 and two with students in Grade 7. I particularly would like to focus on the dyads' tutor responsibility, productivity and amicability factors.

First, from my data and observations, the tutors from each of the five dyads felt a sense of tutor responsibility and concern for the learning and completion of tasks for their tutees. Each of these tutors helped their tutee by assisting them within their ZPD and seeking ways to help them understand the new information.

Information became visual representations of language through books, charts and imagery. Exclusively, this group of these tutors of Grade 4 students used imagery in particular. The skeletal framework was described as being like the steel supports of a building and the leg bones of a human looked just like the one's of a hen that may appear on the dinner table. Pictures held meaning for the students. Tutor NC "drew pictures that explained", tutor AC "used picture books with labelled words and descriptions", whereas tutors MT and SL "read books together"
with their tutees for information or to talk about ideas. Tutor SB also used drama by "acting out things" to give a visual impression. Tutee NL used library books to help explain her ideas. Her tutor AC said NL would "draw a picture because she didn't know the words". Though books and charts were used to represent information and to gather information among most of the dyads, the tutors of the grade four students sensed its importance as a strategy in helping them understand the content and language of the science study on the body.

The tutors involved their tutees in talk. All of the Grade 4 tutees were kept involved in talk through the use of key visuals or "reading books together". Tutors asked many questions of the tutees and they "talked together". In doing so the tutors were able to involve the tutees in negotiation of meaning, clarification of ideas and scaffolding of their learning. During this time tutors built new vocabulary and involved tutees in thinking about ideas. Tutees reported their tutors provided assistance with "help with words I didn't know" "remembering words" and "spelling words". Most of the vocabulary building was happening at the Grade 4 level while the Grade 5, 6 tutees were being assisted with skills of organising information on a web and construction of sentences. In fact, one Grade 6 tutee disliked working with a tutor and expressed his opinion by saying that by working alone, "I don't have to talk".

Secondly, the Grade 4 tutees' dyads were productive in the sense that work was completed together. Each of the dyads reported that the webbing and sentence writing tasks were constructed together. The tutees did not have a feeling of being abandoned to do something the tutors knew they could not do without a more capable peer assisting them. Tutor AC reported that tutee NL "could not do this on her own" and tutor MT knew his role was to "help with something she didn't know". Perhaps because of this clear definition of roles the tutors of grade
four students were able to assist the tutees through the webbing and writing tasks with all-but one completing the joint construction of writing tasks.

Thirdly, and possibly most important of all, there was a feeling of amicability and trust among the members of the Grade 4 dyads. Whenever I watched the Grade 4 students working with their older tutors, regardless of gender, there was always a comfortable ease in the way they approached learning. They laughed, they were focussed on their work, and they were involved together in all of their learning. There was a sense of calmness in their working relationship and from that grew a sense of trust. The tutees wanted to do well and looked forward to their tutors’ guidance. This was not necessarily the case with the tutors of Grade 5 and 6 tutees who at times worked independently of their tutors.

Given these three areas of observations across my data I feel the most successful dyads were two to three years apart in age difference. I will not generalise that for all dyad pairings this is the case. However, within this study I feel these dyads had a positive learning experience. There appeared to be a clearer understanding of roles between the tutee and tutor. Perhaps because of this they could get on with their learning from a more capable peer.

**Theme Six: Tutors became “Experts” in their Roles.**

Bell (cited in Topping, 1988) said, “Teaching is twice learned”. The written work completed by the tutors from their learning experiences indicates that many became “experts” in the study of the body. Many wrote lengthy or detailed paragraphs with a detailed web. Their reports indicated learning from the hands-on tasks and showed evidence of information gained from books or other sources. The following is an indication of the work many tutors completed during our study of the human body. All copies are unedited, rough drafts.
Tutor AC: The Heart

Everyone have heart and it is important for people and animals. The heart is right through your body to your finger tips. The heart is divided into two separate parts, the left side is filled blood right through your body, the right side is carrying the waste gas carbon dioxide and sends it to your lungs.

The heart is red, it had valve, veins, right and left auricle, vena cava, right, left ventricle. The heart had four value, two outflow and two inflow, it is let the blood moving. If you want to know your pulse rate and breath rate, you can touch you wrist, neck or sometimes you go to hospital will use ECG or stethoscope. When you do more exercise, your heartbeat will fast than when you are normal and your blood will move fast, too.

Some people had cardiovascular disease, example: arteriosclerosis, hypertension, rheumatic fever, congenital heart disease, fibrillation, congestive heart failure, heart attack and all is because heart is too fast or slow, pulse is hard, some mother when they had baby and then use drug, and baby's heart isn't working properly.

When you breath, you are breath in oxygen and breath out carbon dioxide. Your heart is very important, because you don't have heart you will die.

Tutor MT: The Lungs

The lung is important to our body. When we smoke the lung get black in our lungs. When the lung get black the lung can't give us oxygen all around our body. The lung give us air to breath. Our lung help us breath slow and fast. When we have one lung we can be alive. If we breath the oxygen will go into the lung and give oxygen to the heart, so the heart will give blood around our body. We could breath with one lung if the other is damaged. Don't smoke take you lung healthy. Our is look like a ball. The lung is the system to breath or breath system. You have two lungs made up of millions of tiny air pouches. There oxygen passes from the air pouches into your bloodstream. And carbon dioxide wastes pass from your bloodstream into your lungs, so they can be breathed out.

Tutor SB: The Heart

The heart is very important to us because the heart is help you to breath and to live. When you running the heart working faster and the heart give you more blood around your body. It give you oxygen and it make you stronger. The heart need nutrition because it will bring around our body. One thing that very important that the heart working by itself. It not like muscles because the brain tell the muscles what to do. The sharp of the heart is look like oval shape. I have learned a lot of thing about this. How they give blood to us and I wanted to know more about the heart.

These rough drafts indicated the tutors were learners themselves. They were resourceful learners who, perhaps after practising the information many times with a peer, became more
knowledgeable. They were able to apply the new vocabulary from the study to their paragraphs, include in the content information learned from the hands-on experiences in their writing and read new information about our study and include this information in their reports. In essence, the webs and paragraphs the tutors wrote indicated they gained a greater understanding of the content information from the study. Perhaps repeating this information more than once assisted them in learning the content.

I was curious to know how the tutors perceived themselves as “experts” within a peer tutoring dyad. When I asked each one what they felt their strengths were in their L1, all indicated writing. Some said they enjoyed writing stories or compositions. This was obviously an area where they felt proud of their achievements in their L1. Four of the students indicated strength in reading. In the L2 there was a large response to math as strength. However, few felt English language was a strong point and that there was a lot more for them to learn. SB told me that he was mainstreamed in the English debating programme, many were integrated for math, and all were learning to play the violin with the mainstream classes. This indicated to me that they saw themselves as learners who knew they worked hard in school and were achievers. They were confident they could help their peers.

Theme Seven: Students acquire a vision for teaching and learning from Peer Tutoring.

Both the tutor and tutees gained an understanding from their own perspectives a vision of teaching and learning. By the term ‘vision’, I mean a deeper understanding of assisting a peer in the learning process. At first, I think the tutors may have seen their role as a simpler task, something like helping a friend with a math problem or pair reading together. However, as their role evolved into something that was more involving of their attention they became more
responsible for the learning of their peers in the way they approached tasks and their concern for offering assistance.

By the end of the tutoring sessions the tutors had formed their own understandings of the role of tutor. Some saw this as a "big job". The idea that they saw tutor as 'job' to me implied 'teacher'. One student said my job is to "teach them" and yet another said, "she can remember what I taught her". I observed tutors getting books from the library during their breaks and doing some extra reading so they were prepared to assist their tutees in learning.

Tutors realised that the students required different kinds of assistance and became more aware of how to assist their peers. Some peers required assistance with skills such as webbing and writing, while others required assistance with vocabulary building and concept understanding; one perhaps being more visual than the other. Tutors seemed in my mind to sense this and commented they were there to "help them with something they didn't know" such as "help them make a web and sentences, ask questions and talk about ideas" and another said to be "helpful, talk not just write your own thing". One tutor commented "She doesn't know everything, I don't know everything, but I knew more than her".

When the tutors were asked if they would tutor again, one said flatly "no" and another said "maybe" while the rest responded positively "yes". The tutor who said "no" had struggled to assist her tutee who had very poor work habits and experienced difficulty completing tasks for the classroom teacher. This tutor was only six months older than the tutee and found that the tutee did not want to listen to her. After many attempts to share information in their L1 to form a bridge to help him, she decided she could not assist him. This experience made this tutor think about the complexities of tutoring and decide this was not an experience she would like to try again. I was also curious to ask the tutor why she said "maybe" when I observed that this
particular tutor had experienced a very positive working relationship with her tutee. She commented, "The tutee must be ready to work. I think you must know each other, be able to work together and get along". This student had carefully thought about her experience. Other comments from tutors included, "It was not hard with her, CL helped me to be a good peer tutor" "Sometimes I help people but I could learn a lot from them too. Neat way to help people".

The tutees responded to the question if they would like to receive help again from a tutor, not necessarily the same one. All but two said, "yes". Some comments were tutors "made it a lot easier, I understood it more" "nice to have someone in the class to help" "he showed me what to do. We talked, not just write your own thing" "you have to learn to talk to people".

There were two comments that left the greatest impression with me, one from a tutee, the other from a tutor. In reference to her whole experience with peer tutoring the tutee said her tutor made learning "meaningful" for her. The tutor saw her role as facilitator assisting her tutee when she said, "I learned to let (her) think on her own".
Chapter Five

Discussion of the Study

Introduction

The purpose of this study was to explore the usefulness of peer tutoring among elementary school-aged NNS of English. In this study the more proficient NNS of English tutored their less proficient NNS peers. I explored the usefulness of peer tutoring in the natural classroom environment of the ESL students in Grades 4 to 7. I investigated the usefulness of peer tutoring from the perspective that peer tutoring facilitates opportunities for meaningful communicative interaction or interactive "talk", and is a means for more knowledgeable peers to assist others in language and content learning in the classroom.

In this final chapter I will present a discussion of the findings of my study corresponding to my research questions that I posed in Chapter One. The foundation of the literature presented in Chapter Two will be included in my discussion. Into this discussion I will include the participants and the context in which they were learners in the classroom environment from Chapter Three. In Chapter Four, I discussed the themes that emerged from the beginning of the study to the end of the peer tutoring sessions, and then through to the last interview that described how the tutors supported the language and content learning of their peers. The findings of these themes will be guided through and connected to the discussion. I will conclude my study and provide implications for teachers in the classroom and researchers.
Discussion of the study

Despite the fact that Flanigan's (1991) research indicated a value for second language learners interacting in a peer tutoring situation with both NS and more proficient NNS of English, few studies have explored how and to what extent elementary-aged ESL students can assist each other. This present study was conducted to answer the following questions:

1. What types of interactive talk were generated between the tutor and tutee?
2. To what extent were the tutors able to scaffold learning for the tutees?
3. To what extent did the tutees' writing tasks reflect the interactive talk between the tutor and the tutee?
4. What attitudes did the tutors and tutees have towards the tutoring experience?

I shall discuss the study answering these four questions.

What types of interactive talk were generated between the tutor and tutee?

The students in this peer tutoring study were able to use a wide variety of language functions in order to communicate the language and content of the science study on the human body. Interactive talk that was generated between the tutors and tutees were questioning, informing, negotiating meanings and clarification of ideas in order to scaffold learning for the tutees. The tutors were able to follow the modelled open and closed questions to involve the tutees in discussions. Through these questions the tutors drew information from the tutees and invited their active participation and interactive talk into the learning process. Students were then engaged in thinking and reflecting about the hands-on activities, pictures, the dialogue and so on. As the tutors learned more about the tutees from their responses, the interactive talk evolved into meaningful interactions of negotiating meanings, clarification of ideas, and scaffold learning.
More so, tutees could make valuable contributions to the ongoing interactions by challenging the tutors when negotiating meanings or clarifying terms.

When Schieffelin and Ochs (1988) defined language socialisation as "socialisation through language and to use language" the implication was active participation in learning and using language. These tutors not only involved their peers in active participation but also engaged the students in language-mediated interactions. Some tutors reported that tutees helped them fill in words they didn’t know at times. Similar to Raphael, Brock and Wallace’s (1997) findings that learners’ involvement in conversations “changed the nature of what was available to talk about and learn”, I found interaction was crucial in determining what content the tutor and tutee needed and wanted to discuss. Questioning and informing skills lead to interactive talk and a deeper understanding of where to begin to assist the tutee. The tutees were simultaneously learning language and cultural knowledge. Therefore the tutors were conveyors of socio-cultural knowledge.

Peer tutoring provided real opportunities for students to clarify their ideas and negotiate meanings. I found the tutees needed a purpose for interaction and both the hands-on activities such as building models of the body, running to find pulse rates and breathing rates, and the writing tasks of webbing information and sentence construction, gave them that focus to use these language skills. Tutors supplemented these tasks with another teacher-modelled skill of using visual materials to build vocabulary. The tutors could skilfully guide their peers through talk about these words within the context of the study, reaffirming knowledge of these words for themselves as well. Similar to Klinger and Vaughn, (1999) peers learned to write, speak and practise these words in context, which made learning meaningful.
Students shared oral language and practised new vocabulary and meanings in context. This observation supports Blake’s (1992) findings that peer revisions provided opportunities for the peers to engage in and experiment with talk and through this they learned to use critical and supportive ways of talking within the context of revision. Furthermore, practising oral language aloud as “inner speech” is one way in which a child can experience language and finally internalise it as thought (Vygotsky, 1978). Students practised this language frequently as “inner speech” at all grade levels when discussing their webs, writing their sentences or talking with their peers, often repeating phrases or words to place them into thought.

The extent of these interactions appeared with tutees in Grades 4 through to Grade 6. The interactive talk took greater shape as the tutees provided windows for the tutors to understand their needs. In other words, the tutors were able to direct learning within their peers’ ZPD once they began interacting and understanding the needs of their tutee. This was the zone of learning where a novice learner required the assistance from a more capable peer in order to understand and learn the concepts (Vygotsky, 1978). As an example of this support, a Grade 6 tutor AC was able to understand her tutee NL’s learning needs and could scaffold learning for her. AC was able to guide and support her peer’s learning by helping her understand the science vocabulary through the unfamiliar concept of the skeletal structure as a framework for the body. Learning became meaningful for the tutee. Furthermore, AC was able to adjust the support, as NL became more skilled when AC realised she was able to let NL “think on her own”. From here they were able to attempt the writing tasks.

Finally, interactive talk among the peers in the dyad was a safe forum to practise oral language. The peers were reassured by this safety that repetitions, questions or answers that they may practise were spoken as language in learning. This supports the findings of Raphael, Brock
and Wallace (1997) that talking within the small group provided students with opportunities to openly express their thoughts and confusions and "receive feedback in non-threatening peer interactions". From here the students could safely learn the socio-cultural meanings without the intimidation of the wider audience.

**To what extent were the tutors able to scaffold learning for the tutees?**

Teacher scaffolds of modelling strategies, providing explicit instruction, and creating a learning environment of contextual experiential tasks gave the students a foundation on which to approach peer tutoring with their classmates. Since none of the students had experienced peer tutoring before, this type of instruction was crucial for providing expectations for both the tutors and tutees and preparing them for their tasks (Goodlad, 1979; Goodlad & Hirst, 1990; Topping, 1988; Topping & Ehly, 1998). By experiencing the science concepts and language in the hands-on tasks, the tutees came into the tutoring session with a bank of knowledge to share with their tutors. Through involving themselves in the same activities the tutors were also prepared to discuss the language and content of the class activities. These activities, teacher modelling and explicit instruction provided both the tutors and tutees with a common place to begin peer tutoring. Peer tutors demonstrated they were able to contribute to their peers' learning by employing the modelled strategies and knowledge they had learned. I viewed peer tutoring from Vygotsky's (1978) perspective that more capable peers can facilitate learning content information and language learning.

In order to scaffold with their peers, tutors used teacher-modelled strategies. By using teacher-modelled strategies the tutors had a toolbox from which to work. From these tools I found peer tutors could scaffold their tutees thinking and clarify terms (Wollman-Bonilla &
Werchaldo, 1999). Most predominantly the tutors in my study used key visuals, which are pictures or charts that contain content-based visual language-based material to support learning. Peer tutors used pictures from books with limited text, charts with labels, and dictionaries to convey meaning and gain information or focus discussion. These students focused discussion around these key visuals in order to stimulate interactive talk with the tutees, help them to visualise new vocabulary and gain concept understanding. I found the tutors were able to involve the tutees in content and language learning by reinforcing the science concepts using visual images. In support of Early (1991) that wordless picture books were a source to develop oral language skills and develop particular discourse types such as descriptive and causal language, some tutors reported drawing or using pictures to explain concepts so that learning became more meaningful for the tutees.

The use of visual material focused the attention of the tutee on the picture and was used as a source to develop oral language and prompt thinking about the content of the study. Visual images became particularly more meaningful for the Grade 4 students who were more limited in their English vocabulary. The tutors perceived the needs of these tutees to visualise the information into something that they could comprehend. Besides printed visuals to inform the tutees, the tutors also used word imagery to create a visual language. This form of creating a visual was using words so the peer tutees could create a familiar image in their minds in an effort to understand a concept or content information. For example, by referring to the steel frame of a building, a tutee was able to visualise a familiar scene and understand that a frame of a building was a support similar to the frame of our skeletal structure. Word imagery was used exclusively by the tutors of Grade 4 students and not found as a strategy used by the tutors of students in Grades 5 and 6 who had more L2 language skills.
The strategies the NNS tutors used to scaffold learning for their tutees consisted of repetition, expansions, explanations, negotiations, clarifications and questions. Once the tutors were able to understand more of the tutees' needs during talk, they were able to demonstrate not only scaffolding, but also clarification of terms and negotiation of meaning. Blake (1992) found that negotiating during peer revisions led to ways for students to experiment with talk and experience oral language. I found students experimenting with oral language when they were using their “inner speech” by repeating new words. Others were able to negotiate meanings with their tutor and take the opportunity to engage in the fun of using and discovering new words.

Negotiation of meaning and clarification of terms played a large role in scaffolding information to build concept understanding and language learning. Pica (1996:61) explained that “any experience that engages learners in meaningful interaction is believed to promote opportunities for L2 learning, research has shown that, when learners modify their interaction through negotiation, such opportunities are increased and enhanced considerably”. The tutors engaged in negotiation and clarification frequently with their tutees during scaffolding that promoted concept and vocabulary learning. Although this study did not investigate whether L2 tutors were able to modify their peers’ responses lexically, morphologically or syntactically, the tutors were limited in their responses to modify this input as L2 learners themselves. This could be interpreted as a limitation, however Pica further explained that “provision of models of L2 morphosyntax may play a guiding role for learners as they build their L2 grammar” (p.80).

Scaffolding of concepts appeared at most grades. However, scaffolding of new vocabulary appeared mainly between the Grade 4 tutees and their tutors. Perhaps the tutors perceived this was the beginning of the tutees ZPD. Tutors assisted the tutees by helping them form a link between the visual image and the English word so the tutees could repeat and practice
the word in the next step of concept building. One tutor in particular, began very slowly and was able to carefully form the connections between vocabulary of bones in the skeleton to the concept that the skeletal structure was a framework inside our body that helped us to move. At times, tutors would ask questions in their L1 to clarify information or simply to make a cultural connection with their peers. Similar to Chesterfield and Chesterfield (1985) frequent use of L1 as a strategy, which is also referred to as code-switching, for scaffolding was not evident and used at a point where all other options such as using key visuals and imagery were seen as being exhausted by the tutor.

These tutors were not teaching new concepts but simply reinforcing concepts that were either discussed in the large group or experienced during hands-on activities. By using the skills that were teacher-modelled or explicitly taught the tutors came with a box of tools. The tutors and tutees were able to share their understandings of the activities during peer tutoring with the tutor scaffolding as a more capable peer.

To what extent did the tutees' writing tasks reflect the interactive talk between the tutor and the tutee?

Peer interactive talk in the class was an ongoing experimentation with oral language and was produced in far greater quantities than was reflected in the writing tasks. Tutors practised using the teacher-modelled strategies to specifically involve their tutee in interactive talk and not necessarily to focus it on a writing task. Students were at the charts on the walls, reading books together and simply talking about pictures.

Tutors were able to guide the tutees through the writing tasks of constructing a web of ideas and writing sentences. Considering the Grade 4 students had not attempted to construct a
web on their own, this was a large task that lay ahead of some of the tutors. These writing tasks required the tutor to use the bank of strategies, talk with the tutee and support their learning within their ZPD. Similar to the findings presented by Wollman-Bonilla and Werchadlo (1999) I found that teacher modelling made a significant difference in children’s thinking and peer sharing. The tutors were able to engage the tutees in sharing content information and the construction of a writing web before constructing sentences. The peer tutees were able to go beyond what they could not do on their own. The tutoring of these tasks was most successfully carried out with the Grade 4 tutees paired with tutors in Grade 6 and 7, a dyad age difference was two or three years. These tutors employed strategies such as the use of key visuals and visual imagery as well as questioning and informing skills to scaffold their learners. They experienced negotiating meaning and clarifying terms. The most active dyad was SB, a Grade 7 tutor and JL, a Grade 4 tutee who experienced engagement and interaction in the learning tasks, completing all tasks including the extension activity. Similarly, Schneider and Barone (1997) found an age difference of 2 to 4 years resulted in greater engagement in tasks and interactive talk. Examining these dyads for expert / novice pairing, research examined by Verba and Winnykamen (1992, cited in Wood et al., 1995) found that when the higher-ability student as expert was paired with a novice, then tutoring was evident. This was also evident in my study whereby the experts in the Grade 4 dyads were clearly seen as more knowledgeable peers.

Students were engaged but not always writing which I felt was an important step in learning. I found that tutors took time to ensure the tutees understood the unfamiliar concepts or the vocabulary first before any writing took place. Evidence of this slow building of vocabulary and then concept scaffolding is seen in the discussion between AC and NL when NL was learning about the ribs and then the skeletal structure. Clearly, most tutors provided many opportunities
for the tutees to begin to internalise the language and content learning. Cazden (1988) believes this time for student engagement in talk with a peer rather than teacher controlled talk is needed to “achieve comparable shared control, student engagement and academic growth” (p. 73) among students ESL students.

Examining the writing samples (Figures 3.3, 3.4, 3.5) I found evidence of these conversations that had transpired between the tutee and the tutor. Tutee AC reflected the vocabulary that she was learning during interactive talk on her web. She did not write phrases because that was outside of her ZPD. Other tutees drew content knowledge and vocabulary into phrases on the webs, some more detailed than others depending on the students’ language development. Clearly far more effort went into talking about the content than what appeared on paper. Perhaps this is an indication as to the importance of oral language as a pre-writing strategy, especially for ESL learners. However, what was written was clear, concise and reflected the language and content of the study and the discussions that had transpired.

What attitudes did the tutors and tutees have towards the learning experience?

The tutors demonstrated a sense of responsibility in their role as tutor. Tutors became concerned with behaviour issues at first as in the dyad of EL and JC, which evolved into a desire to assist their tutee with the task at hand. Tutor AC commented in her interview that she would tutor again if “the tutee is ready to work” implying that behavioural attitude is an important factor. Schneider & Barone, (1997) found once tutors began to focus the tasks more to the needs of their peers and became more sensitive to the tutees’ needs as learners then tutoring began. In my study I found that the tutors developed a deeper sense of the role itself and questioned if this were something they would do again. The majority indicated that it was a positive experience.
Both tutors and tutees saw a benefit to assisting someone else "Sometimes I help people but I could learn a lot from them too" and the ease to learning with another "It was not hard with her. (she) helped me to be a good peer tutor". However, one tutor cautioned that she would like to know the person first.

Finally, tutors demonstrated an awareness of the different needs of their tutees. This became very clear when the tutors began to interact over a period of time with their tutees. Many perceived the needs and were able to focus on where the learner was at that time rather than strictly on the task. This supports Allen and Feldman (1976) research that children are better able at decoding non-verbal cues that signal a lack of understanding given by other children. Perhaps confidence as a learner and the fact that they had been there once gave them insight (Flanigan, 1991).

Attitude among the peers was noted both in the formal interview and ongoing during peer interactions. The majority of peers experienced a positive attitude towards either being a tutor or tutee and most said they would like to have the opportunity again. However, learning preferences, attitude and socio-cultural understandings towards working together or competing against each other may have a role in how students perceived peer tutoring.

For example, one tutor who was working with his peer, did not fully enjoy his role as a peer tutor, and consistently complained that his tutee was not contributing nearly enough to the work. He was spending most of his time explaining what to do and how to do it. Precisely! Even though this tutor participated in all of the large group activities and small discussion groups he did not fully understand, my socio-cultural understanding of peer tutoring.

Another male student, who was paired with a female tutor, similarly, did not relate tutoring with a positive experience. I concluded his attitude was less than co-operative with his
comment that he would rather work on his own because he, "Don't have to talk", "Don't have to work together. It takes more time". Gender posturing may have had a role to play in his attitude and possibly this might also be socio-culturally based. His tutor was a very bright well-organised girl, who when writing her composition exam, placed well within the Grade 7 levels. She achieved the status of most improved student. Perhaps his socio-cultural understanding of cooperatively working between genders was socially difficult for him. Rekrut's (1994) findings suggest that among older students “cross-gender pairing sabotages both content and skill acquisition” and perhaps some of my data reflects this attitude as well.

I concluded that gender differences were not an issue at the Grade 4 level of tutees in my research. Whether the Grade 4 girls worked with a boy or a girl, this did not influence the quality of their work or their interactions with each other. Each of these dyads produced lots of interactive talk, enjoyed working together and had very positive attitudes towards peer tutoring. In fact, one of these tutees explained the experience as “meaningful” “you have to learn to talk to people”. And another commented that “it was nice to have someone in the class to help”. One boy’s attitude was “Sometimes I help people but I could learn from them too”. Since all of the Grade 4 students were girls, I do not know how the dyads would interact if some of the Grade 4 students had been boys. Perhaps this is an area for future research.

The age differences of two to three years between the Grade 4 tutees and their peer tutors may have influenced their positive learning experience and attitudes towards tutoring. From my study the students who had more than one year in age between them were productive and reflected very positively saying they would like to have the opportunity to have a tutor again. Similarly, their tutors felt positive.
Only two of the tutees and one of the tutors reflected that this was not an experience they wanted again. Peer tutoring, like everything else will not fit everyone’s needs.

Tutoring was clearly evident among the Grade 4 tutees who saw themselves as the novices and looked towards the tutors for assistance with learning. The grade 4 tutees as a group enjoyed the spirit of learning and working together as a team.

Three of the dyads experienced difficulty with the writing tasks being completed with the assistance of a more capable peer. The tutors in Grades 6 and 7 who were paired with tutees in Grades 5 and 6, demonstrated responsibility with their concern to assist as an “expert”. However, greater problems surfaced that would impede their attempts. One explanation may be that the tutees did not view themselves as novices but rather equal ability peers perhaps as Verba and Winnykamen (1992, cited in Wood et al., 1995) found this determines whether tutoring or collaboration will take place. Since the tutors were trained for the role of tutor, collaboration may not have been a consideration for the tutors. However the tutees may have seen the tutor as a collaborating peer. Therefore, closeness of age and perceived expertise may have been barriers in the extent to which a tutor could assist a tutee.

Yet another explanation may be that mixed-gender pairings in the dyads may have been a problem for the students in the higher elementary Grades of 6 and 7. Rekrut (1992) found same gender pairings of girls in Grade 9 were most successful during peer tutoring. Berliner and Cassanova (1986) and House (1988) found that same gender pairings in both same age and cross-age dyads were more effective for learning further support this evidence.
Conclusion

The results of this study demonstrate that with teacher scaffolding, such as modelling strategies, explicit instruction, and contextual hands-on group tasks for experiential learning and sharing, that NNS of English can and do assist their NNS peers during peer tutoring. During the course of this study peer tutors worked together with tutees to complete tasks focused on the science study of the “Human Body” within their “real world” learning environment.

Both the tutors and tutees gained knowledge about our study that they demonstrated through talking and writing about the science topics. By repeating information and practising the use of the language with the tutees, the tutors were able to write detailed paragraphs that included content information and language experienced from the hands-on tasks, group and peer discussions, and books as resources. The tutees demonstrated they gained knowledge of constructing a web of information and writing sentences that showed understanding of the heart, lungs and skeleton. The content of the tutees writing and dialogues was filled with descriptive and causal discourse revealing in-depth understanding of the topics due to interaction with their tutors.

Further to this, the tutors gained a deeper understanding of assisting a peer in learning, while the tutees learned a peer can help them. The tutors were able to look reflectively at their assumed role of tutor and evaluate the experience as positive or negative and provide comments that demonstrated evaluative thought. Though some commented on tutoring as a “big job”, their evaluative comments provided insight. For example, one tutor examined the success of peer tutoring from the perspective of a tutee’s attitude, “The tutee must be ready to work. I think you must know each other, be able to work together and get along”. From this comment I can assume that personality plays a role in the successful partnership of dyads. Another tutor
evaluated tutoring as a mutual benefit, "Sometimes I help people but I could learn a lot from them too. Neat way to help people". Tutees responded with comments for example, "made it a lot easier, I understood more" "you have to learn to talk to people". These comments from the tutees revealed their attitudes to working and sharing co-operatively with another are important strategies to use during the learning process. When we look at learning and working in our larger community, co-operation and sharing of knowledge and ideas are important life-long skills.

This study also indicated that teacher modelling created a scaffold for peer tutors and possibly tutees to learn strategies to use when assisting a peer. The NNS peer tutors demonstrated they were able to employ strategies such as questioning skills and the use of key visuals to assist their NNS peers in learning the language and content of our science study. They began to develop questioning skills that involved a tutee in interactive talk. The tutors were able to engage the tutees in interactive talk that was productive for language and content learning, and therefore the development of new knowledge. Tutees had opportunities to negotiate meanings and clarify terms with their tutor and be supported in learning. Language and content from oral language practice was reflected in the writing tasks of the tutees. Clearly, the opportunity to practice oral language with a peer was an important link to the writing tasks for the students. With the assistance of these more capable peers the tutees were able to attempt a task that they might not be able to do on their own (Vygotsky, 1978).

The matching of tutors and tutees is complex and requires thought when forming the tutoring dyads. Individual differences are factors that require attention when organising a peer tutoring scheme. My research findings indicated that personality compatibility, age and gender might be factors when matching tutors with tutees. Age differences of 2 or 3 years might be a
positive factor, especially when the tutor is the expert as indicated by the matching of the Grade 4 students with the Grade 6 and 7 students.

There are interesting aspects, which can only be commented on briefly, of how discourse and “concepts” were being scaffolded at the same time. In one sense this is very obvious, but in another it is not. Consider an example of causal discourse that appeared in the dialogues and writing.

The heart is very important to us because it help you to breath to live. When you running the heart work faster and the heart give you more blood around your body. It give you oxygen and it make you stronger. The heart need noyist (nutrition) because it will ling (bring) arounder (around the body).

In this example, it is clear that causal ideas are expressed about how the heart works to support human life. It is also clear that these ideas are expressed in causal discourse as is indicated by items like “because”, “helps”, “gives you”, and so on. What we see here, in combination, is a causal way of thinking about the heart and a causal way of talking about the heart. This is one of the ‘mental tools’ that is being constructed and scaffolded through the interactions. By looking at causal discourse we can understand, in a deep sense, how language, content, and a way of writing and ‘talking about the world’ were being learned at the same time, in a language socialisation process.

Implications for Teachers in the Classroom

The findings of this study should not be generalised to other situations but reflect what occurred in this particular ESL classroom. The NNS tutors were able to model strategies that
provided opportunities for NNS to learn the language and content of our science study about the human body. Tutors did engage their peers in interactive talk that was reflected in the writing tasks. Clearly, peer interaction increases the opportunities for meaningful communication about academic content (Cazden, 1988; Richard-Amato, 1992).

For classroom teachers thinking of employing a tutoring programme the potential effectiveness is crucial. Goodlad (1990) noted, “many of those who wish to employ tutoring want effectiveness in the classroom and may feel more convinced of the worth of the strategy if gains have been shown for schoolchildren working in their normal environment” (p. 24). Peer tutoring is one strategy that can be employed in the classroom that promotes a more student-focused environment for learning. Students require opportunities to practice oral language and engage in experimenting with it. As educators we need to think of ways to provide opportunities for students to express thoughts and opinions, as well as negotiate and clarify meanings. The connection between practising oral language and writing is an important link for learners. With this in mind I have identified four areas where further research may shed more light on peer tutoring as a strategy.

First, individual differences require attention for a peer tutoring scheme to be successful. Therefore, further research might consider exploring age differences in dyads to determine the pairings that would promote learning. Gender pairing bears consideration in research. My research indicates the most successful dyads were mixed gender pairings. However, since all of the Grade 4 students were girls, I was unable to compare the differences of Grade 4 boys working with students of either same or opposite genders in Grades 6 and 7. Second, this study was conducted in an elementary ESL classroom. By extending this research to the secondary level ESL classroom further information may be gained on peer tutoring in the content areas.
Third, the attitudes were recorded for this study. However, by documenting the students’ attitudes over a longer period of time greater insight might be gained regarding their perceptions and understandings of peer tutoring.

Fourth, the ESL students in my study wrote rough writing drafts only. Investigating process writing over a long period of time may uncover more information regarding writing and L2 learning.
References


Appendix 1

The Body on the Outside

Our Body on the Outside

Label the parts of the outside of the body with your partner.
Appendix 2

The Skeleton

Labelling a Diagram

Label the drawing of the skeleton using the names of the bones listed below. Use a reference book to help you.

metatarsals
fibula
humerus
vertebra
metacarpals
sternum
cranium
pelvis
ribs
sacrum
phalanges
tibia

clavicle
femur
radius
patella
scapula
ulna
mandible
carpals
radius
coccyx
spine
tarsals
Appendix 3

Diagram of the Heart
Appendix 4

"How Does Your Heart Rate"

Sit quietly for 3 minutes. Take your pulse and record. Do these exercises for 1 minute - take your pulse for 10 seconds and record.

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Pulse Rate for 10 Seconds</th>
<th>× 6 = Pulse Rate for 1 Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting</td>
<td>18</td>
<td>108</td>
</tr>
<tr>
<td>Walking in Place</td>
<td>18</td>
<td>108</td>
</tr>
<tr>
<td>Jumping Jacks</td>
<td>26</td>
<td>156</td>
</tr>
<tr>
<td>Chair Steps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graph your results:

[Graph showing pulse rates for sitting, walking in place, jumping jacks, and chair steps]
Appendix 5

Diagram of the Lungs
Appendix 6

"You Take My Breath Away"

Data Table for Number of Breaths per Minute

<table>
<thead>
<tr>
<th>Activity</th>
<th>Estimate</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting</td>
<td>15</td>
<td>13</td>
<td>18</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Jogging</td>
<td>12</td>
<td>15</td>
<td>53</td>
<td>45</td>
<td>38</td>
</tr>
<tr>
<td>Cycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

First: Estimate how many breaths per minute you think you will take for each activity. Record. Next, do the activities, count your breaths for 3 trials. Average. Now, compare your breath rates by graphing.

Number of Breaths per Minute

4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100
Appendix 7

Oral Interview Questionnaire

1. Name
2. How old are you?
3. What grade are you in?
4. What language do you speak at home?
5. What do you think you are good at in school in your L1?
6. What do you think you are good at in school in English as your L2?
7. Do you attend any (mainstream) classes outside of your classroom?
8. (For the tutors) How do you think you have helped ________? (Other questions emerged from this main question for further explanation or clarification such as;
   When you were helping _____ with the web or to write ideas, how did you help?
   What did you do _____ when he/she did not understand? Did you speak in your L1?
9. (For the tutee) How do you think ________ helped you? ) Other questions emerged during the conversation such as;
   How did it help you when ________?
10. (For the tutor) How did _____ help you?
11. What do you think a peer tutor should do?
12. (For the tutee) Did you like working with a peer tutor? Why? Would you like to work with a tutor again?
13. (For the tutor) Did you like being a peer tutor? Why? Would you like to be a tutor again?
Appendix 8

Comments from the Tutor and Tutee:

How Did the Tutor Help?

<table>
<thead>
<tr>
<th>Tutor Comments</th>
<th>Tutee Comments</th>
<th>Use L1</th>
<th>Use Charts/ Pictures</th>
<th>Library Books</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH: webbing, information</td>
<td>JA: organisation, language</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>JS: web, writing, information</td>
<td>JL: organisation with web words, information</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>IW: ask questions help with words</td>
<td>GF: web</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>MT: ask questions, give ideas, help web together, read together, talk about ideas, write sentences</td>
<td>SH: help understand information, webbing, writing sentences, words, spelling of words</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>SL: teach her how to write sentences, ask questions in L1 &amp; L2, punctuation, capitalisation, read books together for information, web together, write sentences together, talk</td>
<td>AC: ask questions, webbing, writing, remembering words, paragraph, ask in Chinese, spelling</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>AC: ask lots of questions, give answers, help her remember, words, webbing, thinking about ideas, used pictures with labelled words &amp; descriptions</td>
<td>NL: help with words I didn’t know, questions helped me think, webbing, pictures to explain ideas, drawing pictures, helped with words</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>NC: talked together, think of ideas together, help her spell words when writing, talk about if it’s right &amp; then write it down, shared what we know, web together, I ask her questions, repeat, drew pictures that explained</td>
<td>CL: words, ideas for the web, writing sentences, he made me do my own web!</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>
### Appendix 8 (Cont.)

Comments from the Tutor and Tutee:

**How Did the Tutor Help?**

<table>
<thead>
<tr>
<th>Tutor Comments</th>
<th>Tutee Comments</th>
<th>Use L1</th>
<th>Use Charts/Pictures</th>
<th>Library Books</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL: asked questions, talked to him, sometimes I talked Cantonese so he would understand more, found ideas in a book, shared ideas for web, both made our own webs</td>
<td>JC: wants &amp; likes to work alone, don’t have to talk, don’t have to work together, it takes more time</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>SB: asked questions, helped with spelling, web, sentences</td>
<td>JL: show me things I don’t know, give me hints, showed parts for understanding, broke big words into small words one by one, web – show me how to make the circle and write the words that we studies, how to put the parts together, how to put the pieces in the sentences &amp; then order them sentence after sentence, did not know how to do this before</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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