ENHANCED CLASSROOM INTERACTION:
A Study of an Approach in Teaching and Learning with
Pre-school Children in Malaysia

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by

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Dedicated to

my dearest husband and children
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Enhanced Classroom Interaction:
A Study of an approach in Teaching and Learning with
Pre-school Children in Malaysia.

by Jamaliah Ahmad

ABSTRACT:

This research is a study of how the present teaching and learning process for children in pre-school classes in Malaysia might be improved by introducing an Enhanced Classroom Interaction approach (ECI).

This particular approach was developed by the author, based on Vygotskian ideas. The ECI emphasizes the role of the teachers in working intensively with children, to encourage interaction and collaboration in learning tasks. These ideas are relatively recent developments in the West which have not yet been introduced into Malaysian teaching colleges or schools, nor has research been carried out in Malaysia using this socio-cultural paradigm.

Six teachers and 60 children (aged 5 to 6 years enrolled in the new pre-school annexe stage) took part in the study, over a period of twelve weeks. A quasi experimental design was set up in which three classes forming a Test Group practised the ECI, after their teachers had attended a workshop led by the researcher. The progress of the teaching and learning process was observed and recorded on videotape and this was compared with the recorded progress of three further classes which made a Control Group. This group practised the normal classroom teaching. Progress was measured by children's performance in two tests, each test comprising two tasks which encapsulate the ECI approach (the 'Car task' and the 'Rod task').

A conversation analysis model was used to examine the transcripts of task performance to discern the interaction of the teacher with pairs of children. Conversational skill was analysed quantitatively and qualitatively in both groups. The quantitative results showed that there were significant differences in favour of the Test Group on a number of measures: the number and proportion of turns and morphemes, the mean length of turn, and the time taken to complete the task. The qualitative results also indicated that there were differences, again in favour of the Test Group, in the management of the tasks, the different patterns of exchanges, the complexity of utterances in exchanges between teacher and children, and also in exchanges between the children themselves.

The main conclusions are that pre-school annexe teachers can be trained to use the ECI approach and that this approach does enhance the quality of both teacher-child and child-child interaction. Hence, the main implication is that these approaches to classroom interaction might be tried more widely to enrich children's learning.
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Malaysia was amongst the last of the South East Asian countries to formalise pre-school education in state schools. In Malaysia this occurred in January 1992. The pre-school annexe, which is roughly equivalent to a 'nursery' or 'kindergarten', is under the administration of the Ministry of Education, which is also responsible for providing the teachers with pre-school training. Significantly, these government pre-school annexe classes cater especially for those from the lower income groups, in order to lay a good educational foundation for these children. The quality of this pre-school education depends partly on the curriculum and teacher training (which is formulated at a national level) and partly on day to day management of learning and interaction between teachers and children (which is largely within the responsibility of the teachers). The present study focuses on this interaction.

The main purpose of this research is to investigate an approach called 'Enhanced Classroom Interaction' (ECI). Essentially, ECI is an attempt to improve children's learning by enhancing their language use by focusing on interactive tasks. This approach is based on the Vygotskian theory of learning and neo-Vygotskian developments. The approach was applied to a group of three classes of pre-school children in Malaysia, whose teachers had taken part in a workshop led by the researcher, contrasted with three classes whose teacher had not experienced such a workshop.

On the basis of the researcher's general long standing observations of pre-school classes both before and after the establishment of the pre-school annexe, it can be suggested that Malaysian teachers for the most part regard children as passive recipients. Generally, the teachers control the talk in the class and the children are given less chance to interact with the teacher or with their peers, compared to British children. Evidence for this is presented in the form of a review and commentary on
video recordings and classroom observation (see chapter five). The aim of the study is to introduce the ECI to some teachers and investigate how they manage a new style of interaction through pair work. There is a common belief that pair or group work promotes children’s learning (Dean, 1983; Bennett and Cass, 1988; Bennett and Dunne, 1992; Moyles, 1992). Therefore, in the study, through the ECI approach, teachers will be exposed to ways of organising learning by focusing on interaction and the use of tasks. These methods are new in Malaysian pre-school education.

These tasks are not only used to test the children's interaction but also to extend their learning and use of oral language. They were developed by taking into consideration aspects of child development which are emphasised in the Malaysian philosophy of pre-school education (Pre-school Curriculum Guidelines for Malaysia, 1988). These areas of development are: language development, physical (fine motor) development, social development, cognitive development, emotional development and creativity. The tasks also take into consideration 'learning through play' which is a concept commonly applied in British primary classes but much less in Malaysia. While play is emphasised in the philosophy of the Malaysian pre-school curriculum, generally it has not been observed seriously by many pre-school teachers. The two tasks that were given as tests for the interaction use a play context and focus on the use of language (Bahasa Malaysia). The first task (the 'Car task') involves Re-enacting a Car Accident at a Road Junction. The second task (the 'Rod task') is a task using Cuisenaire Coloured Rods like those used in the maths classroom in primary schools in Britain. The pre-school children are able to play with and use the rods in structured situations, to learn the concepts of pre-numbers, numbers, length, space and use of symbols, which are also main objectives in the cognitive development in the Malaysian pre-school curriculum, although such rods are not used at present in Malaysian pre-school education. It is important to stress that the tasks used in the study to measure interaction and language are themselves 'normal' pre-school 'game like' activities, not unlike those found in many British classrooms.
As the researcher is also a member of a committee which formulated the curriculum for early years education in the teacher training colleges in Malaysia, it can be stated that interactionist or constructivist approaches to learning have not yet been introduced to Malaysian teachers as a group. The teachers are not, of course, responsible for this but such approaches are considered valuable - at least, as a complement to existing approaches - and that is why in this study ECI is considered crucial.

The key idea in the study is to investigate whether the approach of ECI, based on Vygotsky's theory and introduced to Malaysian teachers in workshops, is practical and applicable to the pre-school annexe classes. Tests involving the use of tasks and monitoring children's interaction were given to Test Group children, whose teachers had practised the new approach. These tests were then compared to the use of identical tasks and the comparable interaction of a Control Group of children, whose teachers used the normal approach, i.e. these teachers were unaware of the theory and practice of the ECI approach. Data in the form of transcripts of audio and video recordings of the classroom activities with both groups of children were gathered. These data were analysed both quantitatively and qualitatively and the results of both groups were compared to investigate differences in performance and interaction.

The socio-cultural theory which is expounded by Vygotsky and neo-Vygotskian theorists is adopted because it has become widely recognised as being a useful and stimulating set of ideas and seems to have established itself in current thinking in recent years amongst Western educationists, linguists, psychologists, and educators (see Chapter 2). Vygotsky stresses the role of the adult and competent peers in helping children to learn through interaction by the use of focused language. The significant results of the Test Group children in this research show the effectiveness of an approach (the ECI) which is based on Vygotsky's social learning theory. The theory caters for the needs of the Malaysian pre-school annexe children who are generally perceived as being 'deprived' of language and home enrichment in the family.
compared to children from homes with higher socio-economic status. It is hypothesised that the more intensive, focused and participatory interaction of the ECI in the classroom will benefit the children linguistically, cognitively and socially.

This study, then, focuses on a new way of learning through the ECI which is based on Vygotskian ideas. The researcher has tried to apply ECI to the normal classroom teaching in the Malaysian context (via a workshop with the teachers). Malaysian teachers, compared to British early years teachers, are not highly qualified or specialist, but the researcher tried to introduce these new ideas in a twelve hour workshop. The children were from low socio-economic backgrounds and, like the teachers, they were not specially selected. Yet the implementation of the ECI, as will be shown by the results of the study, seems to have been generally successful.

This study involves application of various disciplines, in the fields of pre-school education, psychology of learning, teacher training, using a linguistic approach in analysing the data, and also applying the knowledge of classroom talk.

The first chapter introduces some current key concepts in early years education in Britain and outlines how they differ from current practice in the Malaysian system. It outlines the teachers' backgrounds and the different philosophies that each country seems to have adopted. It provides a brief review of the Malaysian pre-school education with special focus on the Malaysian pre-school annexe. It was from the pre-school annexe that the sample teachers and children involved in the study were selected. The purpose, significance and limitations of this study are spelt out here.

The background review of literature relevant to the focus of this research is presented in chapter two. This chapter presents an overview of the two learning theories that are the basis of the current Malaysian pre-school curriculum and are significant influences on the practice of the teachers. This is followed by a discussion of the Socio-cultural theory expounded by Vygotsky, and which is taken further in recent neo-Vygotskian developments. This trend of thought was, in fact, presented as
background understanding to the Test Group teachers in workshops as a focus in order to introduce the ECI approach. The limitations and difficulties of the socio-cultural theories and their significance for the Malaysian context are discussed in the last part of this chapter.

Following this chapter, the 'Enhanced Classroom Interaction' (ECI) approach is presented in chapter three. This chapter introduces general approaches in the classroom teaching and learning, followed by concepts from communicative language teaching and task-based activities. The chapter covers such aspects as the main concepts of the ECI, its components and characteristics, its functioning and how it compares with the normal classroom interaction. The relation of the ECI approach to the theoretical premise is also discussed in the chapter. The last part describes some conceptual and practical difficulties of the ECI approach.

Chapter four gives a description of the research design. Firstly, it describes how the materials for the test of the children's interaction were developed and piloted in schools in Britain before they were used in Malaysia. This will be followed by the description of the implementation of fieldwork in Malaysia, with the collection of baseline data of the children and the teaching approach. The chapter gives details of the workshop given to the Test Group teachers. It is followed by the implementation of the tests and shows how the data was collected after which the 'conversation analysis' model is discussed. This is a linguistic approach adopted to analyse some of the transcribed data of the classroom interaction from both groups. The main terms that will be used for both quantitative and qualitative analyses are defined. The approach focuses on the 'IRF' structure of teacher pupil exchanges that fits both the more traditional Malaysian approaches used in the Control Group classrooms and the more active exchanges seen among the Test Group children.

Chapter five consists of two parts. The first part presents the descriptive commentary on the video recording of the teaching and learning processes of the Test and Control
Groups, especially relating to the Test Group children during the post-workshop period. The second part of the chapter discusses the analysis of the teaching and learning from the above mentioned recording to see whether there were any changes in the teaching approach of the Test Group teachers after they had undergone the workshop. Further videos made at a later date have also been analysed to see whether the Test Group teachers have been still practising the approach that they have learned. The last part discusses the teacher’s responses to questionnaires fourteen months after the project fieldwork.

The quantitative analysis of the data is based on transcriptions of the language used in the test done by 60 children and 6 teachers of the Test and Control Groups. It begins with the methodology and implementation of the quantitative analysis. The number and proportion of turns, morphemes, mean length of turn and mean length of utterance, and time taken (see definition of terms Chapter 4.8.3) by the teachers and the children in performing the task are all quantified and compared between the Test and the Control Groups. The results show that the Test Group attained higher scores than the Control Groups and the differences are statistically significant. This is taken to demonstrate that the children from the Test Group were performing much better than the Control Groups.

Chapter seven presents a qualitative analysis to complement the quantitative analysis. The main qualitative focus are as follows: the management of the task by the teachers, the structure of exchanges, and the complexity of utterances, which are compared between the two groups. The task management by the teacher covers such headings as teachers’ initiation of the task, teacher intervention, ‘handover’ and others. The focus of the structure of exchanges covers the following: the pattern of exchanges IRF, children’s interaction, children’s uses of initiations and follow ups. The complexity of utterances between Test and Control Group is also discussed. It was observed that there was a distinct qualitative difference in the performance between the Test and Control Group and this is borne out by the results of the
quantitative analysis. It is argued that the different kinds of approaches in the teaching and learning process contributed to the different quality of interaction and language used by the children.

Chapter eight presents the summary findings with implications and suggestions for further research. Appropriate policy implications are derived from the study, providing recommendations for Malaysian pre-school annexe education and suggestions for further research.

In reference to the writing style used in the thesis, the researcher uses the pronouns 'she' to describe herself and the teacher, and 'he' for the children.
1. CHAPTER ONE: BACKGROUND TO THE PRESENT STUDY

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1 CHAPTER ONE: BACKGROUND TO THE PRESENT STUDY

1.1 Introduction

The development of early years education can be traced from the work of early childhood pioneers such as Froebel (ref: new translation - annotated edition 1974), Montessori (1912) and Steiner (1926), amongst others. Their work was very influential and each has current advocates of their philosophy and approach to teacher training (Bruce, 1987). Gradually their influence spread over Europe North America, later to other developing countries, including Malaysia.

Pre-school education has generated much interest in the West where the 1960s were characterised as a 'period of renaissance early childhood' (Almy, 1975). The reason for this upsurge of interest in pre-school education was partly political. It lies in the belief in the equality of opportunities. It has been recognised that many of the children from families of low socio-economic status did not achieve well in their primary education (Bereiter and Engelmann, 1966). During President Johnson's administration in the USA, emphasis was given to reducing the imbalance of education and providing better social opportunities for deprived children (Wells, 1985). Therefore, Head Start programs were devised to promote language development among 'disadvantaged' children as part of a 'War on Poverty'. The idea of Head Start programs in America for disadvantaged children who are unable to profit from education seemed to influence other countries. In Great Britain similar sentiments were expressed in the Plowden Report (Central Advisory Council for Education, 1967). Concern was expressed for children who lived in areas of poor housing with restricted social facilities. These children were also deprived by home-learned language habits that hindered their learning at school (Bernstein, 1971; Tough, 1977b; Wells, 1986). The report defined 'Priority Areas' for immediate attention and recommended expansion of pre-school provision as a strategy of reform. It has frequently been pointed out that some aspects of the notion of
'disadvantage', especially in relation to language, have been oversimplified, misunderstood or mythologised (Edwards, 1979; Gordon, 1981; Atkinson, 1985).

Nevertheless, the vibration of the movement was also felt in Malaysia. This was shown when the central government sponsored government agencies to provide pre-school facilities to the rural children and those who could not afford to attend the private 'nursery' (refer to the overview of Malaysian pre-school, 1.3). Only in the early 1990s did the government take the major step of starting the training of pre-school teachers for the pre-school annexe classes (see pre-school annexe, 1.3.1)

1.2 Current Key Concepts in Early Years Education in Britain and Malaysia

Teaching young children is one of the most significant and most complex of professional skills. Early years practitioners have to deal with complexities that include the total development of the child, a curriculum design, relationships with parents and providing a stimulating learning environment (Edward and Knight, 1994). According to David, et. al. (1992, p. 2) young children's learning experiences are most efficient when they are relevant, meaningful and active, and are provided in a challenging but familiar context. Today, early childhood is commonly understood as the period between birth and the age of eight (Feyler, 1982). The concept of early years education in Britain refers to children between the ages of 3-9 years (Dowling and Dauncey, 1984). Britain is one of the few countries in the world in which school entry starts at five. So British 'pre-school' refers to children under five years of age. Depending on where they live these children may attend nursery schools, nursery classes or 4+ reception classes, either on a full-time or part-time basis. (Others may attend day nurseries or play groups or remain with childminders or at home). The resources of staff, space and equipment vary tremendously in different authorities and sometimes teachers have support from nursery nurses. The child will then proceed through years 1 and 2, (and 3) before going to junior classes (in a separate school in some areas). In Malaysia children start schooling at the age of 6+ to 7. So pre-
school in Malaysia refers to children from the age of 4-6 years of age but the pre-school annexe only caters children at the age of 5-6 (refer to fig. 1.1 below).

Only in the year 1992 did the Malaysian government through the Ministry of Education make provision for children from lower socio-economic backgrounds to be in the pre-school annexe so that they could benefit from the facilities provided by central government (refer to Pre-school Annexe Education, 1.3.1). Generally the objective is quite similar to the compensatory education Head Start programme in the USA of the 1960s.

Whatever the kind of classes provided for the children, at the age of entry there are a few key concepts that are generally recognised as crucial in early years education for the developmental and learning needs of children (Moyles, 1995). The next section discusses some of these key concepts comparing Britain and Malaysia. The key concepts are as follows:

1.2.1 Child-Centredness

In the British system, concepts of child-centred education have been relatively well developed since the sixties. The child is valued as an individual. It is thought to be important that the teacher should make individual contact with as many of her pupils as possible during the day. The concept of 'start where the child is' (Meek, 1985; Hughes, 1986) is a key notion for almost every primary teacher in British schools. The idea of starting with what children can do was, of course, also common to Froebel, Montessori and Steiner much earlier (Bruce, 1987).

In the pre-school classes in Malaysia, either in private or government sponsored establishments, generally the idea of a child-centred approach is less practised than in Britain because of the comparatively large numbers of pupils. Generally, Malaysian
<table>
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<tr>
<th>COUNTRIES</th>
<th>AGE (YEARS)</th>
<th>STAGES</th>
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<tr>
<td><strong>BRITAIN</strong></td>
<td>Under 5</td>
<td>Nursery Class</td>
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<td></td>
<td>3-4+</td>
<td>Pre-school premises</td>
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<td>5</td>
<td>Formal Education</td>
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<td>Infant School</td>
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<td>Rising 5/Infant Class</td>
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<td>7-11</td>
<td>Junior</td>
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<td>16-18</td>
<td>GCSE/A' levels</td>
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<td><strong>MALAYSIA</strong></td>
<td>5-6</td>
<td>Pre-school Annexe</td>
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<td>6+/7-9</td>
<td>Formal Education</td>
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<td>16-17</td>
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<td></td>
<td>18-19</td>
<td>Sixth Form</td>
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<td></td>
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<td>STPM*</td>
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**KEY:**
KS=Key Stage  S=Stage  (*= Malaysian National Examinations )

Fig. 1.1 The Educational System in Britain and Malaysia
teachers believe they cannot carry out the child-centred approach due to the constraints of the common content curriculum, formulated by the Curriculum Development Centre (a Division in the Ministry of Education) that set the national objectives quoted below, and the common text book provided for the school children (Musa 1995). While the idea exists in theory, in practice it is rather limited. The theory is expressed in the following quotation:

*Education in Malaysia is an on-going effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in the devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving a high level of personal well-being as well as being able to contribute to the harmony and betterment of the society and the nation at large (Husen, 1990).*

In Malaysia in the 1980s the goal of education moved towards the holistic development of the individual, as manifested in the National Education Philosophy.

1.2.2 The Importance of Play

According to Moyles (1989, p. xi), play at its best in a learning environment provides not only a real means for learning but enables discerning and knowledgeable adults to learn about children and their needs. In the school context, this means teachers being able to see where children 'are' in their learning and general development and that, in turn, gives educators the starting point for improving new learning in both cognitive and affective domains. Bruce (1987) maintains that play as part of the curriculum is proposed by virtually every educationist, but Froebel, Vygotsky, Bruner, Tamburrini, Roberts and Meek have been particularly influential.
Play as an important means of learning in early years classes in Britain was fully supported by many others (e.g. Smith, 1986, 1994; Moyles, 1989, 1994; Anning, 1991; Abbott, 1994). The Oxford Pre-school Research (Sylva, 1980) showed that language flourished when the children were playing in pairs in pretend play. It is a major way through which children reconcile their inner lives with external reality. 'In play children gradually develop concepts of causal relationship, the power to discriminate, to make judgements, to analyse and synthesise, to imagine and to formulate' (Plowden Report, 1967). Therefore the role of teachers in the early years classes, beside providing opportunities and material for play, is to intervene, provide new materials, stimulate discussion and bring out new possibilities so that the cognitive development of the children can take place (Wood, 1988; Cashdan and Meadows, 1988; Moyles, 1989; Meadows, 1993). This concept of play probably has major importance in British teachers' thinking, although it has, no doubt, been under pressure and perhaps eroded in recent years by the UK National Curriculum.

In Malaysia, those who write about Early Childhood Education have observed that the goals of Malaysia's kindergarten (below 6 years) programs vary (Salleh, 1981; Salleh and Nordin, 1981; Mohd-Majzub, 1982). Kindergarten programs range from emphasis upon socialisation of the child to emphasis on primary school preparation. Even though the concept of play is definitely introduced in the pre-school curriculum it has never been widely practised because of the effect of parental pressures and parental expectations of the role of kindergartens to educate their young children more formally. This has led to the introduction of the teaching of the three 'Rs' in the kindergarten. Ling Chu Poh (1980) noted:

*In a significant number of instances parental pressure and influences are excessive and negative. Parental concerns reflect the intense academic competition in Malaysia. Parents want a good head start for the child who is admitted into primary*
1.2.3 Language for Learning

Current theories of language development clearly stress the importance of language as mediation between the adult or the competent peers and the child. This has been practised in British classrooms for many years, having been clearly advocated since the Bullock Report (1975). Language is recognised as playing a very important role in the early years education in the British system. The communicative aspects of language occur long before a young child enters the schooling world. Studies by Tizard and Hughes (1984) and Wells (1979, 1981, 1985, 1986) showed how children use language through talk in a natural situation, where children themselves initiate talk which results in child-oriented and appropriate language use and leads to language competence. Hence for the role of the adult or teachers in British schools it seems very important to maintain the children's language by facilitating child development through play and other means (Blank, 1973, Tough, 1977b; Wells, 1985, 1986). Even many ethnic minority children are allowed to use their mother tongue as long they make better progress in the new language (English) (McLaughlin, 1980; Willis, 1981).

Generally the play way methods are not seriously practised in Malaysian primary schools because at the primary level there are three types of school with different language media and cultures (Bahasa Malaysia, Chinese and Tamil). In principle, this should not affect the development of play, since this can obviously occur in any language. However, in practice it is apparent that people believe this does make a difference, perhaps because the three types of school are to some extent seen as being in competition. It is observed that education in Malaysia is very competitive and academic achievement is highly regarded, even in the early years.

one. A good head start for the majority of parents means equipment in the formal skills of reading, writing and arithmetic (1980, p. 40).
In the 1980s in Malaysia there was stress on using Bahasa Malaysia across the curriculum for the first time. Bahasa Malaysia was declared the official Language in Malaysia in 1967 following the passing of the National Language Act by Parliament. In an effort to develop Bahasa Malaysia as the national language, it has been the main medium of instruction in schools (Husen, 1990). This recognises the importance of language nationally, though much less cognitively or socially in early childhood education. Generally, learning through interaction is only vaguely understood and is not formally introduced in the education curriculum. Yusoff (1993) in her study of pre-school teaching and learning styles in Malaysia shows that traditional or more formal approaches predominate. The schools generally give little attention to using language for learning. It is very teacher-centred compared to the much more child-centred approach in British year 1 or 2 classes.

As far as the researcher knows, the socio-cultural theory, which is a major development in the West (see Chapter two), is not known in Malaysia. Certainly it has, to date, no formal place in the teacher training curriculum for early years in Malaysia, though reference to Vygotsky is now commonplace in the British early years education literature, seen in a number of widely read works (e.g. Bruce, 1987; Wood, 1988; Meadows and Cashdan, 1988; Edwards and Knight, 1994). Apparently, none of Vygotsky's works or those of neo-Vygotskian theorists have been translated into Bahasa Malaysia.

1.2.4 The Teacher as an Organiser of Learning and Teaching
The early childhood educator may be seen as a 'double specialist' in many ways. She teaches and assesses the children's development (social, emotional and intellectual) and their learning. She works with adults as well as with children. She has to think both concretely and formally, in practice as well as in theory (Almy, 1975; Beaty, 1990). Above all, the early years specialist provides the ground-work upon which children learn how to learn and become useful and valued adults. However, the
teachers of young learners in Britain are probably more appropriately prepared for their work in terms of qualifications and experience than in Malaysia. British graduates from the university can specialise in early years education and teach in school with postgraduate certificates (PGCE) or as teachers holding a B. Ed. Many thus have three or four years of university education and training. Generally, they are more professional and better organisers of teaching and learning than their Malaysian counterparts.

In Malaysia, it is entirely different (cf. Overview of Malaysian Pre-school Education 1.3). It was only in 1991 that the training of pre-service and in-service pre-school teachers started in the teaching colleges in Malaysia to accommodate the existing pre-school annexe classes. The minimum qualification of a teacher to enter the teaching colleges is to complete the SPM, equivalent to GCSE level in Britain. Clearly, this is a lower entry qualification than British 'A' levels and the Malaysian teacher's college-level course for pre-school lasts for three years, compared to the British 3 or 4 year university level courses. The pre-school teachers in Malaysia are still adapting themselves to younger learners, especially the new teachers, since the establishment of pre-school annexes started three years ago. Nia's (1988) study shows that many British teachers feel that only after five years are they able to feel relaxed, at ease, not apprehensive any more in the classroom and ready to pass on more and more of the learning to the pupils (Nias, 1988, p. 133). By giving the Malaysian pre-school teachers equivalent opportunity, space and time, they too may well develop into effective teachers.

1.2.5 Parental Involvement

Studies have shown that parental involvement has a long term effect on children's learning, e.g. in America, the Head Start and Ypsilanti Perry pre-school project (Weikart, et al., 1978; Zigler and Valentine, 1979). In the UK, studies have also shown that parental involvement in the pre-school has a significant effect on
children's success (Osborn and Milbank, 1987, Athey, 1990). As long ago as the Plowden Report in 1967, parental involvement was recommended as an important consideration for educators in the primary sector. In the under-five classes, parents are seen as key persons in the liaison between pre-school experience and the rising-five class. Parental involvement is regarded as an important element in British primary schools. The Pre-school Research Project identified two models of parental involvement: 'professional and partnership' (Smith, 1980). This is because there is a positive partnership between the home and the school. Generally, some British parents are willing to sacrifice their time and volunteer to help in the classroom with children's activities. Most parents want to work with the teachers in achieving the best for their children (Hughes et al., 1994). There are also programmes of parental involvement in home-school reading partnerships (Topping and Wolfendale, 1985) and in mathematics schemes (Merttens and Vass, 1993). It is undeniable that British parents are involved compared to Malaysian parents.

Generally, parents in Malaysia are not as involved in class activities as the British are. The parents only attend a general meeting once a year. Through the Parent Teachers' Association most parents know the activities of the school. Only some of the urban parents who are middle class get involved with school activities such as becoming a PTA committee member, and are active with fund raising for the benefit of the school. Recently, with the establishment of the pre-school annexe, the Ministry of Education made it clear that parental involvement is on the agenda in the organisation of the pre-school (Kementerian Pendidikan Malaysia, 1992).

1.3 An Overview of Malaysian Pre-school Education
This section will describe the general development of pre-school education until the establishment of the pre-school annexe in the government schools in early 1992.
Pre-school education in Malaysia is defined as education for children between the age of four to six. It consists of nursery education for children below five years of age and for those from five to six before entering the formal school system at seven.

In the 1950s and 1960s pre-school education in Malaysia was largely autonomous and schools were privately owned. Most of the pre-school institutions, or kindergartens as they are popularly known in Malaysia, are located in the urban areas. They are run by religious organisations, private institutions and individuals. Being private establishments, they cater mainly for those children whose parents are in the higher income brackets.

To complement this private system there has been an increase over the past ten years in government sponsored pre-schools. This development is in line with the view that pre-school education is an indirect long-term means of eliminating poverty and providing equal educational opportunity. The 'Head Start' programme in America showed how a positive and lasting effect might be achieved (Bronfenbrenner, 1974). As a result, child care centres were organised by the Ministry of Labour (in the rubber estate plantations), Ministry of Social Welfare, the Ministry of National and Rural Development, the National Unity Board and the Federal Land Development Authority. Some centres are organised by certain political parties, women's and youth organisations. The fact that so many organisations are involved may make co-ordination difficult.

In 1990, there were about 6,046 registered kindergartens in Malaysia (Husen, 1990) offering pre-school education to about 328,813 children from the age of five years of age. About 77 percent were operated by government agencies and statutory bodies, showing that the government pre-school establishments now have a very significant role, while the rest were still managed by private bodies and voluntary organisations.
Even though the number of centres has increased and the chance of the children from homes of lower socio-economic status to be in the programme is enhanced, still in 1990 about 53% of children did not have the opportunity to attend (Kementerian Pendidikan Malaysia, 1992). Most of the children who are deprived from attending the pre-school are those from the poorer families in the urban areas and children from rural areas. Since the pre-school centres were organised by various bodies, there were differences in the quality of provision in the programme and the quality of some centres was of doubtful benefit.

There has been a rising demand for pre-school education throughout the 1980s and pre-schools are increasing in popularity. The Ministry of Education exercises negligible control over these schools. Legislation on the setting up and running of these schools is minimal, mainly relating to health requirements, registration of the schools and the teachers. The existing pre-schools have been left to develop independently. There is no centralised control over the curriculum. The Curriculum Development Centre has recently produced a guide book and pre-school curriculum package as a step to improving consistency and quality of provision, but generally each pre-school designs its own teaching programmes.

The facilities and the standard of teaching offered by these pre-schools vary from school to school depending on the fee charged and the type of student population. The fee varies from $300 Malaysian ringgit (£60 pounds sterling) per month for those exclusive schools that cater mainly for children of foreign nationals to a mere $2 Malaysian Ringgit (0.50 pence) charged by the government sponsored kindergartens. The majority of schools charge fees ranging from $20 to $30 Malaysian Ringgit (£4 to £6 pounds sterling) per month. Some of these pre-schools are, in fact, no more than child care centres, where children between the age of three and five are looked after by a responsible child minder. The 'creches' in the plantation estates come under
this category and the main aim is to keep the children away from harm while their parents are at work. The more advanced pre-schools are better equipped and provide children with the social experience necessary for child development and preparation for the formal school environment. In some pre-schools in poor areas, teachers attempt to teach the curriculum for year one. Generally, there is little uniformity among these pre-schools and they are very independent of each other and of the Ministry.

The privately owned pre-schools, being profit-making organisations, are highly commercialised and competitive. In some schools, classes are over-crowded with more than 40 students per class. Some pre-schools also run two sessions per day (morning and afternoon) to cater for more students. Generally, young girls with the average academic qualification of Form Five (or GCSE level) are employed as teaching assistants. They are paid relatively low salaries. Some schools also employ young girls who have had some training in overseas institutions. They are also given a relatively low salary. This unattractive financial reward is the main factor in discouraging many potential pre-school teachers. Yet much attention and publicity is given to the elaborate graduation ceremonies that are held by these kindergartens. The young graduates receive a scroll and are fully dressed in gown and mortar board.

The effectiveness of pre-school education in Malaysia has been discussed for some time in educational circles. At present, there is no standardised system in pre-school education. Most of the private pre-school institutions in urban areas have their own curriculum that is more inclined towards formal education, teaching the three R's. On the other hand, the government-sponsored establishments in the rural areas have a rather unstructured curriculum that puts more stress on social behaviour. Generally, the highly diverse pre-school education system has developed its own diverse objectives and it has not been integrated as part of the formal schooling system. Therefore, it is rather difficult to assess the use and effectiveness of pre-school
education in Malaysia as a whole. This difficulty is enlarged by the absence of research concerning this age group in Malaysia.

From time to time, the Ministry of Education has taken various steps to streamline pre-school education. One of the measures is to provide uniform curriculum guidelines for all pre-school institutions in Malaysia. The Ministry of Education began to be actively involved in pre-school education in the 1990s. In October 1990, an intensive course for pre-school teachers' trainers was conducted by the Teachers' Training Division. This was followed by another refresher course conducted by experts in early years education from Australia and the United Kingdom. These moves might be interpreted as early steps towards a more consistent, perhaps more integrated, pre-school system. Arguably, it is the quality of the teachers, and their understanding, skills and attitude, which will be the key to future developments. This is one justification for the development of the ECI in this research: to improve the quality of the teaching and learning in a critical area of Malaysian education which has received little attention to date.

1.3.1 Pre-school Annexe Education

In January 1992, a significant event occurred in the Malaysian formal education system when 22,000 students aged five to six years began the first pre-school annexe programme that was implemented by the Ministry of Education (Kementerian Pendidikan Malaysia, 1992). A total of 1,040 primary schools and 26 teacher colleges are involved. Each pre-school annexe is attached to an existing government primary school under the Ministry of Education. The Ministry of Education is now taking positive moves to develop the pre-school annexe. As the system linked to the normal state schools is consolidated, these children should begin to enjoy the facilities given to them to compete with their peers from more socio-economically advantaged families in the later schooling years.
The main objectives of the pre-school annexe are: (Kementerian Pendidikan Malaysia, 1992):

- To develop balanced growth and the potential of the child as a whole, based on the philosophy of education of the country.
- To prepare the child for readiness for primary education.
- To adopt the general approach of "learning through play" which stresses flexibility in the organisation of activities.

The main aim of this programme is to provide for the needs of poorer children from both rural and urban areas. The programme is designed to give an opportunity to these children to use the pre-school facilities because they are relatively deprived in socio-economic terms and because otherwise they either could not afford to go to pre-schools, or there are no facilities in their area. The children whose family receives an income of less than about 400 Malaysian ringgit (£100 pounds sterling) per month are accepted in these programmes.

The present research is focused on these pre-school annexes. They are likely growth points for future development and, at a later stage, are likely to be integrated into the primary school system. Further, the three aims cited above can be seen as having strong parallels with British early years' education, from which Malaysia might learn, although the question of transfer of developments from one country to another needs to be approached with caution.

1.3.2 Recent Studies in Pre-school Education in Malaysia

Given the sporadic nature of the development of pre-school education, it is perhaps not surprising that very few research studies have been carried out on pre-school education in Malaysia. In 1982, a national study was conducted in co-operation with UNICEF on the status of pre-schools in Malaysia (Bahagian Perancangan Penyelidikan Pendidikan, 1988). In 1989, Halim undertook another study on the
effectiveness of the pre-school on children of low economic status. Those studies were done at macro nation-wide level and the findings were quantitative in terms of general statistical analysis. Halim (1989), suggested that an in-depth case study should be done that focuses on the process rather than on the product in the form of a statistical analysis of the whole scores obtained by the students. A more comprehensive study using a combined quantitative and qualitative approach would be very useful in promoting an understanding of the role and contribution of pre-school education in Malaysia.

Chiam (1991), conducted a study on a sample of urban and rural children from a low socio-economic group to investigate the process of cognitive and language development. The findings of the study showed that:

a. urban advantaged children are the most advanced in physical, cognitive and language development.
b. urban disadvantaged and rural children do not differ very much from each other in their development and they are in the intermediate position
c. the difference between urban advantaged and rural estate children (the lowest position) is very significant
d. there are no significant differences in performance among the various major ethnic groups of the Malaysian population (Malay, Chinese, Indian groups).

This study showed that children with better socio-economic and environmental conditions can developed better irrespective of their ethnic origin. It indicated that environment is an important determinant in developing children's potential. It is often believed that the parents' education level can be a significant factor in providing a stimulating environment to the children. However, it does not necessarily follow that children of well-educated parents are brought up in a culturally enriched
environment. The study shows that the correlation between parents education and occupational status and the performance of the children is relatively low.

As far as this researcher is aware, these are the only available studies on pre-school education in Malaysia, to date. There is, therefore, comparatively little consolidated theory, practice or recognised research from Malaysia itself to which the present research can relate.

1.4 The Purpose of the Study

The aim of this study is to develop the unresearched area of the pre-school annexe, focusing on the Enhanced Classroom Interaction approach to the Test Group of these selected classes. Since these pre-school annexes are attached to state schools they are likely to be integrated at some future point into a system of common curriculum, standards and teacher training. A study of these pre-school annexes can therefore be, to a certain extent, representative of a system of schools, whereas the private pre-school institutions are diverse and independent, and any research on these private institutions is likely to be unrepresentative or ad hoc. The pre-school annexes also have clear government guidelines for the curriculum - a further point showing that they are part of a wider system.

The ECI approach on which this study is based was introduced to the teachers of the Test Group so that the enhanced interactive environment could help the children to maximise their potential fully. The study focuses on a kind of interaction that highly stresses the use of conversation. During the intervention period, the teacher will enhance, intensify, excite, encourage, abet, assist and aid the children to communicate by using verbal language in performing the activities either in terms of teacher-child interaction, the teacher working with a pair of children, the teacher interacting with a small group of children, or as interaction between small groups of children working independently.
Although there has been no previous study of interaction among pre-school children in Malaysia, studies have been carried out in UK, in the National Oracy Project (1987-1993), which have shown that at the age of 5 children have communicative abilities as listed below (MacLure, 1992, p. 23). By the age of five many children will: draw on a vocabulary of several thousand words; talk for a range of purposes - including many higher-order ones such as hypothesising, speculating; assume joint responsibility for the meanings that are produced through talk amongst other abilities. In this study, it is hoped that the children from the Test Group, through their teacher-child, teacher-group and child-child interaction, will have opportunities to use language to challenge, to question, and to make suggestions of a hypothetical nature. The results of the two Progress Tests in the study should show whether there is any significant difference between the Test Group and the Control Group children in their interaction and language use.

Generally, there are many different types of pre-school establishment in Malaysia as explained above. Some are privately owned while others are sponsored by government, semi-government or religious institutions. Each of these pre-school establishments emphasises certain aspects: language development, emotional development, cognitive development, structured learning, reading, writing and religious behaviour, etc. The teaching staff ranges from the highly paid professional to para-professional, volunteers, parents and trainees. Consequently, the teaching approaches adopted also vary from one institution to another. In some pre-schools, children are expected to pursue their exploration of didactic materials while in others there is a lot of verbal instruction and noisy verbal interaction. Therefore it is convenient to conduct this study with the teachers involved with the pre-school annexes classes, chosen because of the similar background of the schools and parallel training that teachers will have received. The pre-school annexes are thus probably more consistent than other pre-school set-ups in Malaysia. Hence, a study of a few
pre-school annexes can claim to be representative to some extent with the annexes elsewhere in the country.

In relation to the learning of language by young children, environment plays a very important role. It is only from interaction with other people in particular situations that meaning is negotiated and to which these meanings are intended to apply (Wells, 1986). Therefore, the environment in the pre-school annexe needs to be very stimulating and the teacher can promote language development very effectively by presenting the children with an interesting physical and social environment provided that the teacher is aware of the importance of doing so and has the requisite skills. The teacher should know when and how to intervene in order to help the children's learning. In respect of learning to be a language user, the quality of the child's interactional experience has been found to be significantly related to the rate at which learning takes place (Wells, 1985, p. 32).

For these reasons the aim of this study is to find the effectiveness on the Test Group of the teaching approach known as 'Enhanced Classroom Interaction' (see Chapter three). This approach is based on the socio-cultural theory (see Chapter two) pioneered by Vygotsky and extended by his colleagues and followers (Vygotsky, 1962, 1978, 1981; Wertsch, 1985a, 1985b; Moll, 1990; Rogoff, 1990; Wells and Chang-Wells, 1992) amongst others. This work is widely acknowledged as showing that interaction with teachers, competent adults and peers enables children to move a step further in their linguistic, cognitive and social development. As Vygotsky remarked, 'what a child can do today with adult help they can do on their own tomorrow' (Vygotsky, 1978, p. 87). For him, the foundation of learning and development is collaborative to achieve success, and the basic success is language and communication. 'Children solve practical tasks with the help of speech, as well as with their eyes and their hands' (Vygotsky, 1978, p. 26).
1.4.1 The Objectives of the Study

The objectives of the study are:

a. To investigate whether Malaysian teachers can put key notions from neo-Vygotskian theory into practice in the pre-school classroom after training is given. There are many kinds of classroom interaction: this study focuses on 'Enhanced Classroom Interaction'. The study investigates some of the interaction by teachers, or competent adults and peers, which enables children to move a step further in language and cognitive development.

b. The study compares a quantitative and qualitative analysis of interaction patterns of normal classroom teaching at pre-school level with the teaching approach in which teachers attempt to apply the ECI.

The central questions posed in the study are:

a. Whether the teachers who were trained in an approach of 'Enhanced Classroom Interaction' could put it into practice.

b. Whether there are any significant differences in patterns of interaction between the Test Group and the Control Group children.

c. Whether there are any differences in language use between the Test Group children and the Control Group.

1.4.2 The Significance of the Study

If the results confirm the researcher's predictions, this study is expected to provide a new approach for the pre-school teachers in Malaysia. It could help teachers to understand how their role is very important as competent adults in the learning and teaching process among the pre-school children and how language is crucial to learning. If the outcome of the research indicates positive results using 'Enhanced
Classroom Interaction' then this approach may be adopted alongside existing practices. The research may thus offer an appropriate theory, approach and examples of practical tasks, which will be new to Malaysian teachers, and which will, it is suggested, be useful in developing a child-centred, activity-based strategy for the linguistic, cognitive and social development of pre-school children.

The results of the research will be potentially useful to the Teacher Training Division of the Ministry of Education in formulating an appropriate approach for new trainees. It could enrich both method and approach in conducting in-service and pre-service courses. Generally, it is expected to contribute to further upgrade the competency of the pre-school teachers.

The Ministry of Education is responsible for giving urban disadvantaged children and rural children the opportunity to be in the pre-school. The foundation laid at this early stage can ensure that those children can proceed on a somewhat more equal basis as those from homes with better socio-economic status and better environment. Research to assess 'Enhance Classroom Interaction' will provide some initial evaluation that can guide further improvement of the teaching approaches so that the national objectives are met.

The findings from the research will provide in depth information on the approach and possible problems with its implementation. It will provide some ideas in planning, improving and adapting effective approaches for pre-school education in Malaysia.

1.4.3 The Limitations of the Study

Some limitations of the present study that provide clear constraints are as follows: Vygotsky's theory and neo-Vygotskian developments of the 1980s and 1990s have become very popular in the West among psychologists, educationists, linguists and scholars since the last decade. Numerous research studies have been undertaken
using the above paradigm. As far as the researcher knows, to date this theoretical framework has not been used in any research undertakings in education by any researcher in Malaysia, even though Malaysian educationists who studied overseas have recently been exposed to this approach. This study is thus a pioneering attempt at utilising this theoretical framework in educational research in Malaysia. In fact, there do not seem to be any published research studies applying neo-Vygotskian approaches in any developing country. From this viewpoint, a local research tradition is absent, and, in so far as it is an attempt to open up a new area, the present study must be somewhat tentative.

The study is mainly focused on children's interaction working in pairs on tasks with a teacher in a normal classroom. Most studies that have been done are with small groups with a minimum of three children, such as studies done by Barnes and Todd (1977), and Bennett and Cass 1988; Bennett and Dunne (1992) amongst others. Furthermore their samples are not of younger children. Therefore this study is exploratory, in attempting to see whether such work can be done in the classrooms of younger children.

A further limitation is that the study is confined to the sample of pre-school annexe children in the city of Kuala Lumpur and therefore does not relate to rural areas or other urban areas in Malaysia. Furthermore, the pre-school annexe is a new institution that was only launched in early 1992 and is implemented only in selected primary schools in Malaysia. The pre-school annexe generally covers about 15 per cent of the total pre-school provision in Malaysia. So the study does not represent the whole of the existing pre-school establishments in Malaysia, although, as argued earlier, the sample is more representative than a private pre-school sample might be.

The time period of the fieldwork is another limitation. The effectiveness of the ECI might be difficult to assess within the short period which was available to conduct the
The time period in which to conduct the field work in Malaysia was limited to three months by the research sponsors. During such a short stay, there were numerous things that had to be done within a very tight schedule (see project implementation schedule 4.3.1). The study could have been carried out in more depth had more time been available. As mentioned earlier, the pre-school teachers in Malaysia, compared to British colleagues, are not as experienced or as well qualified.

A new innovation in teaching approach will need time to become part of the teacher's thinking and philosophy. However, Malaysia is a developing country and the spirit of Vision 2020 promulgated by the Malaysian Prime Minister (that the country needs skilful, productive human resources to industrialise the country in future) encourages innovation. Therefore it is an appropriate time for teachers to accept new ideas to meet the need of 'Vision 2020' in education right from the pre-school stage (YAB Dato' Seri Dr Mahathir Mohamad, 1991).

On the other hand, the design of the approach, Enhanced Classroom Interaction, does take into account one of the teaching models (Sim's) that is familiar to the Malaysian Teachers (Mok, 1991) (see Chapter three). This model recognises that interaction does occur between the teaching components i.e. among teachers, children, objective and content within a certain environment. This model forms the basic theory of teaching promoted in Malaysian Teaching Colleges. What is defined as 'enhanced' here is the way in which Sim's model is enhanced by the notions and concepts of Vygotsky. This requires a certain approach, attitude and aptitude of the teacher and gives a far more specific focus than Sim's model unenriched by Vygotsky (Mok, 1991). Therefore, the role of the teacher with some understanding of the ZPD ideas, that is, at a relatively high level of abstraction, is the key to this approach. It is difficult really to assess how far the respective teachers have appropriated this approach so as to create the necessary 'enhanced' environment. Furthermore, there is no readily available teaching method and guidelines that have been developed in this area in Malaysia. This was left to the understanding and initiative of the teachers.
During the pilot test of the materials in UK infant classes the selection of the children who used the materials was made by the class teacher. The constraint here is that the teacher might have chosen talkative children to engage with the materials before they were modified by the researcher. Therefore the test material might be feasible for children in UK but not for Malaysian children. In addition, there were numerous practical problems faced in conducting the test in Malaysia (e.g. the management of the other pupils in the class, children being conscious of video recording, classroom noise, etc. (see chapter 4 on data collection, 4.7). Many modifications and improvisations have been made but this has not in any way seriously affected the collection of data as far as it can be ascertained.

There are also constraints with the quantitative and qualitative analyses of the data. The quantitative analysis involves the transformation of the transcribed conversation into figures. The utterances of the main protagonists of the ECI, namely the teacher and child, are transcribed with the frequency of the interactions (i.e. turns, morphemes and utterances). The comparison of the number of these interactions between the Groups shows a significant difference. This may be viewed as too mechanical and as not capturing the reality of the meaning of the interactions for the participants. Nevertheless, it was proven to be statistically significant and was further taken up in the qualitative analysis that examined in depth the better performance of the Test Group.

The qualitative analysis utilises 'Conversation Analysis' as the base and some concepts of classroom interaction have also been taken up and adapted to small group work, namely a teacher and a pair of children in performing a task. Most classroom conversation analysis is done in terms of a teacher and a classroom of children. Nevertheless, the management of the task by the teacher and the structure of exchanges and questions and clarifications by the children is still present in the
interactions and can be appropriately analysed. This initial attempt may prove to be difficult and can be developed further. What is important here is that the weakness of the qualitative analysis is strengthened by the quantitative analysis and vice versa.
2. **CHAPTER TWO: REVIEW OF RELATED LITERATURE: LANGUAGE AND THINKING**

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2. CHAPTER TWO: REVIEW OF RELATED LITERATURE:

LANGUAGE AND THINKING

2.1 Introduction

This chapter consists of four sections. In the first section, a review considers two major learning theories with a focus on language development that are widely known in Malaysia. The second section will introduce Vygotsky's theory and examines its theoretical aspects relating to language, interaction and thinking. These are relatively unknown at present in Malaysia. The third section examines the associated ideas of those who strongly support this theory, now known as a neo-Vygotskian approach. The fourth section will discuss the limitations and difficulties of the theory and this is followed by a sub-section which considers the significance of this approach for Malaysian pre-school education.

Before becoming involved in this research, the researcher was teaching pre-school education as a subject to the pre-service and in-services courses in one of the Malaysian teaching colleges. She is therefore familiar with the learning theories to which teachers-in-training are introduced. Even though the focus of this project is on the approach of "Enhanced Classroom Interaction," basically adapting Vygotskian and neo-Vygotskian concepts, the two outstanding theories of learning widely accepted in Malaysian pre-school education should not be ignored, since they may have some validity in their own right and also because they are the theories of learning with which Malaysian teachers are most familiar. Currently these two theories, Behaviourist and Piagetian, are the major components beside other learning theories that are taught in the education curriculum in the training of teachers in Malaysia at all levels. These theories, it can be assumed, provide a theoretical framework of learning within which the pre-school teachers, who are the focus of this research, work. Therefore it is important to review these theories, especially those
focusing on language development, and to consider their drawbacks and contributions to learning.

2.2 Some Learning Theories of Language Development

Generally, there are three philosophical approaches that try to explain the process of intellectual development in relation to language learning i.e. the Behavioural, Piagetian and Vygotskian theories (Vygotsky, 1978; Portes, 1983; Wood 1988; Meadows and Cushman, 1988). Each approach has a particular philosophical basis and focuses on a particular determining factor. The three approaches are not necessarily exclusive, nor are they seen as necessarily being in contradiction with other approaches, such as Universal Grammar, which represents the importance of universalist and genetic factors of language acquisition (Cook, 1988).

2.2.1 The Behaviourist Approach

Some commentators (Garton and Pratt, 1989; Wood, 1988) maintain that the Behaviourist learning theory has received most prominence in the USA since the 1930s. Behaviourism's roots can be traced to Locke and Hume, who believed that knowledge is derived from the interaction between the senses and the environment. Sensations are built into 'a blank slate' in the mind from birth through experience. Generalisations from the experience gained from these interactions are learned and kept within the learner's behaviour through frequent and regular encounters with the environment. Higher and more complex levels of intelligence are built up in a cumulative manner by association from past experiences. Pavlov (1960), a Russian psychologist, developed the 'S-R' learning theory. He focuses on the 'reinforcement' and conditioning of learning.

The behaviourists dominated the psychology of learning for decades. This theory represents the first modern attempt to explain how language may be acquired by a child. Skinner (1957) was the main exponent of the view that verbal behaviour, once
reinforced, would continue, particularly after further reinforcement. Desirable behaviour could be systematically reinforced, while undesirable behaviour could be extinguished through the removal of reinforcement or through negative reinforcement. Such changes in behaviour constitute learning, but Skinner concentrated only on observable behaviour. His theory of verbal behaviour is applicable to language learning. As he states in his influential book Verbal Behaviour (1957), "We have no reason to assume...that verbal behaviour differs in any fundamental respect from non-verbal behaviour, or that any new principles must be invoked to account for it" (1957, p. 10). As a result, audio lingual designs for language teaching courses and materials (Allright and Bailey, 1991) were developed and became influential. The language teaching theoreticians and methodologists developed Audiolingualism which is based on the psychology of learning and on learning theory, that is, behaviourism, and was later undermined by Chomsky's (1959) review and later theories of language acquisition in the late 1950s. Yet this idea is, generally, still being used today in the teaching of languages because of it is seen as having some validity. Fig. 2.1 describes the sequence of these behaviours which is very important in learning: a stimulus, response and reinforcement.

![Figure 2.1 Stimulus-Response-Reinforcement](image)

According to the behaviourists, before children produce any recognisable words, they produce all sounds of all languages. Then parents selectively reinforce the sounds of the mother tongue by giving attention or approval as reinforcement (Garton and
Pratt, 1989). This reinforcement could be in a variety of forms, verbal, such as commenting 'brilliant boy,' and physical, such as kissing and hugging. This selective reinforcement results in the child producing words. For example, the child might utter 'milk' and be reinforced by being given milk to drink. This desirable outcome increases the likelihood of the utterance being repeated by the child when he or she is thirsty.

One major problem with this account of how children's language develops lies with the fact that no one has specified precisely what ends or outcomes are reinforced to each and every utterance. Even though Skinner (1957) provided the definition of reinforcement as being something that increases the likelihood of the behaviour being repeated, it is very difficult to specify exactly what constitutes a reinforcer. It is not clear whether the reinforcers are individualised or equally applicable to all children (Garton and Pratt, 1989).

Even if parents and teachers could be certain about the choice of reinforcers, it is still difficult to understand how a child could learn to speak and to utter sentences mainly as a result of reinforcement. Language is not produced simply by 'seeing' a particular stimulus in the environment. It might be the result of other stimuli, including internal ones. For example, a child may utter 'milk' in response to feelings of thirst. Yet, this behavioural approach only takes into account observable behaviour.

Another major weakness of this behaviourist theory is that it views the child as a passive recipient of environmental stimulation and reinforcement. There is no consideration that the child might be actively constructing or creating his language. The element of innovation and rule construction is difficult to explain in terms of behaviourism (Chomsky, 1959). Further, the relationship between the learning of language and other cognitive phenomena was never fully explored by these learning theorists (with the possible exception of the work by the Kendlers on verbal
mediation in problem solving; for example Kendler, 1969). The Kendlers (1975) were working with the behaviourist paradigm to explain cognitive development by studying the impact of language acquisition on cognition. But their theory was later criticised by Brown and Deforges (1979). Luria (1961), who was working under a similar paradigm with Kendler, proposed that language is a tool which the child learns to use in order to regulate behaviour: 'the most significant moment in the course of intellectual development, which gives birth to the purely human forms of practical and abstract intelligence, occurs when speech and practical activity, two previously completely independent lines of development, converge' (Vygotsky, 1978, p. 24). Later Luria's theory was criticised by others. This shows that the behaviourist theory is still very influential because it has been extended by contemporary researchers.

Although there are clear drawbacks in the explanatory powers of this behaviourist learning theory as applied to language development, it is important to acknowledge the role of the environment in language development. For example, reinforcement may help in language learning amongst young children (Crystal, et. al. 1976) in order to facilitate language growth or language change in children with disabilities. Behavioural techniques, concentrating only on external conditions and involving reinforcement for correct language production, have been found to be valuable for teaching purposes, especially in facilitating language development in pre-school children.

Reinforcement is vital in the learning process, especially when applied to the second language learner. The behaviour is the verbal behaviour, the stimulus is what is taught and the response as the learner's reaction to the stimulus and the reinforcement is extrinsic (praise from the teacher) and intrinsic (self-satisfaction) to the target language. Language mastery is represented as acquiring a set of appropriate language stimulus-response chains. Reinforcement is also applied by school councillors and
some teachers for behaviour modification of the children in class (Wheldall 1987, Merret and Wheldall, 1993). This shows that the behaviourist theory is still applicable in some ways.

2.2.2 The Piagetian Approach

For the last two decades, the thinking about the nature of children's thinking and learning has been dominated by Piaget. Wood (1988) shows that Piaget shares with Vygotsky a similar conception of the relation between action and thought. Piaget believed that knowledge is obtained from the senses and that this is a necessary foundation for higher levels of mental development. However, the learner has to readjust him or herself to be ready and compatible with the higher levels of complex thought. Here, according to Piaget and Inhelder (1976), the behaviourist approach has not adequately addressed the capacity of the learner to do so. The movement to a higher level of cognitive skill is not a simple cumulative process that uses the same mental capacity but the learner has to experience biological maturity. Complex cognitive skills require complementary biological changes in the individuals to enable the teaching and learning process at a certain level to proceed.

Piaget's theory was well received in the United Kingdom in the 1960s with little criticism. He became the guru whose works are received wisdom. For many years teachers working in child-centred education have only drawn on philosophical theory guided by intuition. Piaget's work, apparently, provided scientific evidence from experiments, with specific examples and exhibits from children's behaviour which formerly was only an opinion of the teachers (Brearley and Elizabeth, 1966). Mouldy (1982) pointed out that since the 1960s there has been a change in the classroom. The focus is now more on the children's learning and less on the teacher's teaching. Rote learning has become unfashionable and project work which allows children to make discoveries has become standard. As a result, the accent in the classroom has shifted from the teacher teaching to the child learning, a very Piagetian shift (Mouldy,
Piaget's theory has practical implications for better learning activities for children, and tremendous significance for understanding how humans develop, vary and communicate (Bybee and Sund 1982). Generally, Piagetian influence has spread out to other parts of the world including Malaysia, where the teachers are exposed to the theory in their training in colleges and universities.

Language, for Piaget, is a system of symbols for representing the world, as distinct from actions and operations that form the process of reasoning. The five year old child would not understand the concept of 'how many' or 'how much', when asked by a teacher and faced with an array of objects, unless he was taught the concept of number. What the child has learned is simply a procedure in response to a question. He will not understand such abstract concepts till he has reached the level of operational thinking. He concluded that it is fruitless to look for verbal or linguistic criteria (Piaget, 1978). A 'pre-operational' child cannot understand what the world is like from another point of view. The 'monologues' produced by the pre-school children are regarded as egocentric. Recent work on infancy shows that many aspects of language are recognised much earlier than was previously believed (Boden, 1994). The evidence that Piaget seriously underestimated the abilities of infants (and also older children) is overwhelming. Some illustrative examples can be found: Carey and Gelman, (1991); Gallistel, (1990); Johnson (1993), amongst others. Piaget's theories were criticised by Walkerdine (1982, 1984) and Donaldson (1978) among other researchers. Donaldson has shown that pre-school children are not only capable of deduction but are capable of reflecting on their actions. She also argues that preschool children can learn much that is apparently beyond them in terms of Piagetian stages if that learning is put in a human setting which makes sense to the children. Yet, 'disembedded thinking' is very desirable and should be nurtured by the teacher or adult.
Vygotsky criticised Piaget for concentrating almost entirely on the structural side (the content) of the children's thinking to the detriment of the functional (operational) side. After all, the functions, such as assimilation, did not change during the course of development (Vygotsky 1933m; 1935n, in Van Der Veer and Valsinar 1991, p. 98).

However, Piaget's theory has direct implications for teaching young children effectively. Under the influence of Piaget, many teachers believe that attempts to explain and question things before the children are ready, do not foster development but what the child learns are empty verbal procedures. So premature teaching and questioning could demoralise or frustrate a child who could not understand what is being 'taught' (Wood, 1988). A teacher could provide appropriate materials and contexts for development by organising time and space so that children are free to act upon the world with objects and tasks that serve to foster the emergence of operations and understanding of invariance. But the basis of any understanding depends on the stage of development of an individual child and not on the direct efforts of the teacher, unless they match the readiness of the child, i.e. are appropriate to a particular stage.

However, in the early 1980s there was a growing dissatisfaction with these two theories, Behaviourism and Piagetian. They have in common an essentially individualistic conception of learning. Vygotsky (1935n) claimed that both the Piagetian and the behaviourist views shared the assumption that cognitive development is a naturalistic process based on natural processes (Vygotsky 1935n, in Van Der Veer and Valsinar, 1991, p. 333). The learner is seen in either case as independent and self contained, and learning activities as taking place within an individual rather than as part of a transaction between the teacher and the learner. Vygotsky's seminal ideas about development show their value in helping to explain evidence of exceptional abilities as well as generating hypotheses regarding inconsistencies found in Piagetian theory (Dasen, 1974). Recently with the translation
of Piaget's collected essays into English by Les Smith (Kutnick, 1996), the idea of the child as isolated individual is less emphasised because of the social nature and the genuinely co-operative aspects of child behaviour that have been found in Piagetian theory.

2.2.3 The Socio-cultural Approach

An alternative to these individualistic theories of learning language is a 'constructivist' and socio-cultural theory in which social interaction and language have a key role. The fundamental proposition is that social and linguistic influences may have priority over individual cognition, and that the former may influence or determine the latter.

Recent studies (Edwards and Mercer, 1987; Newman et al, 1989; Maybin, 1992; Norman, 1992; Wells and Chang-Wells, 1992; Mercer, 1995) use a common theoretical term, 'constructivist'. The key notions of this perspective on learning, knowing and teaching are: the idea that knowledge is constructed by the individual knower, through an interaction between what is already known and a new experience; knowing is not simply an individually isolated cognitive process but is rather a creating construction process which is helped by social interaction. Learning and teaching are regarded as collaborative involving negotiated meaning and perceptions of both parties (Wells, 1986, 1992; Wells and Chang-Wells, 1992). Talk is the central and the primary medium of the process because it helps the learner to make explicit to himself and to others what he knows, understands and can do. In 1970, Britton wrote 'we have seen talk is a major instrument of learning in infancy: that an infant learns by talking and that he learns to talk by talking...they must practice language as a lawyer practices' (1970, p. 129). Oyler (1996) argued that 'providing students with multiple opportunities to speak and act as experts is essential if children are to be encouraged to become producers, not just consumers of knowledge' (1996, p. 149). These statements are also in line with the National Oracy...
Project (Norman, 1992; Johnson, 1994) and National Curriculum for English in the UK, which both emphasise equal treatment of spoken and written language for classroom talk.

The socio-cultural theory was developed by Vygotsky and extended by his Russian colleagues (e.g. Luria, Leont'ev, Elkonin and Davydov), as mentioned by Blanck (1990). These scholars could be called second generation Vygotskian. Vygotsky's theory has been also extended by his researchers in the West (Rogoff and Lave 1984; Wertsch 1985a, 1985b; Newman et al. 1989; Moll 1990; Rogoff, 1990, 1995) and other scholars. This work can be seen as fitting into a constructivist paradigm of psychology of teaching and learning (e.g. Pollard, 1985; Bruner, 1986; Mercer 1995). Vygotsky died in 1936 but his novel ideas, many of which have only recently become available to the West, were extended and revised later by psychologists and linguists in their research. Currently, leading proponents of this approach are organised in an international network of scholars who are interested in understanding comparative socialisation from Vygotskian perspectives.

Wertsch (1990, p. 112) defined 'socio-cultural' as an approach that focuses on the institutional, cultural, and historical specificity of mental functioning rather than universals. The central issue of this school of thought is to recognise the interdependence of the individual and society, as each creates and is created by the other. Although this happens at different times, both are the result of interaction between the two that contributes to everyday life (Wells and Chang-Wells, 1992, p. 29). As Vygotsky expresses it 'Culture is the product of social life and of human social activity' (Vygotsky, 1981, p. 164). But the opposite is equally important: individual activity is always specific to a particular culture at a particular point in the historical development of that culture and is dependent on the tools that the culture makes available. Thus, as the culture itself, the individual's knowledge, and the repertoire of actions and operations by means of which he or she carries out the
activities that fulfil his or her perceived needs, are all built in the course of solving the problems that arise in goal-directed social activity, such solutions are learned through interpersonal interaction. Human development and learning are thus in themselves social and interactive (Wells and Chang-Wells, 1992).

Vygotsky (1978) believed that the development of intelligence is the product of past historical development. Complex and higher levels of mental capacity are the result of the interaction with sophisticated and well-developed social conditions as supported by Davydov (1985). Physical development or biological maturation leads to further development of the senses that will interact with the environment, i.e. social relations, to generate more complex, higher levels of learning. Complex cognitive skills require complementary biological changes in individuals to enable the teaching and learning process at a certain level to go on.

In addition, complex cognitive skills are also being shaped by the socio-cultural conditions that determine how the experiences are organised and how information is processed, and problems solved. This intellectual framework, or 'tools', had been developed earlier and access to this intellectual capital will determine the level of intellectual potential that can be realised.

At the early stage, biological processes will guide cognitive development, but later development will depend much more on social relations and levels of interactions with adults. Adults assist and co-ordinate the development of the child's cognitive skills as intellectual tools are acquired and internalised to be used autonomously later by the individual for developing thought (Rafael et al., 1990, Foley, 1990). Vygotsky summarised the idea in the Marxist approach of his time: 'historically determined and culturally organised ways of operating information influence the individual’s knowledge of self and the world' (Vygotsky 1978, p. 21).
2.3 Vygotsky’s Theory

According to Vygotsky (1978) children’s learning begins long before they attend school. He pointed out that any learning a child encountered in school depends to a large extent on what they already know. Irrespective of age, children have some knowledge and concepts of the classroom topic deriving from their previous history. The child then assimilates names of objects in her environment, as he is learning. Children learn from adults through questions and giving answers. Such socially generated learning is developed and interrelated from the child’s first day of life.

Vygotsky (1978, p. 79) identified three major theories of his time that linked development to learning and which had an impact on education through he disagreed with all of them:

i) The first group of theories regarded development as the process of maturation that determines the level of learning, but that the process itself is divorced from learning (referring to the Piagetian approach).

ii) The second group of theories considered that the accumulated learning is a process of development and both learning and development occur together (referring to the Behaviourist approach).

iii) The third group of theories regarded learning and development as two independent processes which interact and mutually affect each other. As such, learning itself is a developmental process.

Vygotsky agreed that learning and development are interdependent. In order to explain the interaction of the two processes, a third factor or process is introduced, namely, competence in language. In order to go beyond the traditional standard testing that gauges the attainment level of a child, he introduced the concept of Zone of Proximal Development (ZPD) a notion that has recently received a great deal of attention in the West (Newman et.al., 1989; Wertsch, 1985a; Tharp and Gallimore, 1988; Rogoff, 1990; Moll 1990; Van Der Veer and Valsinar, 1991).
2.3.1 The Zone of Proximal Development

Van Der Veer and Valsiner (1991) provide a very good account of Vygotsky's theories concerning the Zone of Proximal Development. Vygotsky discussed the ZPD in the context of the IQ Test for elementary schools in his time. Generally, children were tested and categorised into four groups, namely, high IQ (more than 110), average IQ (90-110) and low IQ (70-90) and those with below 70 IQ were sent to a special school. However, research done by Terman, Burt and Blonsky showed that children with high IQ tend to lose and those with low IQ will tend to improve during their period in school (in Van Der Veer and Valsinar 1991, p. 337). Vygotsky explained this phenomenon by the concept of the Zone of Proximal Development (ZPD) where the low IQ children will gain more than the high IQ children. What was usually recognised is that the child's intellect is perceived as what the child can do by himself. By giving a test or task depending on the level of difficulty, the level at which a child can solve the test or perform the task measures the level of the child's intellect. Therefore, the usual thinking is that the child's level of cognitive development is restricted only to the level where the child is able to solve the problem independently and without any assistance. On the other hand, what was not recognised was the level of the development of the child's capability if the problem is solved with the assistance of others. Vygotsky argued that the ability of the child to perform well with the help of hinting and prompting by others should also be rightly regarded as the child's capability of intellectual development. Vygotsky summarised this ability to learn characteristics of the child as the Zona Blishaishego Razvitiya (in Russian) or the Zone of Proximal Development. He defines it as,

---the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (Vygotsky, 1978, p. 86).
At every stage of human development there is a ZPD (Foley, 1990). Krashen (1985) recognised this in the field of second language acquisition and, unlike Vygotsky, has related it specifically to the classroom with his 'input hypothesis'. He explains that in order to acquire another language the learner must understand a bit beyond the current level of competence, which he terms 'comprehensible input'. He gives an example: a good speaker in a second language is not taught directly but acquisition will come on its own with time. This input hypothesis states that input includes a structure that is part of the next stage. To understand language that contains structures that have not yet been acquired is through context and extra-linguistic information. Good second language teachers help learners by using visual aids and so on. The 'input hypothesis' thus claims that we use meaning to help us to acquire language. To state the hypothesis more formally, an acquirer can 'move' from a stage i (where i is the acquirer's level of competence) to a stage i +1 (where i+1) is the stage immediately following along some natural order) by understanding language containing i +1. In other words, i is at the actual level in Vygotsky's terms, and i+1 is the potential level. Krashen is apparently not influenced by any of the ideas of Vygotsky. Those who write about Vygotsky rarely relate to Krashen's well known work.

Vygotsky (1978) believed that learning guides intellectual development and is not a dependent variable of it. The ZPD can be used as a measure of developmental functions that are on the way to be completed. Through it, we can examine how information obtained by children is organised and utilised and also gauge their level of intellectual proficiency. These measures or indicators are important in ensuring effective teaching. When it can be ascertained whether and how a child can perform a task on his own and with some help from instructions given, the assessment of his attainment can be designed accordingly. Therefore Vygotsky's theory can help to explain why there are gifted children, as well as others, who could not even match.
the stages of maturation. New developments in the study of accelerated learning (Lozanov, 1978) and giftedness (Feldman, 1984) suggest that the socio-cognitive environments to which children are exposed regularly may influence development.

Needless to say that the concept of ZPD is common among educationists and that recently the concept of ZPD has become embedded within a psycho-social model of teaching and learning (Bliss et al., 1996).

2.3.2 The Development of Intellectual Skills

Vygotsky called his approach to the study of cognition and cognitive development a 'socio-cultural' or theory of psychological process. The basic idea was expressed in the general law of cultural development, where Vygotsky proposed that any higher psychological function appears twice, or on two planes. First it appears on the social plane and then on the psychological plane. First it appears between people in an inter psychological category and then within the individual child in an intra psychological category (Vygotsky, 1978, p. 57). The social environment is thus the driving force for development since it is believed to have chronological and causative priority. Luria (1976) supported Vygotsky's key notion that language plays a preeminent role in mediation of the social and psychological planes. Language, in this way, might be considered the link between the two planes.

Vygotsky's verbal regulation theory suggests that the process of verbal interaction between a child and adult will result in the development of complex mental functioning (Vygotsky, 1978). Generally, the child's cognitive ability is 'mediated', regulated or controlled largely by the behaviour shown or by words spoken to them by adults as viewed by Davydov (1985) and Rafael, et al. (1990) among others. Gradually, the children will have enough vocabulary and behaviour reference to proceed on their own and achieve the stage of self-regulation or independence. For example, when a mother shows a two year old child an object and says 'hot kettle,'
her pointing speech and the external stimulus received through the hearing of speech or verbal instruction can modify a child's capacity for cognitive skill and abstract thought, depending on the range and intensity of the stimulus. Vygotsky (1978) describes the internalisation of concepts and speech in young children in several stages. The external utterance from another person is related to the mental activity and it changes as it develops. Around the age of three, speech accompanies the child's behaviour. Later, the child's speech guides behaviour where speech is performing the planning action. At the age of six, Vygotsky noted that this is followed by fragmented speech or private speech that will be replaced by whispering before this kind of speech disappear completely. Vygotsky believed that such speech does not, in fact, disappear but is internalised as part of higher mental processes (Wood, 1988, Britton 1994). This inner speech which denotes self-regulation in an individual's cognitive activity is therefore crucially influenced by social environment and relations (Bruner 1983, 1987; Wertsch, 1981, 1985a, 1995).

Vygotsky (1962) stressed that skill in speech is critical to thinking. This area of research shows that often when a person faces a problem, he may talk softly or even loudly to himself, thus resorting to speech in thinking how to solve a problem (cf. Tharp and Gallimore's - the fourth stage- performance is de automated and recursive through the ZPD, this Chapter, p. 60). This indicates that speech is instrumental in controlling cognitive activity. The use of language for processing information and solving problems originates from cumulative and didactic social interactions.

Vygotsky studied the differences in cognitive skill among different groups with different levels of socio-cultural development. The dominant types of activities and culture between these groups are identified. The level of cognitive skill development will be parallel to the stage of development attained by their culture. Therefore, the mental process of any individuals will depend on the specific social-cultural settings in which they interact. Less emphasis is given to the biological factor. It mainly
provides the initial foundation on which further complex mental development will occur. It is the environmental factor that determines the level of how much of the potential can be realised - to this extent the social-interaction of the environment has priority. Further, in Vygotsky's view, the potential itself can be increased through social interactions.

i. Research and Studies

The research by Vygotsky himself was done in the USSR in the early 1930s (Wertsch, 1981). It was undertaken in Uzbekistan where people were beginning to experience societal change in the socio-economic system and way of life i.e. from a backward agricultural economy to Soviet collectivisation (a "developing" country in current terminology). This was the context for studying social historical influences on cognitive processes (Luria, 1976). In studying social abstraction, reasoning, inference and self perception, an illiterate group were compared to an educated group. It was found that in performing the task of categorisation, the illiterate group's thinking was concrete and situational based on practical experiences. They could not classify according to abstract categories. Generally, their thinking process was different from that of a group of communal workers with an urban background. The study claimed that the stage of socio-cultural development will affect and determine the complex cognitive skill of its individual members. Subsequent cross cultural research has supported this view (Cole and Bruner, 1973; Dasen, 1974) although social conditions have been defined more in terms of educational experiences rather than as transition to collectivised labour and new forms of social relations.

The main chain in cognitive activity is from the level of sensory motor to that of rational thought (Luria, 1976). The rationale used by the 'backward' group was based mainly on individual concrete experience. The method of analysing and evaluating what is done 'in the head' or at a cognitive level is done by those who are exposed to complex social relations and language interaction. As Luria, (1976) maintains, "thus a
fact hitherto underrated by psychology becomes apparent: social historical shifts not only introduced new content into the mental world of human beings; they also create new forms of activity and new structures of cognitive functioning. They advanced human consciousness to new levels” (1976, p. 163).

From the above theoretical perspective, the function of speech plays a very important role in determining the level of intellectual development. Speech or language performs the function of providing signals for: normative roles for objective reference; semantic roles for giving meaning; communicative roles for relating to one another; and regulative roles for directing or controlling behaviour (Beiswenger, 1968). Thus the regulative roles of language, contribute much to the shaping and upgrading of intellectual development (Wertsch, 1982, 1985b).

The vital role of language in cognitive development implies that it can be used as an important vehicle for teachers, parents and competent peers to help the learner to develop. It indicates the level of verbal regulation that should be used for bright and dull children. The research done by Portes (1984) with elementary high and low achieving students and their parents shows that intellectually advanced children engage in egocentric speech more than low achieving children do when confronted with difficult problems. Other regulation helps the child learn how to learn by modelling strategies for understanding information and using it to solve problems. The implication of this theory of verbal regulation is that children's poor performance can be improved if they are intensively exposed to the method and contents of the teaching of a high performance child. The following studies support this hypothesis.

The study undertaken by Schubert and Cropley (1972) underlines this point. A comparative study was done on the performance of Indian and white children in Canada. From the initial low IQ level, the Indian children improved their score (performance level) after being exposed to the materials and methods of teaching of
White children who could perform well. Unfortunately, most school curriculum and methods of instruction neglect and even ignore the efforts to develop these aspects. This results in further disadvantage for those students who perform poorly.

Research on peer collaboration has shown that interaction with a more competent peer can be highly effective in inducing development. Tudge (1990) claims that during the last fifteen years scholars working within Piagetian framework have developed a model relating collaboration to cognitive development, in which the mechanism promoting development is "cognitive conflict" or "socio-cognitive conflict" (see, e.g. Ames & Murray, 1982; Perret-Clermont, 1980). Research based on this model has indicated that social interaction between peers who bring different perspectives to bear upon a problem is a highly effective tool for inducing cognitive development. The task that has commonly been used is conservation. In a study done by Murray (1982) in which a nonconserver is paired with one or more conservers to reach an agreement on conservation of liquid, more than 80% of nonconservers attain conservation in discussion with peers, compared with only a 50% success rate in normal training studies. However, not all instances of collaboration between children feature the expert-novice relationship (Tudge, 1990).

Forman and Cazden (1985) argued that peer tutoring is different from peer collaboration in the sense that peer tutoring resembles common classroom activities, such as reading, filling in worksheets, editing and so forth. In peer tutoring usually one child knows more than the other and is expected to act as a peer tutor. This study is not focusing on peer tutoring. This study is related more to peer collaboration because the children were at the same level and they worked mutually as equal partners to produce something. Azmitia's (1988) study showed that 5 years old children can provide appropriate scaffolding and transmit the necessary knowledge during task construction that involved reproducing a lego model.
Wertsch, et. al. (1979, 1980) examined the effects of using non-verbal and verbal regulation in mother-child relations in problem solving situations. Different levels of verbal regulation applied to a child will result in different levels of competency of the child. The ability of the child to perform is enhanced when a child is given help through verbal guidance especially in certain critical areas of tackling problems. Older children that have acquired and internalised relevant verbal skills in previous social interactions will benefit more since they will be able to understand better and proceed faster on their own.

Teachers and parents are effective agents in the cognitive development of a child. The interaction, guidance and regulation by them with the child will enhance the child's ability to understand. The child will not only learn the language and verbal expressions but also ways to manipulate and utilise them as semiotic tools to form concepts and ideas as well as to plan for action.

Halliday (1978) explains this in two perspectives, language as behaviour and language as knowledge. These are indirectly extended by the concepts of register and dialect. Language as knowledge encodes school subjects, so that the language of maths (the lexico-grammatical focus of language used when doing maths) does not simply reflect the maths but, in a sense, is maths. The register of maths, as language, encodes and symbolises knowledge. Language as behaviour is related by accents and dialects (at least in English) to the hierarchical structure of social classes. Different social classes use different social dialects so that use of any particular dialects places the speaker in the social hierarchy. Children, through observation and parents' and others' comments on how to talk to different representatives of social groups, come to understand this. Thus, through talk, social dialects give, over time, a broad picture of social structure; a child comes to know his or her position within the social hierarchy. Dialects thus symbolise society and children are socialised into their social identity. Register and dialect work together to come to symbolise knowledge and
society respectively. These insights are of fundamental importance for the role of language in cognitive development and socialisation.

The child's ability to learn the full value of the tools will depend on the nature of the interaction. This concept contrasts with Piaget's concept of readiness based on level of biological maturity. Vygotsky considered the process of interaction as the main factor without pointing either to the child or the teacher as being defective in performing the teaching-learning functions. The adult needs to readjust his approach in the interaction with the child. However, the effectiveness will depend on the adult or teacher's assessment of the child's level. In the process, the child will learn the language, 'know what', complies with the instruction, 'do what' and also retain the 'know how' within himself that will be appropriate to situations later on. The effectiveness of the transfer of the intellectual 'know how' depends on the supply provided by the adults or teacher and the corresponding demand by the child. If adults make a wrong assessment and assumption about the child, what is supplied will not be matched and will result in wastage, and the process cannot be optimised.

2.3.3 The Relationship between Speech and Thinking

Gardner (1993) viewed intelligence differently from the traditional definition of intelligence. He defines intelligence as the ability to solve problems, or to fashion products, that are valued in one or more cultural or community settings. He located intelligence in seven dimensions which have equal claim of priority. The seven intelligences are linguistic, logical-mathematical, spatial, musical, interpersonal and intrapersonal and bodily-kinaesthetic. So the purpose of school is to develop these more needed multiple intelligences and to aid people reach vocational and avocational goals that are appropriate to their specific spectrum of intelligence. This is the recent development of how intelligence is seen but it seems that Vygotsky looked at one dimension (linguistic) of the theory of multiple intelligence as described below.
Vygotsky expressed the importance of thinking and speech in his first sentence of his book 'Thought and Language'. He noted that 'the study of thought and language is one of the areas of psychology in which a clear understanding of inter functional relations is particularly important (Vygotsky, 1978, p. 1). The test of performance of a child is not before but after he has been adequately exposed to teaching. Thus, intelligence is the potential within the child that can be developed and not only the total cumulative body of past learning. It is not how much the mind has 'taken in and digested' but how much it can 'bite and chew'. Therefore, the interaction process is important in teaching in order to realise the potential that can be developed.

The early interaction of a child with the physical environment will result in the acquisition of knowledge to cope with the environment developing visual, spatial and motor knowledge. The process at this stage can be understood in terms of Pavlov's basic learning model of symbols and sounds. The second signal system will develop after speech and language ability is activated. The basic first signal system and the second signal system will interact with the environment and other individuals to accumulate new knowledge and experience.

Vygotsky (1962) believed that speech and thoughts have different and independent origins in young children, although he noted that at first, while thought is non-verbal and speech is non-intellectual', their lines of development eventually meet where 'speech becomes rational and thought becomes verbally expressible'. These two elements will therefore gradually converge in verbally expressible thought and become rational speech. Thoughts are not words but can be conveyed and transmitted via words. Words and speech are essential vehicles in furthering the development of thought.
Vygotsky (1962) held that there are two aspects of speech, namely internal and external speech. Internal speech begins as a whole block that then breaks into small precise parts. In contrast, the external speech begins with one word and is then expanded to become sentences. Cognitive development occurs in inverse relation to the speech development. It begins as a homogeneous whole and gradually breaks up into refined specific parts.

The problem solving and intellectual ability of a child are the functions of a control process and regulatory skills that are acquired through social interaction (Vygotsky 1978, Wertsch, 1985b). The verbal regulation capacity underlies the intellectual ability. It is obtained from external sources especially when the children interact with adults. In Vygotsky's view, the child's intellectual ability is initially induced by outside agents but gradually comes under the child's own control by the interaction process. During this process, the child copies, practices, adjusts and eventually adopts the tools. Language is the cultural or semiotic tool, the instrument that makes it possible for complex cognitive process to operate. Eventually, it contributes to the intellectual development of the child (Vygotsky, 1978, Wertsch, 1985b, 1995). Wilson (1995) commented that over the last decade the important relationship between language and learning has been increasingly and effectively acknowledged. Classroom methodology has change significantly to allow for a more active involvement by the pupil and a great interest in what she or he has to say (1995, p. 265).

In order to develop the ‘Enhanced Classroom Interaction’ approach the researcher had to adapt some of the key concepts that have been extended by Vygotsky's exponents and later scholars, as described below. It is worthwhile to remind the reader that the researcher selected only some of the neo-Vygotskian developments which are generally related to the focus of tasks and interaction with young children in order to develop the theoretical background of the ECI. There are many other neo-Vygotskian scholars but the researcher felt that these followers below are more
resourceful in understanding certain concepts related to the purpose of this study. Burgess (1990) has made the critical point that Vygotskian ideas have been interpreted differently by different scholars partly because of the sequence in which his translations reached the West.

2.4. Neo-Vygotskian Theories
The work of Vygotsky became widely known when 'Thought and Language' was translated by scholars in Cambridge, Massachusetts, in 1962. This was promoted by Bruner in the 1970s, amongst others. It was taken seriously after the English translation of 'Mind in Society' was published in 1978 (edited by Michael Cole, Vera John-Steiner, Sylvia Scribner and Ellen Souberman). The vast changes in the world since the 1930s had created conditions for a more receptive audience amongst Western scholars for the materialist, social-cultural perspective on human development in general and on the development of thought and speech in particular (Newman and Holtzman, 1993). Vygotsky's ideas were not taken up earlier because most of his publications were officially banned in the then Soviet Union because of political situation of the period (Luria, 1976). The Cold War atmosphere was not conducive to the translation and dissemination of Soviet ideas in America and the West, until the 1970s or later, and even though parts of Vygotsky's research were communicated to the West when Piaget was in dominance, his theories have yet to be properly evaluated (Newman et. al. 1989; Van Der Veer and Valsinar, 1991). His theories were well received in the 1980s and 1990s because of the socio-political changes occurring in the institution of human science research and in the USA, the applied social sciences in the field of child development, education and literacy are no longer considered inferior to the pure sciences. After the failure of President Johnson's war against poverty programme, the USA government reduced the allocation for research funds and demanded for more practical justification and benefits for providing funding. As a result, many pure social scientists had to turn to applied research and many were concerned about the prevailing severe social
problems in education and in society in general. Some of them were searching for a relevant theoretical framework that was more socially based and that could reduce, if not eradicate, these social problems. During this period, many psychologists, linguists, anthropologists and educationists working with the Vygotskian tradition came to prominence. Vygotsky's message of the role of the 'social order' in child development fitted into this American education context where Piaget-ascribed individual learning of pupils which seemed dependent on 'readiness' and maturation in fixed sequences was threatening the authority and control functions of the teacher (Van Der Ver and Valsiner, 1994). The theories rapidly gained international recognition. Publication of Vygotsky's writings and works proliferated after being suppressed in the Soviet Union. This revival has facilitated the entrance of Vygotsky, the radical Marxist psychologist, into the mainstream of psychology (Newman and Holtzman, 1993). Ironically, this has been popularised in the West just as Marxism (or communism, at least) has been widely discredited in Russia and Eastern Europe.

Bruner's influence was amongst the first in introducing Vygotskian psychology to the West through his essays (e.g. Bruner, 1962). Scholars such as Leont'ev (1981), Wertsch, (1985) Tharp and Gallimore (1988), have applied the concept of the ZPD; Newman et. al., 1989; Wells and Chang-Wells (1992), Rogoff (1990, 1995), Moll (1990) extend the idea of construction and sharing of knowledge together, while Lantolf and Appel's (1994) stress Vygotsky's ideas with relevance to second language acquisition. The next sections examine major examples of neo-Vygotskian developments in more detail by focusing on individual scholars and their work, together with the present researcher's comments.

2.4.1 Tharp and Gallimore's Concept of the Paths Through The Zone
They explained how the individual was assisted by others to change his role from dependence on assistance to self regulation through the ZPD. They extended Vygotsky's idea of ZPD into their own model (Tharp and Gallimore, 1988, p. 35).
This process does not occur abruptly but proceeds in gradual stages. They have presented the progress through the ZPD in a model of four stages as shown below in his figure 2.2.

The genesis of a performance capacity: Progression through ZPD and beyond

Figure 2.2 Tharp and Gallimore's Diagram of Stages of ZPD (1988, p. 35)

a. **Stage 1: Performance Is Assisted by More Capable Others**

The 'learner', i.e. a child, has to depend on a capable 'teacher', i.e. an adult, before he can perform a given new task wholly on his own. The kind and extent of the help required from the adult depends on the age of the child, the stage of learning for a particular concept, and the complexity of the task. In other words, the input by the adult depends on the span and dimension of the child's Zone of proximal Development and the rate of progress made by the child in a given task context. Or, more exactly, it depends on the adult's assessment of the ZPD and subsequent strategies for helping the child work within this zone.
At the initial stage, the child is ignorant or has very limited information and perception of the situation, the task and its purpose. On the other hand, the adult should have a very good idea of the global situation of the task before she can guide the child through an explanation, demonstration or instruction. The child responds by understanding instructions, complying with them or imitating actions demonstrated by the adult. The adult has to have a very good grasp of the task to be performed or the subject matter to be conveyed. The adult should be able to recognise and readjust to the shifting goals of the child and to help the child set or adjust his goals. Such competency is essential before the assistance can be effectively given.

In practice, of course, there is a difficulty with the application of Tharp and Gallimore's model. There will be many scaffolds for any particular child at any particular time each scaffold being related to a particular concept or task. The situation is thus more complex in practice than Tharp and others (see later sections) make it appear. This stage 1 of ZPD, as expounded by Vygotsky, can be related to the broader psychological concepts used in the United States and the United Kingdom.

b. Stage II: Performance is Assisted by the Self Level
During the above stage 1, the task is done concurrently i.e. partly by the child and partly by the adult. The adult is not 'spoon feeding' the child but prompting, inducing and provoking the child's own ability to cope with a particular activity. From the beginning the adult's goal is that the child should be challenged within the ZPD and moved towards independence. This enters into the second stage of 'Do-it-yourself' when the child is able to take over and perform the task entirely on his own. The second stage can be differentiated from the first stage where the 'joint-venture' efforts in performing a task are taken over to be operated entirely by the 'junior' partner as a sole proprietorship. In the context of Vygotsky's theory, learning moves from the
'inter psychological level between two individuals' to the 'intra psychological level within one individual'.

At the second stage, the child has liberated himself from the control of and dependency on outside assistance. This ability to carry out a task entirely on his own implies that the structures and make-up of thoughts, language and instructional hints by the adult have been internalised. Instead of being guided by the remote control mechanism, the child has developed himself to be self-guided. This is analogous to launching the rocket to exit the earth's gravity and reach the atmospheric level where it can maintain its own momentum. As the rocket leaves the earth, less power from the booster is required for propulsion and the space craft maintains its own momentum.

c. Stage III: Performance is Developed, Automated, and 'Fossilised'
When the stage of self-regulation is over, the child has developed his own capacity and escapes from the zone of proximal development of a particular activity. This is shown by his competency and ability to perform the task without any outside help whatsoever.

In fact, outside assistance at this stage is considered as a nuisance and has a disruptive effect under normal control. When a child knows how to do something well, he detests any help offered, treating it as unnecessary interference. This stage may even surpass any deliberate regulation or control even from inside the individual and it has become internalised and automated. If the child becomes conscious of outside or internal control, the performance of the task is impeded or disrupted. For example, a learner driver will come to the stage when the handling of the steering, gears, accelerator and brake are performed automatically seemingly 'without any thinking'. Vygotsky termed this stage as the 'fruit' of development that is the final or end product of the teaching-learning process that had earlier occurred in the zone of
proximal development. He also described this stage as being internalised or 'fossilised,' that is fixed and not easily affected by change. The dynamic and complex condition of learning needs to be recognised as in figure 2.3 (according to the present author).

![Figure 2.3 The Dynamic and Complex Condition of Learning within the ZPD.](image)

As one aspect of learning becomes automatic, other aspects are still within the zone of proximal development, while yet others are not yet even within the zone. Vygotsky's zone of proximal development can thus be visualised as a series of overlapping waves related to different concepts, or even to increasingly sophisticated aspects of the same concept (see figure 2.3) which is the present author's interpretation. This image has the advantage of portraying the dynamic changing nature of the Zone of Proximal Development, rather than seeing it in static, 'ages and stages' terms. It also implies a constant monitoring by the teacher to ascertain the relevant ZPD for a given concept before allocating learning tasks.
d. Stage IV: Performance is De-automated and Recursive through the ZPD

The learning process undergone by any individual consists of the above three stages in the zone of proximal development. It proceeds from the stage of under development that requires outside assistance to the stage of development that is self-regulated and self-sustained. This process will repeat itself when a new activity and capacity are learned and new skills are required. Therefore, an individual will be at different stages of externally regulated, self-regulated and fully automated for different activities or skills. For a child, the full acquisition of one skill will be followed by the effort to obtain other new skills and he will need the help of others in the new areas. Using the analogy of the computer, it will continue to be upgraded by installing a new system, programmes and software packages so that a new range of computing capabilities is developed to become a more powerful computer.

Even when a concept or problem-solving activity is fully developed, there is a tendency to forget and experience lapses in the memory. An individual of advanced age who has developed many skills will one day become senile. This 'senile' stage is a common occurrence that is recognised as stage IV of the process known as de-automation or recursion. This can happen as a result of only a slight change in the environment or when stress is placed upon the individual. Major disturbance or shock will have a more significant impact. As a comparison, the programmes and software packages installed in a computer will be 'corrupted' (inoperable) if there is a scratch in a hard disk, and worse still if it is being attacked by a computer virus or has experienced a system crash.
2.4.2 Newman, Griffin and Cole's View of the Construction Zone

Newman, Griffin and Cole (1989) propose an extension of the concept to ZPD that they call the 'Construction Zone' (This continues the building metaphor of 'scaffolding'). Generally, they focus and explore on the processes and dynamics that occur within the zone in order to ensure the desired outcome. When people with different goals, roles and resources interact, differences in interpretation provide occasions for the construction of new knowledge. Changes take place in socially mediated interactions that, following Vygotsky, is called the Zone of Proximal Development. 'Our theory is concerned with the outcome and direction of the change. Cognitive change does not happen in a closed, determined system. Productive change is possible, as is change for the worse, depending on the constructive process in the zone' (Newman et al. 1989, p. 2). The Construction Zone was summarised as 'a magic place where the minds meet, where things are not the same to all who see them, where meanings are fluid and where one person's construal may pre-empt the other' (Newman et al. 1989, p. ix). Vygotsky identified the market place where the ideas of the teacher as well as the learner interact within the construction zone. Newman et al. (1989) explored how the interaction and transaction occur, that is, how it is offered, negotiated, bargained over and finally traded.

The process that occurs in the construction zone can be illustrated by how the teacher and the child interact with each other in the classroom environment. The teacher introduces a topic and the child responds by giving an answer to the question or even putting forward a question. The teacher will react by affirming or negating it. The child may modify his ideas or put forward a question to the teacher. The actions taken by the teacher and the child will be a mixture of giving information, feedback and social management. The verbal transaction will continue until some form of common ground is established and the objective of the teaching-learning process is attained.
This process that occurs in the construction zone is somewhat similar to a brainstorming session where ideas are poured out freely on a particular issue. The participants are free to express themselves and none is right or wrong. The objective of the exercise is to consider all possible views that the participants are capable of and to derive the most appropriate solution to a problem. In the process, the problem or task gradually crystallises from a fuzzy concept of a range of seemingly unrelated ideas to a more definite form, according to a given framework or methodology. The meeting of the minds is also discussed in the Delphi method (Linstone Murray Turoff, 1975) where the ideas and thoughts of experts of equal competence interact in order to arrive at a commonly agreed view of a particular issue. This is done in stages until a common view is derived from the initially divergent views of the participants. However, it should be recognised that the brainstorming method and the Delphi method are usually done at a higher a level of management or policy analysis or strategic planning exercise, not with pre-school children.

On the other hand, the engagement of the teacher and the child in the discourse and exchange of ideas in the construction zone, conducted in the classroom, is done at a lower level. Nevertheless a similar process of offering ideas, divergent and convergent views, getting feedback, sharing conceptions among the respective participants, does occur at the rudimentary level. Furthermore, such processes occur where the teacher is necessarily more competent than the child, and the objective of the interaction is to transmit and transfer a particular cognitive skill to the child. Therefore, the teacher has at times to go down to the child’s level of thinking and occasionally to bring the child’s thinking up to the higher elevation of the teachers. What is central in this construction zone is that all participants are playing the role of equal players, yet the better player (i.e. the teacher) aims at helping the less competent player. The strategies, tactics and methods of handling the process in the construction zone are geared to produce a positive cognitive change in the child. On
the other hand, the construction zone should be contrasted with the 'playing field' where the participants in a game are matching their skill with one another with the aim of beating the other players and they are in fact in the 'competition zone'. Therefore, the tactics, process and strategies involved will be entirely different as it serves a different objective.

The notion of 'equal players' will, it is expected, be somewhat difficult to practise in Malaysia because there is a stronger sense of a vertical structure of authority which is definitely top-down, from the teacher to child. Traditionally, and still today in many or most classrooms, teachers tell children rather than both being equal participants in interaction.

2.4.3 Leont’ev’s Notion of Appropriation

An idea related to Vygotsky’s socio-cultural theory is the concept of "appropriation" that was offered by Leont'ev (1981) and further developed by Newman et. al., (1989). The possible origin of the term appropriation can be traced to the materialistic deterministic framework where the concept used is the appropriation of the surplus value created by the interaction of labour and capital. In the context of the learning process, it is stated that the child appropriates his understanding through cultural contact with other individuals (Mercer, 1994). The perception of an object by a child is based mainly on a social history and functions that were not acquired entirely on his own but through the interaction and assistance of others. This concept is applied at various stages of human development. At the early child stage, his initial contact with objects is a cultural experience and subsequently his understanding of it depends on the culture. Therefore, the child is appropriating the meanings of an object in the context of his culture. During the schooling stage, the child is appropriating the ideas and concepts prevailing in his society. This process of acquisition of knowledge is happening during the teaching and learning interactions where common ideas are shared and their differences are resolved. This concept of
appropriation can also be theoretically associated with Bakhtin's theory (1981) which stated that spoken and written text represents the accumulation of the voice of more than one person. The elements of a materialistic deterministic framework can be clearly detected here where capital is defined as the accumulation of the surplus value created by labour. This concept is relevant to the study of the classroom transactions and exchanges where it is not only confined to the simple process of taking the knowledge by the learner from the teacher but it involves a complex two way process (reciprocity).

The image of 'appropriation' fits the 'apprenticeship' model and the 'handover' principles of 'scaffolding', showing a broad consistency between many of these neo-Vygotskian developments.

2.4.4 Bruner's Concept of 'Scaffolding' and 'Handover'

Bruner (1976, 1978, 1983) and his colleagues used 'scaffolding' as a metaphor that was shaped by Vygotsky's theoretical ideas. This refers to the special ways in providing interactive support that adults and competent peers offer learners. Below is the example given by Bruner (1978) showing how the adult elaborates and expands upon children's early attempts to use language, thereby facilitating effective communication at a level somewhat beyond the child's actual linguistic capability.

Child: "Mommy, birdie!"
Mother: "Yes, there's a bird outside on the fence, isn't there?"

In the reply, the mother seems to understand the child's meaning and expands and elaborates the child's topic. Similarly, it is good if teachers of young learners provide a scaffold to the learner, unconsciously modelling linguistic and conversational patterns through natural interaction with the learner.

Wood, Bruner and Ross (1976, p. 98) describe six functions of the tutor in 'scaffolding' a child's performance:
i. Recruiting the child's interest in the task as it is defined by the tutor.

ii. Reducing the number of steps required to solve a problem by simplifying the task, so that the learner can manage components of the process and recognise when a fit between task requirements and the child is achieved.

iii. Maintaining the pursuit of the goal, through motivation of the child and direction of the activity.

iv. Marking critical features of discrepancies between what the child has produced and the ideal solution.

v. Controlling frustration and risk in problem solving.

vi. Demonstrating an idealised version of the act to be performed.

At the initial stage, the child's goal in undertaking the task may not be clear to the child (or to adult). It may be different from the way the adult perceives the goal of the activity. The adult may not be able to comprehend the actual motive or the goal of the child. However, in the process of performing the task, the goal of the child will gradually emerge but it may change as the adult continues to interact with the child. The adult has to be flexible to adjust to the changing goal of the child through assessing the response, and the progress as feedback from the child. The adult may also set the goals for the child, and adjust them as the learning proceeds. This could be seen as a temporary step in getting the learner to set his or her own goals. The child who at first is rather ambitious towards a goal will make the discovery during the interaction. The child's goal will shift and adjust according to the amount of assistance received from the adult. This process of mutual and gradual adjustment should be within the control of the competent adult.

There are various ways and means to implement the process of other regulated and self regulated performance. The assistance given can start as an elaborate effort and may be provided with high frequency. This occurs at the stage where the child is relatively ignorant of the task. In a later stage, the assistance given is much reduced.
and it is given on the basis of the child's need. As the child begins to demonstrate his independent ability, the adult will gradually withdraw assistance and only supplement and complement the child's activity when necessary. The adult will encourage the child to take greater responsibility and to participate more in the exercise. Figure 2.4 below shows the "handover" point between the adult help and child competence (according to the present author).

Figure 2.4 The Handover Stage from Teacher Support to Child Independence

The relationship between the amount of assistance provided by the adult and the performance by the child on its own is inversely related. This 'give and take' of the knowledge and the ability between the adult and the child is gradually transferred when the adult has 'handed over' while the child has 'taken over' the know how of the task. The 'handed over' task of the adult will gradually diminish with the increasing 'take over' by the child. An example can be cited here in starting the engine of a car:
the initial power provided by the battery to move the piston in the engine is gradually taken over by the power generated by the internal combustion system within the engine itself. The whole process will take place when the battery is well charged while the mechanical and electrical conditions of the engine are at the level to operate the internal combustion.

Bruner (1983) characterised scaffolding in language development as the adult acting on the motto 'where before there was a spectator, let there now be a participant' (p. 60). That means the responsibilities are handed over to the child and that the child can solve the problem on his own after the teacher has given enough assistance.

However the components of 'scaffolded learning and teaching' need to be balanced. One advantage of really good scaffolding is that the teacher teaches the learner not just knowledge or strategies, but also how to be a scaffolder or a 'self-running problem solver' as commented by Meadows and Cashdan (1988).

2.4.5 Wells and Chang Well's Emphasis on Constructing Knowledge Together
Wells (1992) has recently expounded new ideas of constructing knowledge together. Wells noted that a child is an active learner. The child can learn much better if a competent adult is there to attend the child or if the two work collaboratively. From the learner's point of view, it is through participation in interaction in the context of problem solving with adults that they encounter the meaning-making resources of their culture and stretch their understanding to find common ground with their more skilled and knowledgeable interlocutors. Wells summed this up in Vygotsky's aphorism 'what the child can do today with help, tomorrow he will be able to do alone' (Vygotsky 1978, p. 87). This aphorism is entirely appropriate to current British ideas of education related to learner autonomy and independence. Although such ideas have only recently been discussed in the Malaysian context, they also fit the
country's current drive for modernisation and the spirit of the Vision 2020 so that Malaysian teachers may well identify with Vygotsky's phase.

Wells and Nicholls (1985) also developed a notion of learning through language. He argued that language acquisition and development is encouraged by four factors in early years education. First, there needs to be a partnership between child and adult. Second, children need to be active in their learning. Third, it is important that children should be allowed to make errors. Finally, there is a need to negotiate shared meaning through discussion. Verbal communication is held to be vital to the development of thought and as such is an important skill. Adult/child relationships are also recognised as an important aspect of language development (1985, p. 18). These factors are, of course, entirely consonant with neo-Vygotskian approaches.

2.4.6 Rogoff's View of Development as Apprenticeship and Guided Participation

Rogoff (1990) shared the idea that 'novices' need an 'expert' to guide them. The idea of shared solving-problem with an active learner participating with a more skilled partner is central to the process of learning in apprenticeship. She also stressed the importance of other features of guided participation such as having routine activities, tacit as well as explicit communication, the supportive structuring of the 'novice's' effort, and the transfer of responsibility for handing skills to the new learners. 'Novice' here refers to young learners who really are in need of help. 'Expert' refers to trained teachers and others more skilled, such as the child's older or more advanced peers. Learning could occur when the child works with others or through peer interaction.

Rogoff (1984, 1995) applied the term 'guided participation' to the interpersonal plane of sociocultural analysis. It stresses the mutual involvement of individuals and their social partners, communicating and co-ordinating their involvement as they participate in socioculturally structured collective activity' (Rogoff, 1995 p. 146). She
explained that during face to face interaction, the concept of 'structuring the situation' is applied. It means an action that requires the adult carefully to scan the environment and assess the child's initial state vis-a-vis the task to be performed or knowledge to be acquired. If the assistance given is too high as compared to the level of the child, it may be ineffective, not helping with the child's performance. On the basis of such assessment, the adult can select a suitable type of task, tools and materials to be used as the appropriate package of the assistance for the child. In addition, the adult will also use other strategies, ways and means to facilitate the teaching process.

'Apprenticeship' has been used as a metaphor in language development (Miller, 1977; Wells, 1979, 1992; Bruner, 1983; Adam and Bullock, 1986). Also in the teaching of reading (Waterland, 1988; Body 1989), where the teacher reads side by side with the child. The teacher who is skilled gives support and is a model to the child. It is an appropriate metaphor because it involves the process of prolonged observation, tutoring, acting under guidance so as to achieve mastery.

Unfortunately, in a British context at least, the metaphor has overtones of a traditional transmission model of learning which is at variance with the basic constructivist interactionist approach of the neo-Vygotskian movement. In this sense, the apprenticeship metaphor is inappropriate for Britain. However, in Malaysia the apprenticeship metaphor may have more resonance with more traditionally-oriented teachers. These, in turn, are likely to find the interactionist emphasis harder to assimilate.

2.4.7 Wertsch's notion of Transition from Inter psychological and Intra psychological Functioning.

Wertsch (1980, 1985b) developed the concept of inter psychological and intra psychological which was expounded by Vygotsky (1978) and demonstrated in
concrete examples which involves putting together a jigsaw puzzle in the presence of the adult. His focus was on the object, that is: 'the pieces', 'the copy', and 'the model', and the goal-directed action by the adult. There are three strategic steps in the goal directed action of the adult's definition of the situation: (Wertsch 1985b, p. 162).

i. Construct the models to determine the identity and location of the next piece needed.

ii. Select the piece identified in step one from the pile of pieces.

iii. Add the pieces selected in step two to the copy.

In the process of applying the three strategic steps during the jigsaw puzzle task Wertsch (1980, 1985b) proposed that there are four levels of transition from the inter psychological to the intra psychological in his study of American mothers interacting with pre-school children. The first level of the child's situation definition is quite different from the adult. The adult may try to direct the child through the strategic steps above, but the inter subjectivity (in which interlocutors share some aspect of their definition of the situation) does not occur at this level because the child's definition of the objects involved is different. So communicating on the basis of the adults perspective was impossible.

At the second level of inter subjectivity, the child seems to share the basic understanding of the object setting and is generally beginning to participate in the task setting, but the child still does not understand the nature of the goal-directed action and of any disagreements with the adult.

At the third level of inter subjectivity, the child is able to respond appropriately to other regulation by making inferences to interpret the adult's directive. At this level even though the process is still carried out in the inter psychological plane, the intra psychological functioning has begun within the child. The adult is no longer needed
by the child because he is functioning independently and the adult presence is simply
to provide reassurance that what the child is doing is correct.

At the fourth level, the child is identified as in the transition stage from inter
psychological to intra psychological functioning. The child takes over the complete
responsibility to carry out the goal-directed task.

According to Wertsch the development of the higher mental functions is the result of
internalisation from social interaction. He also pointed out that the joint problem
solving was characterised by an adult orienting children to the overall goal from the
adult perspective and focusing children's attention and actions on the steps required
to handle the sub-goal of the problem. The adult takes the responsibility for managing
and segmenting the problem-solving effort. 'Adult' here refers to a parent, a care
taker or teacher, or even, as suggested by Vygotsky, an intelligent partner (Vygotsky,

2.4.8 Lantolf and Appel's Work in Second Language Acquisition

Vygotsky's theory has also been applied in research on second language acquisition.
This has been carried out mainly in the Soviet Union but less in the West because of
less exposure to the theory. Most of the research done was in the light of the
traditional approach. Lantolf and Appel (1994) concluded that the second language is
developed by 'piggy riding' on the first language acquisition that acts as the host
server, where the pattern of the inner speech was developed earlier. In fact, the first
language of the learner acting as the mediator is a major element in the process of
acquisition of the second language. Therefore, the analysis of the nature and
dynamics of this inner language will provide insights into the process of the
28).
An original study of private speech in the second language was undertaken by Frawley and Lantolf (1985) who claimed there is an inverse relationship between the first language and the second language i.e. as the learner's proficiency increases in the second language their use of private speech decreases. Lantolf used a schema that utilises the concept of time and distance to show the difference in the performance among different groups. The tense used depended on the concept of distance (the sense of remoteness versus proximity in the mind of the speaker). When a person is able to distance himself cognitively from a specific object stimulus, it indicates his ability to gain some control over it. Lantolf postulates that the use of the past tense indicates the effort to go away from the object and attempt to achieve self regulation. On the other hand, the use of the progressive tense indicates that the person is conceptually very close to the object and responds directly to it. Finally, when he is able to use a temporal present it indicates the attainment of full self regulation.

In Britain, Willis (1981) and McLaughlin's (1980) research showed that the use of mother tongue by those children whose English is not their first language will help the child to acquire the new language. As a result, many schools in the UK make provision for children to meet different teachers who speak their mother tongue. This has never been practised in Malaysia by the Chinese or Indian children using the mother tongue in acquiring Bahasa Malaysia.

2.4.9 Moll and Greenberg's Concept of Funds of Knowledge
Moll and Greenberg (1990) believed that the social sharing of knowledge forms a vital element of the functioning of the household. The study was built on the idea that to develop a classroom pedagogy one must fully understand the way the students households express their pedagogy. The findings emphasise the social relations that connect households to each other and facilitate the transmission of a 'fund of knowledge' among participants. This resource, termed the 'funds of knowledge', can be taken, modified and utilised for classroom instructions and it can assist enhancing
the skill and development of the student, teacher and parent. The introduction of this 'fund of knowledge' or teaching materials into the classroom should be mobilised with the aim of developing new and more advanced activities for the student.

The idea of parental involvement in British schools can be associated with this idea where parents assist the child in the class. The pre-school annexe in Malaysia is similarly trying to encourage parents to be involved in the pre-school.

2.5 Limitations and Difficulties of Vygotsky's Theory and neo-Vygotskian Theories

Van Der Veer and Valsiner (1994), commented that the 'blind spots' in the understanding of Vygotsky led to the depiction of his followers as opponents. One example is Piaget's theory of egocentric speech which is viewed as irreconcilable with Vygotsky's 'the individual developing person'. Another point to be made is that the social setting (mother-child relationship and dialogue; teacher-children, solving problems together) is often attributed to Vygotsky although it is by no means relevant to his orientation. Vygotsky's field is more to do with culture as a promoter of thought. Smagorinsky (1995) ascribes this to translation problems. For example, 'a single text, Myshlenia i Rech Psikhologicheskie Issledovaniya (Vygotsky 1934) has been translated three different times under two different titles (Vygotsky, 1934/1962, 1934/1986, 1934/1987). Smagorinsky also pointed out that different viewpoints also play a role in the misinterpretations of Vygotsky's position. Moll (1990) for instance, sees it as sociohistorical psychology, whereas Wertsch (1994) considers it as socioculturally-oriented.

The research undertaken by Vygotsky did not cover any detailed analysis of classroom interaction. As such, Vygotsky's theory per se is not directly derived or applied to the teaching conducted in the classroom (Moll, 1990; Mercer, 1994). However, the main components of his theory stating that the human thought is
determined by human language, and that cultural development occurs as the result of the interaction between the mature and the primitive culture (where the latter is characterised by the behaviour of the child) can be clearly related to classroom learning. Therefore, Vygotsky provided the theoretical basis that is applicable to teacher-pupil interaction in the classroom. This has, in fact, provided the launching pad for the generation of studies of classroom teaching by many neo-Vygotskian proponents who focus on the key components of teachers and talk in the classroom environment.

It is rather difficult to trace the origin of the concept of ZPD. "Rather surprisingly, Vygotsky stated that the concept of ZPD was not original, a statement that has been eagerly quoted by early and later critics" (in Van de Veer and Valsiner, 1991, p. 347). It is noteworthy that Vygotsky's theory, particularly the concept of ZPD, may originate from the adult-child interaction. References were made by Vygotsky to American writers, namely, Meumann's and McCarthy's studies, where the interaction of a child with adult had led to a better development of the child. This component is similar to the notion that assistance by competent individuals can stimulate more speech. However, it is very different from the whole concept of ZPD as expounded by Vygotsky. Generally, the actual relation between the two concepts was rather vague, and redolent of the time when not much was known about Vygotsky.

Neo-Vygotskian theorists often write as if the teacher is working with a single child in the classroom. In reality, there may be thirty children, all with their different ZPDs in relation to different tasks and different areas. Arguably, this may constitute a real difficulty with a whole-class application of the theory. Nevertheless, the idea is still very useful to the teachers and adults, especially with small groups.

The concept of ZPD was developed by Vygotsky within the general framework of the Soviet socio-economic system. It provides an alternative perspective on human
development and learning that is entirely different from other current Western theories. Since the theories and concepts were not developed in isolation (Mercer, 1992), the basic tenets of the materialistic deterministic concepts that form the foundation of the system permeate or even underline the ZPD concept itself. This may not be so transparent to those who have had no opportunity to be exposed to materialistic deterministic theories but it is very apparent to those who are familiar with it. As such, Vygotsky's theories, the ZPD concept and process, were propounded to function well within that socio-political framework (Newman and Holtzman, 1993). Therefore, an attempt to pick and transplant it into a different socio-economic system may not be conducive to the full operation of the approach since it always insists on the holistic approach. What is noteworthy is that the recent collapse of the system in the USSR and Eastern Europe seems to imply that it is not an appropriate approach for political and economic development. What guarantee do we have that the derivative from the demised system is still workable in the development of psychology and education? One way of ascertaining the question of transferability of theories and approaches is to try out the approach in a different context. The present research attempts this on a small scale in Malaysia.

2.6. The Significance of Vygotsky's Theory and Neo-Vygotskian Theories for the Malaysian Context.

These theories are widespread and increasingly applied in Europe and America, even though Vygotsky's first writing was translated and published in the West in 1962. Most of the recent research that has developed neo-Vygotskian ideas and application has been done in America and European countries. Applying the new theory outside Europe in a developing country is an innovation, though this follows up, in a way, Vygotsky's own work in Uzbekistan. There do not seem to be any references to applications of neo-Vygotskyan theories in developing countries (especially Malaysia), as far as the researcher knows. Certainly no research in developing
countries is mentioned in any of the works referred to here, although they offer comprehensive coverage of the field.

It is appropriate to develop an approach based on Vygotsky's ideas and neo-Vygotskian developments and try them out in Malaysia because of their general significance, and because there is a need to apply to Malaysian contexts the best latest developments in education, psychology and language from the other parts of the world.

One can deduce that Vygotsky and his contemporaries conducted their research with Russian speakers (and perhaps with speakers of Central Asian languages, e.g. Uzbek). The recent wave of research seems to have concentrated mainly on English speakers e.g. (Greenfield, 1984, amongst others). In the UK in the 1960s, Vygotsky's ideas had already entered the English classroom with the idea of collaborative learning, exploratory thinking of ideas through informal talk, writing as a process, and language through learning (Burgess, 1990). Britton (1970, 1994) was the main interpreter of Vygotsky's psychology in teaching the English language. Clearly, it would be useful to test the theories in non Indo-European language contexts. The present researcher tries to apply the model and theory with pre-school children speaking a non European language, Bahasa Malaysia. There are no published references to this having been done before.

Moll (1990) commented that despite the pedagogical aspects emphasised in Vygotsky's theory and practice very little has been written recently about education with the exception of Tharp and Gallimore (1988) and Newman et. al. (1989) among others. Even though there are few doctoral dissertations illuminating Vygotsky's work related to education none has examined classroom teaching or applied Vygotsky's theory of instruction (Moll 1990, p. 2) with the exception of special education classes in Russia visited by Daniels (1993). Therefore this study is
an attempt to apply Vygotsky's idea in a pre-school classroom through the ECI approach.

In the UK Pollard (1993) maintains that the growing influence of Vygotsky's idea on primary education is beginning to supplant Piaget's work. It could also provide a new legitimation for effective primary school practice in the 1990s (1993, p. 187). Current developments in education in Malaysia, particularly the intervention at a very early age of pre-school education, can, it is proposed, benefit from Vygotsky's theory. At the pre-school level of education, the teaching and learning process can be optimised if the teachers know what to develop and how to develop it. For such reasons the 'Enhanced Classroom Interaction' approach, based on these ideas of Vygotsky and neo-Vygotskian's theory, will be tested on sample pre-school classes in Malaysia.
3. CHAPTER THREE: THE 'ENHANCED CLASSROOM INTERACTION' APPROACH

3.1 Introduction

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3. CHAPTER THREE: ENHANCED CLASSROOM INTERACTION APPROACH

3.1 Introduction

As chapter two has indicated, Skinner (1968) and Piaget (1971), who were outstanding and influential in their own field of research in experimental psychology, have made a tremendous contribution to our understanding of the learning process and far-reaching implications have been drawn from their work as to how teachers should be able to facilitate it. To say at least, their theories of learning are currently the major influences in teacher training in Malaysia. Both of them seem to have regarded learning as an individual enterprise and have given far less emphasis to the socio-cultural aspect of learning. However as, Desforges (1985) pointed out, none of their advice was based on observation and analysis of what goes on in the classroom.

Edwards and Mercer (1987) and Mercer (1995), among others, have contrasted two general approaches in the classroom, namely, the sharing of knowledge (a mutuality of perspective) as compared to the pouring out of knowledge (the imposition of the teacher's knowledge on the blank slate of a pupil's mind). In the latter view, education is seen in terms of formal, traditional and concise styles of teaching which emphasise the acquisition of factual knowledge, accurate recall and 'right-answerism' (Holt, 1969). In such conventional education, teaching tends to consist of one way instruction where pupils passively receive knowledge or instruction from the teacher. As pointed out in chapter two, it is this view which dominates Malaysian pre-school education at present. There can, of course, be variations of degree or kind in this transmission approach, but the general trend is as described. Similarly, Barnes (1975) gave two dimensions of teaching and learning: a transmission and an interpretation view. But to defend an interpretation view of education is not to maintain that
teachers should never share knowledge, but rather to emphasise that certain more interactive patterns of communication should follow the presentation, so that learners can negotiate their own ways of grasping the knowledge. 'Classroom learning can best be seen as an interaction between the teacher's meaning, and those of his pupils, so that what they take away is partly shared and partly unique to each of them' (Barnes 1975, p. 22). This interpretation view, involving the mutuality of perspective and joint shaping of knowledge, can be closely identified with constructivist theories of learning in which Vygotskian concepts play an important role, as chapter two has outlined.

The interpretation view has supported recent developments in teaching, which show a two way process between teacher and pupil, where the children interact verbally by asking questions, seeking clarification and approval. This is seen in studies like those of Barnes and Todd (1977), Tudge, (1990); Rogoff, (1992) and Wilson, (1995) and others who are dealing with small groups and the effect of peer collaboration. Recent communicative approaches to language teaching (Morrow and Johnson 1982; Littlewood, 1988), can also be seen as interpretative or constructive (see section 3.2), though they are rarely accounted for in this way. However, the degree of interaction between the teacher and pupil varies i.e. it can be highly interactive or scarcely involve participation. This will depend on the background of the teacher and children, the nature of the topic and task in hand, the general approach and the teacher's philosophy about teaching and learning. The teaching and learning process, through interaction in pairs or groups, which is the focus of this study, generally has not been fully developed in Malaysia. Such teaching, in fact, represents a considerable challenge to the Test Group teachers who took part in the study.

In introducing the ECI approach to the Test Group teachers the researcher took into account Sim's teaching model. This model is currently presented to teacher trainees
in the teaching colleges in Malaysia (Mok, 1991) as shown in Figure 3.1. According to Sim, the teaching process is only effective when there is an interaction between five components, namely between teacher and student, with the objective and the content in a certain environment. By 'environment' she refers to the pupils' learning environment, socio-economic background and culture. According to Sim, effective teaching depends on the ability of the teacher to specify the objective and the content which is related to the learners' environment. She also stresses the efficiency of the teacher in employing suitable teaching techniques.

![Sim's Model of Teaching](image)

Figure 3.1 Sim's Model of Teaching (Mok 1991, p. 9)

Sim's teaching model tries to explain the interaction among the components for effective teaching at a high level of generality. But this kind of interaction is different from that of the ECI approach. Sim's model does not take account of any mutual interaction between learning and using language as mediation; indeed, it does not mention language. Even though the learning focuses on the learner, it is not seen as a two way process of learning.
3.2 Communicative Language Teaching

Before this chapter elaborates details of the ECI approach, it is worth noting that some of the concepts and terms are borrowed from communicative language teaching. It is in this latter field that concepts such as 'task' and 'interaction' have received great attention.

3.2.1 Concepts Employed in Communicative Language Teaching

In the last two decades, the communicative language teaching (CLT) approach has become fashionable around the world to replace the earlier traditions in the teaching of English as a Foreign Language (Widdowson, 1978; Brumfit and Johnson, 1979; Candlin, 1981; Savignon 1983; Finnocchiaro and Brumfit, 1983; Larsen-Freeman, 1986; Pattison, 1987; Nunan, 1991; Littlewood, 1992). It aims, firstly, to make communicative competence the goal of language teaching. It therefore gives central importance to making meaning and communicating appropriately in real situations. Secondly, it develops procedures for the teaching of the four skills (listening, speaking, reading, writing) that acknowledge the interdependence of language and communication (Richards and Rodgers, 1986). Littlewood (1981:1) states 'One of the most characteristic features of communicative language teaching is that it pays systematic attention to functional as well as structural aspects of language'. This means that emphasis is given to actual use in communication rather than to knowledge about language. For others, (e.g. Prabhu, 1987) it means using procedures where learners work in pairs or groups employing available resources in problem-solving tasks. In the UK, the national primary English syllabus has been influenced by the communicative approach (Syllabuses for Primary Schools, 1981), which defines the focus of the syllabus as the 'Communicative functions which the forms of the language serve' (1981, p.5). The introduction to the same document comments that 'communicative purposes may be of many different kinds. What is
essential in all of them is that at least two parties are involved where one party has an intention and the other party expands or reacts to the intention' (1981, p. 5). Certainly such ideas from the communicative approach were embedded in the Kingman Committee Report (1988), which had a strong representation of applied linguists who were leading figures in communicative language teaching. This report in turn influenced the Cox Report (1989) which itself informed various stages of the development of the National Curriculum for English (1990). Thus, communicative approaches to language teaching (from EFL and modern foreign languages) have influenced the British primary teaching of English. It is doubtful whether many British early years' teachers are aware of this, although explicit awareness of the principles underlying CLT could usefully inform current British classroom practice.

Elements underlying the CLT approach are:

- A communication principle: priority is given to activities that involve real communication and promote active learning
- A task principle: in which language is used for carrying out meaningful tasks to promote focused learning (Johnson, 1982).
- A meaningfulness principle: language that is meaningful to the learner supports the learning process. Learning activities are consequently selected according to how well they engage the learner in meaningful and authentic language use (Littlewood, 1981; Johnson, 1982).

This theory thus encourages and emphasises meaning and interactive practice as a way of developing communicative skills. Piepho has outlined four aspects of language which inform the formulation of communicative language teaching objectives (Piepho, 1981, p. 8):

- Language as a means of expression
- Language as a semiotic system and an object of learning.
Language as a means of expressing values and judgements about oneself and others.

Language learning within the school curriculum.

These aspects seem important to any teaching situation. They should also, it can be argued, inform pre-school classroom practice.

3.2.2 Types of Teaching and Learning Activities

The types of activities in a communicative approach are unlimited. They are designed to enable learners to achieve such communicative objectives as information sharing or negotiation of meaning. Many CLT classroom activities are designed to focus on completing tasks that are mediated through language and necessarily involve negotiation of information or information sharing.

There are various forms of activity. Wright (1976) advocates showing out-of-focus slides which students try to identify. Byrne (1978) provides incomplete plans and diagrams which students have to complete by asking information from other students who have the complete information. Allright (1977) places a screen between students and gets one to place the objects in a certain pattern; this pattern is then communicated to other students behind the screen who have to replicate the pattern. Geddes and Sturtridge (1979) develop 'jig-saw' listening in which students listen to different taped materials and then communicate their content to others in the class in different groups. The majority of these ideas are operated by giving information to some learners and withholding it from others, known as 'information gap' techniques (Johnson 1982, p. 151). Essentially, the learners have to share or negotiate the information to bridge the gap in order to complete the task.

Littlewood (1981) provides further examples of classroom activities in functional communication. These include learners comparing sets of pictures and noting
similarities and differences; working out a likely sequence of events in a set of pictures; discovering missing features in a map or picture; one learner communicating behind a screen to another learner and giving instructions on how to draw a picture or shapes, or how to complete a map. Social interaction activities include developing dialogues, role play and debates.

Learner roles are deliberately varied in communicative approaches. Breen and Candlin (1980) describe the learner's role within CLT in the following manner: The role of the learner is that of a negotiator - between the self, the learning process, and the object of learning. Learning to communicate emerges from the interaction with the role of joint negotiator within the group and within the classroom procedures and activities which the group undertakes. The implication for the learner is that he should contribute as much as he gains, and thereby learn in an independent way (1980, p. 110).

The teacher's roles are correspondingly oriented towards getting learners to talk in order to communicate meaning. Breen and Candlin (1980) describe the teacher's role in the following terms: the teacher has two main roles: the first role is to facilitate the communication process between all participants in the classroom, and between these participants and the various activities and texts. The second role is to act as independent participant within the learning-teaching group. The latter role is closely related to the objectives of the first role and arises from it. These roles imply a set of secondary roles for the teacher, as an organiser of resources and activities. A third role for the teacher is that of the researcher and learner, one who carefully observes the classroom activities with a view to analysing learners' needs and improving future activities. The teacher necessarily has much to contribute in terms of appropriate knowledge and abilities, actual and observed experience of the nature of learning and organisational capacities (1980, p. 99)
These communicative ideas have been drawn on when formulating the ECI approach. From the above outline it is clear that communicative language teaching is founded on a social-interactive view of learning yet it is worth noting that few communicative language teachers use neo-Vygotskian concepts, although the two movements (CLT and neo-Vygotskian) can be usefully dovetailed together (e.g. Van Lier, 1996). Also noteworthy is that many Malaysian teachers of English are well acquainted with communicative language teaching approaches; however, these teachers do not teach in pre-school annexes, since the younger children do not learn English till they come to the second half year of primary one. Thus, communicative principles, in these terms, are as new to Malaysian pre-school teachers as neo-Vygotskian principles are.

3.2.3 Task-based Activities

The ECI approach also borrowed the idea of a task-based approach which is widely used in communicative language teaching (Prabhu, 1987; Nunan, 1988, 1989; White, 1988; 1989; Legutke and Thomas, 1991; Swann et. al. 1992; Long and Crookes, 1993; Brown 1995; Skehan, 1996). The concept of 'task' is a complex one and 'task' has been variously defined (Nunan, 1989; Long and Crookes, 1991; Pica et.al, 1993; Skehan, 1996). This will not be fully explored here. Rather, for the immediate purpose here it is sufficient to present the idea of how a task based activity could be developed by the pre-school teachers.

Nunan (1989) considers a communicative task 'as a piece of classroom work which involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is principally focused on meaning rather than form. The task should also have a sense of completeness, being able to stand alone as a communicative act in its own right' (1989, p. 10).

Long and Crookes (1991) propose a major criterion for assessing the quality of a task: should have a clear pedagogic relationship to out-of-class language use. Needs
analysis should clarify how students will need to use language in real life, and task
design should ensure that classroom tasks bear a developmental relationship to such
non-classroom activity.

Pica et al. (1993) have a different perspective. They analyse task in terms of
interactional patterns and requirements (e.g. one-way versus two-way tasks, i.e.
whether one or both partners in a pair have information the other needs).

Recent developments propose task-based approaches as central elements, or even the
basis, of instruction (Prabhu, 1987). Skehan (1996) proposes task-based research to
examine how different task types may elicit different language functions and different
patterns of interaction. For Skehan, a task is taken to be an activity in which: meaning
is primary; there is some sort of relationship to the real world; task completion has
some priority; and the assessment of task performance is in terms of task outcome.

In order for the teacher to produce any meaningful focused task involving learners'
interactions, there are characteristics that have to be considered (Nunan, 1989, p.11)
these are: goals, input, activities, the teacher's role, the learner's role and the setting
as shown in Fig. 3.2 below.

![Diagram of Nunan's Components of a Task](image-url)

Figure 3.2 Nunan's Components of a Task (Nunan, 1989, p.11)
The 'goal' is the immediate outcome or purpose of language use. In the present research the goal of the Car task is to re-enact a car accident at the road junction and the goal of the Rod task is to arrange the Cuisenaire coloured rods to construct a model. Importantly, learners will readily perceive what the goal is and will know when the goal has been reached.

The 'input' is any embodiment of language, or material to promote language use, which is given to learners at the beginning of the task. In the present research the 'input' is visual in the form of photographs of models. Children can rapidly understand such input. The actual rods and cars are also 'input' in the sense that these are what children will be talking about. The teacher's explanation and demonstration is also input, although this is designed to be progressively withdrawn and hence is transient.

The 'activity' in this study refers to the process of making the model or arranging the cars. The Instructor child will describe the photograph to the Performer in the Car and Rod tasks. The Performer child, who does see the photograph, constructs the model and any clarification is through verbal language only. The Car and Rod tasks are the activities which are closely monitored in this research. However, the ECI approach envisages a range of different activities and some other ones were introduced to teachers in workshops and were put into practice by the Test Group classes during the project.

The Teacher's role in the study is to explain the task and encourage the children's interaction by the use of language (for details see 3.3.2 to 3.4). Her role includes observation and monitoring.
• The Learner's role is to interact through using language intensively (for detail see 3.3.2 to 3.4) to describe the model and build it or arrange the cars.

• The social setting in the study is that most of the activities are paired work. There is a maximum of three children and a teacher. Once children are familiar with ECI pairs and groups could work without the teacher. Thus a whole class could be working in pairs, with the teacher circulating.

In planning the content of the tasks there are factors that have to be considered, such as: (Nunan, 1988, p. 71)

• Relevance of the task to learners' needs.
• Complexity of the task.
• Amount of context provided prior to task
• Processibility of language required by a task
• Amount of help available to the learner from the teacher or from materials or other learners
• Degree of grammatical accuracy/contextual appropriacy required
• Time available to complete the task.

In order to make a successful lesson, the selection of an appropriate and challenging task is necessary. Nunan (1989) and Candlin (1987) describe good tasks as those which will derive input from authentic sources, and involve learners in problem-solving activities in which the learners are required to negotiate meaning. They seek to incorporate tasks which relate to learners' real life communicative needs, expose learners to develop skills in learning how to learn, expose learners to the target language as system, and involve learners in creative language use. The tasks used in the ECI approach meet most of these criteria. Particular attention is given to Nunan's
points cited earlier (p. 88) in the form of scaffolding by the teachers and feedback from the materials and the Instructor child.

Task-based activity can be evaluated by the extent to which the tasks used have a clear link between the classroom and the wider world (see Long and Crookes' criterion, cited on p. 87). The task-based activity should foster independent learning by focusing the learner on the learning process. It should also have a level of complexity, and the pedagogical objectives of the task must be clear to the teacher (and preferably to learner). The ECI tasks, as conceived in this research, meet these criteria.

Most of the task-based activities in CLT (in the sense as discussed above) are practised widely in the primary or secondary school for foreign language learning, e.g. by Brown and Yule, (1983), Brown, et. al. (1984), Duff, (1986), Berwick, (1993) and by Prahu, (1987) with his Bangalore project in India. This does not mean that CLT tasks cannot be used at the pre-school level. This study attempts to explore how such task-based activity can also be employed by teachers of young learners based on the theoretical context of the neo-Vygotskian approach.

Before looking into details of the Enhanced Classroom Interaction Approach it is worth presenting Figure 3.3 below. It features the trends which are synthesised in the ECI approach.
Figure 3.3 Trends which are Synthesised in the ECI Approach.
In the above Figure 3.3 the author attempts to synthesise all the general ideas which have been discussed earlier (in Chapter 1, 2 and in this Chapter except Conversation Analysis, see Chapter four).

3.3 The Enhanced Classroom Interaction (ECI) Approach

The Enhanced Classroom Interaction (ECI) approach can be defined as interactive; as task or activity based; as challenging and extending through scaffolding and cognitive involvement, leading children towards independence in relation to a given concept. It is intended to enhance learning by encouraging verbalisation in structured situations in which guidance and feedback is given by peers as well as by the teachers. It focuses mainly on the process itself where there is a tripartite interaction between the teacher and a pair of children, as well between the children themselves. The degree of interaction is maximised and intensified by the use of information gap. When the teacher is involved as a direct competent participant she restrains herself from unnecessary intervention in order to provide more opportunity for the child's active role in interaction. In fact, the approach encourages the teacher to exploit the maximum interaction from the process. The next sections elaborate details of the ECI approach, expanding on some of the above terms and concepts, many of which are adopted from communicative language teaching. It is in this latter field that concepts such as 'task' and 'interaction' have received most attention.

3.3.1 Objective of Enhanced Classroom Interaction (ECI) Approach

The main objective of Enhanced Classroom Interaction is to encourage the children to be 'active' in participating in classroom interaction. This is taken to mean that they will talk about the task in hand, be involved cognitively, and, especially, that they will use talk as part of the process of learning and, it is hoped, participate in the organisation or management of a given task. They will thus be cognitively, socially, linguistically and 'managerially' involved.
The teacher's input will normally provide initially the explanation, modelling and
guidance, but later the teacher will withdraw this in favour of giving assistance by
verbal language only during the interaction of the children, providing guidance only
when it is needed by the children. Any initial dominance or control by the teacher
will be systematically withdrawn in favour of the children increasing their interaction
and independence.

3.3.2 Main Components and Characteristics of ECI

The main components of this approach, as practised in the fieldwork in Malaysia,
consist of:

- A Teacher: who is trained by the researcher through a twelve hour workshop.
- The Children: who are selected in the Test Group in three pre-school classes.
- Tasks: a number of learning activities that require pair work, have a defined
  outcome, and have a clearly articulated process to reach this outcome.
- Interaction: the pattern and content of the interaction between the teacher,
  children and task in completing the task: this involves talk, co-operation and
  problem-solving.

More detailed characteristics of the above components are given below.

- Teacher

The teacher should be able to determine the appropriateness, objectives and content
of each task, matched to the learner's abilities and previous experience. She should be
trained in the concept and practical applications of ZPD so that she is able to
diagnose the need for assistance needed by a child or pair/group of children and
provide help appropriately to the children. She should bear in mind the need to model
and encourage enhanced interaction with the child, and between the children, and
make herself part of the team (as participant) and not as the sole source of instruction.
nor adopting only the formal roles of the conventional teacher. Assistance is mainly focused successively on modelling, scaffolding, extending, prompting, cueing and questioning, handing over and monitoring, and will thus be progressively withdrawn as children are seen to gain competence on any given task. The teachers' ultimate aim is that the children should become independent in the particular task and its associated approach to learning. The transition to independence is seen as a gradual one. It involves both a cognitive and a social handover. It depends to some extent on the teacher's ability to diagnose children's ZPD's and to find appropriate tasks. This, in turn, depends on the teacher's skill in fine tuning appropriate challenges so that children are working within the ZPD, not beyond it or under it.

- **Children**

The children, through the teacher's assistance, are encouraged to make sense of the input by constructing links with their prior knowledge. The children are required to interact with a partner, or in a group, through using language intensively by instructing, describing, negotiating, questioning, arguing, debating, hypothesising, explaining, giving feedback and exchanging ideas. Naturalistic studies (Shields, 1978, Dore, 1977, Cole et al 1979) have shown that children do like telling each other about events that have happened, about how things work, and about how to play games. In the ECI the children need to know the goal, process and mode of interaction for a task, and when (and how well) the outcome is attained. They will be encouraged to reflect on these aspects so that they engage in a degree of metacognitive reflection on the process of learning itself (Wertsch, 1978; Pramling, 1988). Pramling, in her study of a pre-school children, showed how young learners were able to develop the awareness of their own learning. One child is designated Instructor and describes a model or gives instructions to the other child. The later is designated Performer and constructs a model or arranges cars in response to instructions.
Task

The task is designed to elicit the maximum amount of interaction through language among the participants, namely between the teacher and the children, and between the children alone, with minimal intervention from the teacher. The task should be suitably matched to the ability and cognitive development of the children. It should be interesting, stimulating and feasible to be performed; and variable in its levels of difficulty. The outcome can be visualised by children in advance and/or reflected upon later through talk. To maintain the interest of the children, the task should also be game-like, that is, enjoyable and appealing to the children. Many tasks will involve problems to be solved in pairs or co-operative groups. In the present research children engage in tasks in pairs but it is part of the ECI approach that tasks could with equal effectiveness be used in groups of three or four children.

Interaction

This is the linguistic and social learning process that occurs among the teacher, children and the task. The level of interaction can be operationally identified with verbal expression (numbers of words, morphemes, utterances, etc.), social interaction (numbers and placement of turns taken in exchanges) and the intensity and function of language used by the participants (number and effectiveness of initiations, responses and feedbacks in exchanges) during the performing and completing of the task. Typically, the interaction could involve 'information gap' techniques (Littlewood, 1981; Brown and Yule 1983) in which one participant has information which others do not have - but need - in order to solve a problem or complete the task. The 'information gap' thus helps to define children's roles in the interaction. The characteristics outlined above (verbal expression, social interaction, intensity and role) are all potentially aspects of interaction which can be assessed quantitatively or qualitatively (see Chapter four).
3.4 Functioning of the Enhanced Classroom Interaction Approach

The functioning of Enhanced Classroom Interaction will be discussed in two stages: the preparatory stage and implementation of the task.

3.4.1 Preparatory Stage

The teacher who is trained to enhance classroom interaction will select a relevant task that is structured as a problem solving activity with game-like characteristics. The children are paired to ensure their compatibility. The various components of Enhanced Classroom Interaction are shown graphically in the following figures (Fig. 3.4 - 3.6)

![Diagram of Selection of the Task and Children]

Figure 3.4 Selection of the Task and Children

The teacher will explain the task to the children. The children will be informed of the objective and of their respective roles in performing the task. They will be informed about how they will know whether the task is finished and how well it was achieved, i.e. they will be given some criteria to judge goal-achievement for themselves. It is noteworthy that this teacher input is not merely focused on content, but also on the social organisation, learning process and evaluation. In this way the children can potentially be in a position to evaluate their own performance (rather than waiting for the teacher to evaluate). The task examples (which are used in the Progress Tests use
as a test in the present research) consist of one child giving instructions verbally while the second child will be required to comply with the instructions physically. There is thus a transfer of information, directives or instructions and, very likely, questions for clarification by the listener. After the completion of the task, the respective roles of the children will be changed in a second round (or sub-transaction, see Chapter 4 section 4.8.3), thus giving the opportunity for all the children to experience a range of linguistic and social roles. The teacher will, if necessary, demonstrate how the task is to be performed, working as partner with one child while others are observe. This stage is shown in the following figure 3.5 below.

![Figure 3.5 Explanation of the Task to the Children](image)

3.4.2 Implementation of the Task

The implementation of the approach begins with the teacher asking the children to perform the task (verbally for the Instructor child and physically for the Performer). The communication between the children is mainly in verbal form and the performance of the task will be enacted physically i.e. describe and draw, describe and arrange, describe and make, describe and follow etc. The Instructor child (who
can see the model or arrangement as it is being constructed) gets immediate visual feedback on the quality and effectiveness of the instructions and/or on the degree of comprehension of the Performer. Correspondingly, the Performer child gets immediate feedback of the effectiveness of his instructions since any misunderstanding or wrong or inappropriate placement of objects will be rapidly corrected (verbally) by the Instructor child (rather than by the teacher). The teacher will draw the children's attention to these aspects of the communication in task performance. The emphasis in this approach is on the process (mainly on the interaction between the teacher and the children, and between the children themselves), in terms of instruction, prompting, verbal response, asking for clarification, etc. A graphical representation of the functioning of the approach is given in the following figure (Figure 3.6).

![Diagram of Enhanced Classroom Interaction](image)

Figure 3.6 An Approach of Enhanced Classroom Interaction

With reference to the figure 3.6, the relative positions of the components of the model (Teacher, Task and Children) are arranged conceptually to maximise the interaction. The task is the focus of attention while the teacher and the children are positioned around the task. The relative distance of the children and the teacher vis-à-vis the task is determined by their level of participation in verbalising and performing.
the task. The central feature is therefore that children talk to each other rather than to the teacher. The teacher talk is largely aimed at facilitating this child-child interaction and is withdrawn progressively as children proceed with the task. In one sense, the teacher is at one remove from the task, as observer and listener, if not initially, certainly later.

The process of interaction is shown by the arrows and their respective direction and thickness. This interaction is borrowed from the organisation theory of the Line and Staff functions in the operations of an organisation (Denyer, 1974). The bold lines indicate the Line interaction in the level of participation while the dotted lines indicate the Staff interaction in the level of participation. The number, volume and direction of the respective lines indicates the intensity and multi-directional nature of the interaction. The instruction-performance relationship is seen to generate reciprocal feedback and is therefore a subsystem of the approach. In this subsystem, once the children know what to do, the interaction has a self-sustaining quality in which children keep talking and listening productively until the task is known to be completed. This is practically reinforced since in the present research, children use photographs enabling the describing child to see at a glance whether each stage of a task has been satisfactorily completed, i.e. visual and verbal feedback are complementary and distributed over instructor and performer roles. When the Performer child has completed the models or arrangement and is then shown the photographs there is, again, visual feedback. Both children can thus gauge the accuracy of the arrangement, i.e. the extent to which it matches the one in the photograph. Importantly, children are made aware of these features and may be encouraged to reflect on them later with a view to improving task performance and achieving greater independence and control over the social, linguistic and cognitive aspects of their learning.
The teacher may need to assume the role of an active participant in the process and does not solely act as an observer or a director of the whole exercise. However, as a competent partner she participates mainly in an advisory capacity (represented by the dotted line Staff interaction level) thus leaving the line interaction mainly to the children. Nevertheless, the child's interaction towards the teacher should be perceived by the children as a Line interaction (indicated by the thick line) to be accepted as a partner in the process. The children are equal partners in the exercise where they are given turns in playing the role of instructor and performer of the task.

The children assume the role of the principal active participants in the process as well as perceiving the teacher as an equal partner in the interaction. The interactions by the children are all line interactions. Interestingly, children holding a photograph which the teacher cannot see will, temporarily, be in a superior position to the teacher; the child will be a knower, teller, explainer and instructor. The 'equality of participation' is, therefore, not rhetorical but is real in terms of the task, as designed here.

The level of multi-lateral interaction that will be encouraged is indicated by the arrows, i.e. child to child, teacher to child and the intensity of this interaction is emphasised. The linguistic components of these interactions which are monitored in this study consist of turns, morphemes, mean length of turns etc. produced by the teachers and children in the interaction between them.

3.5. Comparison of ECI Approach with the Normal Classroom Interaction

In order to provide a clearer concept of the ECI, it will be compared with the normal or conventional classroom interaction, as commonly practised in Malaysia (see later in the Control group's video documentary). The latter consists of the same components, namely, the teacher, the children and the task. However, it is more
formal and traditional and the emphasis is on the ability of the children to follow instructions and complete assigned tasks working individually. There is one way traffic from the teacher to the children in terms of directions, instructions and information. (The common exception is when children sometimes ask questions to check their own comprehension and if, unusually, the children were to interact with the other children, they often just reiterate and imitate the approach adopted by the teacher. This is, in fact, readily seen when children engage in play, as "teachers" and "pupils"). The conceptual position, the distance and the level direction and intensity of the interaction are given in the following figure 3.7 below.

Figure 3.7 The Normal Class Interaction

It can be seen that in the normal class there is one way interaction between the teacher and the children. There is no interaction between the children and any given worksheets are done individually, even though children are sitting in a group. Children work alone, each responding to the teacher, each working on a separate task or on a common task but working as individuals. The teacher is at a very close distance but conceptually behind the children. This conceptual positioning among the components will minimise interaction and its uni-directional nature will only encourage high intensity of instructive participation by the teacher. Under this low
level of classroom interaction, the situation may not be very conducive to language and cognitive development as compared to the ECI.

3.6 Relation of the ECI Approach with the Theoretical Premises

The main theme of the ZPD is that the children have their potential ability, that they can realise this, fundamentally on their own, though with teacher or peer support under the right conditions. This potential can be expanded in future with the assistance of a competent teacher or a competent peer. The process is centred round the main component of the approach, namely, the children. The ECI approach is thus, at heart, 'child-centred'. It encourages focused intensive interaction between the children, to exploit and extract this potential to the maximum. This is represented by the two components of the model: namely, both children and the task, and through extensive verbal exchanges in performing the task.

On the second level, the teacher's role is that of providing the necessary assistance required by the children. Therefore, the teacher has to be very "competent", not only with the task to be performed, but, more importantly, the teacher should be well versed in the ZPD concept, and other neo-Vygotskian concepts, so that she can handle the whole process in the optimum way. She needs to match task demands to children's ZPD by ascertaining where each learner's ZPD is, in relation to the task and concepts related to it. The teacher thus has a diagnostic role, but more: because of the nature of the ZPD the teacher can only really know where it is for a given child, concept and task by challenging children's performance to ascertain the lower limit of the ZPD, i.e. the extent that they can only complete a task 'with help'. Conventional approaches, in contrast, tend to assign children's tasks which they can do alone, without teacher help - these are, by definition, not within the ZPD and, in Vygotskian terms, are less useful for learning (though they may be useful in practice). In the ECI, the teacher is part of the group, a partner, facilitator, expert or a resource person to
the group in completing the task. This is related to critical concepts such as the teacher scaffolding, being a catalyst etc. where her participation should be a "quality" participation in the process: prompting and encouraging the process to move the children's performance on the task at an interesting tempo. The teacher's quality participation can be seen as a trade-off between scaffolding cognitive guidance within the ZPD and scaffolding the social organisation of pairs working on the task. The latter prioritises interaction and task management. All of this is represented by the interaction of the two components - the teacher and the children through verbal assistance, see Figure 3.8 below, which outlines the cognitive and social emphases which the teacher must balance.

<table>
<thead>
<tr>
<th>COGNITIVE SCAFFOLDING</th>
<th>SOCIAL SCAFFOLDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher challenges children to diagnose ZPD and ascertain appropriate task demands, then chooses task in relation to curriculum.</td>
<td>1. Teacher chooses task according to perception of children's ability to interact and manage task.</td>
</tr>
<tr>
<td>2. Teacher sets up task by explaining, demonstrating</td>
<td>2. Teacher sets up task by organising pairs or groups and distributing materials</td>
</tr>
<tr>
<td>3. Teacher progressively withdraws the cognitive assistance</td>
<td>3. Teacher progressively withdraws from organising turns and use of materials</td>
</tr>
<tr>
<td>4. Children internalise relevant concepts through task performance</td>
<td>4. Children become independent in working together, taking turns and organising themselves in task management</td>
</tr>
</tbody>
</table>

Figure 3.8 Teacher's Quality Participation, (seen as a handover of both cognitive and social scaffolding and some balance between them).
The implementation and functioning of this model, that is, the interaction among the component parts, should result in a more efficient and effective management of the task and a shorter time taken to complete the task once the process is understood by the children. This is based on the theoretical premise that the ability of the children can be stretched to the maximum limit of the Zone of Proximal Development, instead of to the lower limit that can be realised without the enhanced interaction at the child to child level and the assistance by the teacher. Figure 3.9 below summarises the features of contrast between the conventional and the ECI approach.

<table>
<thead>
<tr>
<th>Conventional Approach</th>
<th>ECI Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Teacher's role: dominate talk</td>
<td>i. Teacher's role: partner in joint learning</td>
</tr>
<tr>
<td>ii. Language as communication of what is</td>
<td>ii. Language as means of learning through negotiation</td>
</tr>
<tr>
<td>to be learned.</td>
<td>of meaning.</td>
</tr>
<tr>
<td>iii. Values the learners' performance which</td>
<td>iii. Values the learners' performance as an active</td>
</tr>
<tr>
<td>conforms to the criteria of the discipline</td>
<td>participant and equal partner, besides meeting task</td>
</tr>
<tr>
<td>iv. Perceives the teacher's task to be</td>
<td>performance criteria.</td>
</tr>
<tr>
<td>evaluation and correction of the learner's</td>
<td>iv. Perceives the teacher's task as equal partner and</td>
</tr>
<tr>
<td>performance, according to criteria of a</td>
<td>active participants in the process giving feedback</td>
</tr>
<tr>
<td>guardian.</td>
<td>initially encouraging children to give each other</td>
</tr>
<tr>
<td>v. Class interaction: normally working</td>
<td>feedback.</td>
</tr>
<tr>
<td>alone while sitting in a group.</td>
<td>vi. Children encouraged to reflect meta-cognitively</td>
</tr>
<tr>
<td>vi. No particular encouragement for</td>
<td>on task management, social organisation and learning.</td>
</tr>
<tr>
<td>reflection.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3.9 Features of the Conventional Approach and ECI Approach.
3.7 Limitations: Conceptual and Practical Difficulties of the ECI

At the conceptual level, the ECI approach is based on the idea of the ZPD proposed by Vygotsky and other neo-Vygotskian theorists. The main point that is taken is that the teacher should recognise the actual and potential ability of the child. However, there are other ideas and concepts that form part of those theories which are not incorporated into the model, such as the principle of intra psychological functioning. The ECI only tries to capture one particular aspect of the functioning. This is not to deny the occurrence of those processes but this approach is not adequately designed to monitor and evaluate intra psychological processes at present.

The approach was formulated taking into account the teaching model developed by Sim's teaching model (Mok, 1991) which is currently used in teacher training in Malaysia. In Sim's teaching model, the element of interaction is mentioned as part of the process. However, this aspect is given equal prominence with other components and aspects of the model. Furthermore, there was no actual explanation of what kind of interaction is valued and how the interaction should be managed. The ECI approach attempts to inject the concept and principle propounded by Vygotsky and neo-Vygotskian theories that utilise language as the main mediator. It is a linguistic approach (for research purposes) which traces and monitors the interaction in terms of number and proportions of turns, morphemes and mean length of turns. Therefore, other aspects of interaction or other mediators are not taken into account here because they are less catered for in its theoretical framework. As far as the researcher knows, appropriate means and methods have been developed to measure the linguistic interaction.

In implementing the approach, the teaching and classroom culture of a country may present some difficulties. In some non-western schools, the children are not expected to intervene when the teacher is teaching. In Malaysia, the class is expected to be quiet. Children do the tasks given on their own, working individually, often silently.
The difference in the classroom culture was observed when the use of the materials was tested in UK infant classes. The requirements of the ECI approach for the children to talk actively in class may not be easy for Malaysian teachers (or for Malaysian children) and they may not even be able to enact what is required. The ECI thus presents a challenge which is more than a methodological innovation- it is also a cultural challenge.

The ECI approach is designed for pre-school children with simple tasks. However, it is likely to be applicable to the primary school or even to secondary school. This will definitely require some modifications in the approach and the task. The approach uses a small group of two children and one teacher. The realistic classroom teaching situation is, of course, one teacher to many more children. The model needs to be extended to the number of children that a group can accommodate for the model to continue to be viable (say, up to four or five children). On the other hand, the pairing of the children with competent peers who can help one another may take the load off teachers and reduce the teacher-pupil ratio, at least for the duration of the task.

The ECI model can be used with a whole class, provided there are sufficient copies of materials and provided the teacher is thoroughly familiar with the approach. This has been demonstrated by Cortazzi (Personal Communication, 1996) with large classes (with forty, fifty or more learners) in China, Taiwan, Turkey, Lebanon and Spain. In the present fieldwork in Malaysia, it is effectively a major step forward for the pre-school teacher to practise the approach with small groups.
4. CHAPTER FOUR: RESEARCH DESIGN

4.1 Introduction

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   4.2.1 Test for Interactions
   4.2.2 Re-enacting Car Accident at a Road Junction
   4.2.3 Arranging Cuisenaire Coloured Rod to Make a Model
   4.2.4 Pilot Study and Modification of the Test Materials

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   4.3.2 Selection of the Sample

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   4.4.3 The Selection of Test and Control Groups

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4. CHAPTER FOUR: RESEARCH DESIGN

4.1 Introduction
The implementation of the research planned for the study consisted of two parts. The first part was the development of the test materials and the pilot study in infant schools in Leicester, United Kingdom. The second part of the study, in Malaysia, was the selection of the schools, teachers and children; developing the schedule of the project research; the collection of baseline data; the workshop for the Test Group teachers; the meeting with the Control Group teachers; the implementation of the test and other data collection procedures. The last section of the second part of this chapter is the description of the 'conversation analysis' model of language in exchanges, the transcription of the data of task interactions and definition of terms used in the quantitative and qualitative analysis. The 'conversation analysis' model will be used to analyse the transcriptions in qualitative terms.

4.2 The Development of the Test Materials
After the theoretical framework of the 'Enhanced Classroom Interaction' approach, based on a literature search of Vygotsky's theory and neo-Vygotskian developments, had been formulated, the test materials were designed in order to test the ability of the children to interact with partners while performing the tasks. The technique of using tasks has been used by a number of researchers who investigated language and cognition (e.g. Doise, 1978, Flavell, et. al. 1979, Greenfield and Dent, 1979, Miller and Brownell, 1975 and Russell, 1979, in Lloyd 1982, p. 196). Lloyd (1982) commented that, although the research topics vary, most of the above researchers adopt a social constructivist approach to intellectual development. Most of them use the tasks which require two children to communicate and cooperate in solving problems. This study also uses a task based activity to test the children's interaction. However, the studies mentioned above are 'laboratory' style projects focusing on
children's understanding, whereas the present research is a classroom centred study focusing on how teachers and children interact.

The idea of learning through play was the main criterion in designing the test materials since this is now a major principle in the philosophy of pre-school education in Malaysia (Pre-school Curriculum Guidelines for Malaysia, 1988). The strong relationship between play and language is discussed by Levy (1984), amongst others, who analysed a wealth of literature on play and language used by 3 to 6 year old children. She found a strong relationship between play and language use. She concluded that play is the effective medium for stimulating innovation in language development, particularly in relation to clarifying new words and concepts, motivating language use and practice, developing metalinguistic awareness and encouraging verbal thinking (Levy, 1984, p. 59).

The material was chosen carefully. There were two sets. One set involved the use of objects: attractive toys, cars and a fire engine. Children tend to imitate the sounds of these toys (Tough, 1977a). The colours of the cars were bright and all are of prime colours. The other materials used comprised Cuisenaire rods (commercially produced wooden sticks as materials designed to be used in practical approaches for learning mathematics). The colours of these are carefully selected, as is well known, and children have often been observed to play with them spontaneously (quite apart from their more formal use in maths teaching).

The researcher ascertained that there is no issue of cultural bias in developing both the test and the material used, i.e. there is no difficulty in using these materials with the various religious, ethnic and cultural groups in Malaysia, nor are the materials unfamiliar to Malaysian children, though they will not previously have used them for these particular tasks, nor used them in the ECI format of interaction.
4.2.1 Test for Interactions

The material used to test the children was developed by formulating tasks between pairs of children using language. The material consisted of coloured photographs of models or situations which children were asked to build or re-enact, using 'information gap techniques' (Morrow and Johnson 1979; Littlewood 1981). Brown and Yule, (1983) explain the function of 'the information gap' whereby 'the listener who does not have the information which the speaker has, and who needs that information' (1983, p. 111) gets the information through talk. This is not artificial information but is related to achieving the goal of the task. Therefore in this case the task needs a pair of learners, one as a listener (or Performer) and the other as the speaker (or Instructor). If the second child sees the pictures before completing the task this would flout the principle of the information gap and would, of course, render the task pointless. In the ECI tests, all the children clearly understood, and followed, the rule of 'Don't look'. In this study, the task was performed in pairs, so that the first child, who led and took the role of the 'Instructor', was given the pictures of the task to be executed. The second child, as the task 'Performer', was given the objects with which to construct the model shown in the photographs and he received the instructions about how to perform the required task from the first child (or Instructor). The second child was unable to see the photographs held by the first child. The resulting interaction between the pairs will be compared between the Test Groups and Control Groups children.

There were two types of task in the test with different types of materials:

i. Re enacting a Car accident at a Road Junction (the Car task)

ii. Arranging Cuisenaire Coloured Rods to Construct a Model (the Rod task)
4.2.2 Re enacting a Car Accident at a Road Junction (the Car task)

This task was developed and modified from the work of Brown and Yule, (1983), who in turn developed the approach to analyse English conversation using 'information gap' techniques that are typical of communicative approaches to language teaching. It is, therefore, difficult to pinpoint the exact origin of these ideas, since 'Describe and Arrange' tasks have become common in English as a Foreign language courses since the 1970s (Littlewood, 1981; Rivers, 1978; Morrow and Johnson, 1979). It is worth noting, however, that such tasks are less frequently used with pre-school children, and are extremely unusual in early years education in developing countries.

The materials used were:

i. Coloured photographs in sets of three that show sequences of events in a car accident for the Instructor child to describe.

ii. A model consisting of four toy cars and a board depicting a road junction and its surroundings.

The task to be done is for the Instructor to describe the accident and for the Performer to re-enact it with the model following verbal instructions based on the photographs, which, of course, the Performer cannot see. There are three photos for each set and each set of photographs shows one accident. The final work involved four sets of such accidents altogether, so that in a pair of children both children would have two turns each as the Instructor and Performer.

The photographs show, in chronological sequence (see Appendix I: Ia and Appendix II: IIa).

i. The initial setting of the location of the cars approaching a road junction.

ii. The movement of the relevant vehicles from the initial setting in a collision course, but not hitting each other yet.
iii. The head on collision of the cars i.e. a 'culprit' car and an 'innocent' car, 
sometimes followed by a third car joining the accident.

The Performer arranges the cars in the sequence of the accident according to 
Instructor's description. Cars are added and moved appropriately as each new 
photograph is described, so that the cars re-enact the accident as shown in the 
sequence of photos. The accident is, of course, built up **verbally** by the descriptions 
and instructions of the Instructor child. The Performer only sees the photographs (as 
visual feedback) when the whole sequence is completed, i.e. when all three photos 
have been re-enacted. There are twelve photographs grouped into four sets. Each 
child arranges a set of three photographs that are labelled P1, P2, P3 according to 
complexity. Sets vary in number of vehicles and complexity of layout so that the sets 
can be matched to various ability levels, i.e. they can be allocated to children 
according to their ZPD, as ascertained on earlier tasks. Children exchange roles, as 
Instructor or Performer, after each set.

4.2.3 Arranging Cuisenaire Coloured Rods to Construct a Model (The Rod 
Task)

The materials used were:

   i. Coloured photographs depicting the arrangement of Cuisenaire Coloured 
      Rods for the Instructor child to describe.

   ii. The actual number of pieces of coloured rods for the Performer child for a 
      particular arrangement. The Performer's pieces correspond to the number and 
      type depicted in the photograph held by the Instructor.

The task to be done is for the Instructor to describe how to construct a model 
according to the picture. The Instructor child is given the pictures but the Performer 
child does not see the pictures at this stage. Unlike the car task (where a sequence of 
photographs is used) each rod task has only one photograph- the Instructor child
having to envisage how the model was built up and give instructions accordingly. The task could have been made easier by using a sequence of photographs for each model so that the Instructor child would see the stages of construction, but the pilot test showed that this was not necessary. Also, a sequence of photographs would arguably have made the rod task too similar to the car task.

The photographs show different models (see Appendix I: (Ib) and Appendix II: (II b)

i. The Instructor child then describes the photograph to the Performer child and directs the latter to build up the rods to make a model, according to the photograph, as described.

ii. The Performer child does not see the photograph at this stage, but has sufficient rods to make the model. The Performer is only allowed to ask questions about the task to be performed or to elicit clarification of the instructions given.

iii. The Performer only sees the photographs (as visual feedback) when the task is completed.

There are two photographs that show models of quite similar complexity but having different colours. Each child has to describe one photograph in turn, thus allowing each child to take both roles of Instructor and Performer. Different sets of the Cuisenaire models vary in complexity so that different levels of essentially the same task can be matched to different ability levels, or to different ZPDs, as revealed on previous tasks.

4.2.4 Pilot Study and Modification of the Test Materials

To develop appropriate learning materials and activities, early versions were tried first, on a pilot scale, in three KS 1 classes at three different primary schools in Leicester and South Wigston, United Kingdom. The classes were chosen because the
age group of the children is equivalent to the children’s age group of the pre-school annexe classes in Malaysia. The idea was to assess the suitability and applicability of the material to elicit talk in pairs interactively through the use of language. This also gave the researcher the opportunity to take the role of the teacher in the ECI approach, as a prelude to the later workshops in Malaysia.

When the tasks were given to the British children to test whether the children were able to perform them, they were very excited about the cars and the rods. The task was something new to them. The children were able to speak out and it was demonstrated that the children could perform the task, with interest, enjoyment and enthusiasm. In the first task (the Car task) a problem was realised: the board depicting the cross-roads for car accidents was initially quite confusing. There was no visual cue to show the children the sense of direction and orientation and it was very cumbersome for the Performer child to reorientate the board when the Instructor child gave instructions. Consequently, the board was modified by adding a building at one particular point. The building was in a fixed location to give a sense of orientation to the children. It was also realised that the photographs needed to be labelled in sequence. The photographs of the revised model and the build-ups of the various accidents were retaken and the photographs were labelled in sequence to reduce possible confusion among the children. The new set of improved photographs and the corresponding activities were tried out for a final time in Britain before they were implemented in tasks for the Malaysian pre-school children who were involved in the study.

The second task (the Rod task) was also introduced to the British children but no modification was found to be necessary. Generally the children found it more complex than the first task. This is the reason why the Rod task was given after the Car task during the test with the children. Thus the Car task, which is valid in its own right, also prepares the children for the Rod task.
4.3 Implementation of the Field Work in Malaysia

The researcher had only three months to do the fieldwork in the homeland from early July 1994 till the end of September 1994. This period was to be used for selection of the samples of the pre-school classes, selection of the Test and Control Group classes, collection of baseline data on the children, making video recordings of the learning and teaching process, conducting the workshop for Test Group teachers and implementing the Test to both groups.

4.3.1 Project Implementation Schedule

The project implementation took 12 weeks with the detailed schedule as follows:

| Week one | Collection of baseline data  
|          | Children's baseline data  
|          | Video I on baseline teaching and learning  
|          | Workshop for the Test Group teachers  
| Weeks two to four | Observation of Teaching and Learning Process  
| Weeks five to six | Progress Test One (see Appendix I a & Ib)  
|                   | Video 2  
| Weeks seven to ten | Observation of Teaching and learning process  
| Weeks eleven to twelve | Progress Test Two (see Appendix II a & II b)  
|                      | Video 3  
|                      | Feedback from all the teachers  

Figure 4.1 Project Implementation Schedule

4.3.2 Selection of the Sample

This section will discuss the selection of pre-school classes, selection of children and teachers for the study.

i. Selection of Pre-School Classes
Six pre-school classes were chosen for the study. The necessary permission to carry out the study in those classes had been granted earlier by the Education, Planning and Research and Development Division (a department of the Ministry Education of Malaysia). Six pre-schools from four schools in the lower socio-economic urban areas were selected. It is worth emphasising that by definition these pre-schools do not normally take in children from the upper or middle classes who might be expected to have more advantages of materially and socially enriched backgrounds. On the contrary, the pre-school annexes are intended more for children from economically poorer backgrounds, as a matter of government policy. The research sample thus focuses on children from 'poorer' backgrounds. The selected pre-school establishments were under the Ministry of Education and located mainly in the Federal Territory of Kuala Lumpur. All these six pre-school classes were started in January 1992 when the Ministry of Education launched the pre-school annexe programme (refer to Chapter one, 1.3.1). Two schools that have two pre-school classes were divided into Control and Test Groups so that separate classes formed either a Test or Control Group. On the other hand, a school with only one pre-school class was matched with another school that likewise has only one pre-school class. This was considered more practicable than splitting a class, which would carry the certain danger of children seeing the activities of the complementary (Test or Control) Group. There was, perhaps, some small possibility of this happening across classes in the same school, but this was considered negligible. It should be noted that the two schools with only one pre-school class have a homogenous background in terms of the teachers' training and experience and the location of the school. Overall, three classes were designated as the Control Group. The distribution of the pre-school classes in the respective schools and their designation as Test and Control Groups are as follows, in Table 4.1 below.
Table 4.1 The Distribution of Test and Control Group Classes

<table>
<thead>
<tr>
<th>SCHOOLS</th>
<th>TEST</th>
<th>CONTROL</th>
<th>NO. OF CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandar Baru Primary School</td>
<td>1</td>
<td>1</td>
<td>Two (B1, B2)</td>
</tr>
<tr>
<td>Sri Perak Primary School</td>
<td>1</td>
<td>1</td>
<td>Two (P1, P2)</td>
</tr>
<tr>
<td>Sungei Penchala Primary School</td>
<td>0</td>
<td>1</td>
<td>One (S1)</td>
</tr>
<tr>
<td>Raja Muda Primary School</td>
<td>1</td>
<td>0</td>
<td>One (S2)</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>3</td>
<td>Six</td>
</tr>
</tbody>
</table>

Key: B1, B2, P1, P2, S1 and S2 is a Code of the Classes used throughout the Study.

ii. Selection of the Children

Observing children, and analysing their interaction during the implementation of a test is very time consuming, as Torbe and Medway (1981, p. 6-7) noted, and the taping of lessons and transcribing of the tapes is 'enormously laborious' and careful scrutiny of them is 'arduous'. So the researcher decided to restrict the sample to 60 children, aged from 5 to 6 years old. A sample of 30 children was in the Test Group and the other 30 were in the Control Group. These are small samples in terms of general quantitative approaches to research, but not for qualitative or linguistically based research. These children consisted of mixed gender but the study does not consider gender as a variable. The children all have the same ethnic background i.e. they were 'majority group' Malay children, and not of Chinese, Indian or other 'minority group' background. In order to make valid comparisons between the two groups, it was necessary for the children's main background, characteristics and circumstances to be as similar as possible concerning factors likely to influence the outcome. All six classes have student numbers ranging from 10 to 18 but a sample of 10 children from each class was selected in order to be consistent about focusing on the same number of children across all the classes. The selection was done by the teacher according to
the age, attendance and the score of language skills given by the teachers, based on the Standard Language Checklist of Skills provided by the Education Division of the Ministry of Education to all the pre-school annexe classes.

However, even the children whose attendance was not regular during the study took part in the test. The test took a substantial time because the children were not told whether they were chosen for the study, or not. This ensured that it was fair for all children to have equal opportunity to 'play the game,' as they term taking the test. Finally, only ten children, or five pairs of children in each class, took part in the study, as shown in the distribution table below (table 4.2).

Table 4.2 Numbers of Children in each Group

<table>
<thead>
<tr>
<th>SCHOOLS</th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
<th>TOTAL CHILDREN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Perak (P1 and P2)</td>
<td>10 (5x2)</td>
<td>10 (5x2)</td>
<td>20</td>
</tr>
<tr>
<td>Bandar Baru (B1 and B2)</td>
<td>10 (5x2)</td>
<td>10 (5x2)</td>
<td>20</td>
</tr>
<tr>
<td>Sungai Pencala (S1)</td>
<td>10 (5x2)</td>
<td>---</td>
<td>10</td>
</tr>
<tr>
<td>Raja Muda (S2)</td>
<td>---</td>
<td>10 (5x2)</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>

Key: P1, P2, B1, B2, S1 and S2 same class code as above.

iii. Selection of the Teachers

The selected teachers were all teaching the pre-school classes and were matched in pairs for their training, experience, and assumed knowledge of the pre-school situation. Both the teachers from Bandar Baru School who were selected had attended a one year course for in-service training in pre-school teaching held at a teacher training college. The teachers from Sri Perak had also attended a two and a half year course in pre-school education at a teacher training college. Both teachers
from the other two schools were long serving and experienced teachers who had attended in-service courses in pre-school education. All these teachers had undergone pre-school training at the Teacher Training College and were therefore considered qualified pre-school teachers. Thus, the teachers were matched as far as possible for training, experience and general background.

4.4 Collection of Baseline Data
Baseline data concerning the children, the teacher, the teaching processes in the class were essential to both groups in order to ascertain the starting point of each group. All the baseline data was gathered during the first week of the field research project period.

4.4.1 Children’s Baseline Data
A coloured Raven’s matrices test (Raven, 1947) was given to every child. (Raven, C. J. developed a test that measures the general ability of a wide range of children who are five years or older). In Raven’s Coloured progressive Matrices, there are three alternative forms (A, AB, C) and each consists of twelve progressive abstract patterns. Each pattern has a missing part and the child’s task is to choose one of six provided alternatives to fill the blank space. The 36 coloured matrices gradually increase in complexity within each of the three sets (see Appendix III for an example taken from this test). The objective of the test is to obtain a cognitive score of every child. The test does not require any language: all each child needed to do was to point out the correct answer. The tests were given by the researcher individually (with help of the class teacher) to allow the children to get used the researcher’s presence during the fieldwork study. For the language skill, the scores of the language skills of all the children were noted. All the classes involved in this study have used the Standard Language Skills Assessment Sheet provided by the Division of Education. The aim of taking down this type of data was to know the language skill of the children, as measured by the test, so that the Test and Control Groups
could be equally matched. The total raw scores of each individual child were recorded (see Appendix IV, Ravens matrices and Language skills Scores). Then the means and standard deviations in the six classes for the Raven's test and the standard language skill assessment were calculated as shown in the table 4.3 below. The table below shows the mean scores and the standard deviations of the results of the Raven Matrices Test. The Standard Language Skill Assessments of the children in the respective six classes are also given in the following table (Table 4.3).

Table 4.3 Matrix of the t Test on the Difference among the Mean Scores of the Raven Matrices and Language Skills for the Children in Six Classes

<table>
<thead>
<tr>
<th>Raven</th>
<th>Language</th>
<th>P 1</th>
<th>P 2</th>
<th>B 1</th>
<th>B 2</th>
<th>S 1</th>
<th>S 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std</td>
<td>3.1</td>
<td>3.5</td>
<td>3.3</td>
<td>3.4</td>
<td>3.5</td>
<td>3.2</td>
</tr>
<tr>
<td>(Std)</td>
<td>(0.74)</td>
<td>(0.71)</td>
<td>(0.67)</td>
<td>(0.70)</td>
<td>(0.53)</td>
<td>(0.63)</td>
<td></td>
</tr>
<tr>
<td>P 1</td>
<td></td>
<td></td>
<td></td>
<td>-1.50</td>
<td>-0.80</td>
<td>-1.18</td>
<td>-0.56</td>
</tr>
<tr>
<td></td>
<td>(4.04)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P 2</td>
<td></td>
<td></td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.74)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.05)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.50</td>
<td>-0.43</td>
</tr>
<tr>
<td></td>
<td>(2.27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.18</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td>(3.69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.95</td>
</tr>
<tr>
<td></td>
<td>(2.45)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: Raven= Raven Matrices; Language= Language Skills; Std= Standard Deviation

NOTE: For all t test values - There is no significant difference in the Language Skills and Raven Matrices Test among all the children in all the classes when t=1.734(p<0.05)

The above table shows that the means and standard deviations of the Language skills of all the classes (P1 to S2) are given on the top row while the means and standard deviations of Raven's Matrices are given in the second column from the left. These mean scores for each class were compared with one another to check if there is any
statistically significant difference among them by using the t test. The t test values are shown in columns 3 to 6.

From the above table, it can be observed that the mean for Raven's matrices score of the children in the respective classes ranges from 14.6 to 16.4 while the standard deviation ranges from 2.05 to 4.04. The comparison of the difference among all the mean scores shows that all the t tests range from minus 1.20 to 1.21 which is below the critical value of 1.734. Therefore, the Ravens matrices test results among the children in the six classes are not statistically significant (P<0.05). This implies that all the children in the six classes are in the same baseline position regarding their cognitive skill.

It can also be observed from the above table that the mean of Standard Language Skill scores of the children from the respective classes ranges from 3.10 to 3.50 while the standard deviation ranges from minus 0.67 to 0.74. The comparison of the difference among all the mean scores shows that all the t values range from -1.50 to 1.15 which are below the critical value of 1.734. Therefore, the Standard Language Skill Assessment scores among all the children from the six classes are not statistically significant (P<0.05). This implies that all the children in the six classes are in the same baseline position regarding their language skill.

Generally, it is found that there is no significant difference among the children for both the Raven's matrices test and language skill. Therefore it can be concluded that all the children are at the approximately same level regarding their language and cognitive skill.

For additional baseline data careful observations of the teaching and learning process of all the classes was the starting point, especially relating to the Test Group children. A pre and post workshop observation was carried out.
4.4.2 Teaching Approach

To obtain baseline data on the normal method of teaching by the teacher, the researcher had the teaching and learning process recorded visually by video camera. A video recording of about 20 to 25 minutes during the teaching process of each of the six classes involved in the study was taken (with prior permission of the head teacher and the teacher involved). It is recognised that video recording a class could render both the teaching and learning as atypical. The teachers were not told the time and day when the lesson would be visually recorded to avoid any special preparation. The aim of the video was to get as 'natural' a setting and as 'normal' a recording of the teaching of the children as was feasible. The researcher also did class observation during the video session so as to recheck the data during the analysis. Below are general descriptive comments on the video recording (Video 1) recorded as baseline data before any selection of the Test and Control Groups were undertaken in the study. The classes and the topic of each lesson are shown below.

Table 4.4 Topics of Lesson (Class P1 to Class S2)

<table>
<thead>
<tr>
<th>CODE</th>
<th>NAME OF SCHOOL</th>
<th>TOPIC OF LESSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class P1</td>
<td>Sri Perak Primary</td>
<td>Arabic letters</td>
</tr>
<tr>
<td>Class P2</td>
<td>Sri Perak Primary</td>
<td>Art and craft</td>
</tr>
<tr>
<td>Class B1</td>
<td>Bandar Baru Primary</td>
<td>Pre-numbers</td>
</tr>
<tr>
<td>Class B2</td>
<td>Bandar Baru Primary</td>
<td>Art and craft</td>
</tr>
<tr>
<td>Class S1</td>
<td>Sungei Pencala Primary</td>
<td>Art and craft</td>
</tr>
<tr>
<td>Class S2</td>
<td>Raja Muda Primary</td>
<td>Art and craft</td>
</tr>
</tbody>
</table>

Note: P1, P2, B1, B2, S1, and S2 is a class code throughout the study.
While it is clearly the case that the presence of the camera might have affected the teaching-learning process, as far as possible this was minimised. As already noted, teachers did not know in advance that their class was to be filmed. Also, since all classes were filmed under the same conditions, any influence from the presence of the camera can be assumed to be the same for each class. Some differences might be attributed to the different curriculum areas which were recorded. However, this can be checked by searching for broad differences between classes P2, B2, S1 and M2, in all of which the topic is Art and craft. There do not seem to be significant differences, as shown below.

**Summary of Teaching and Learning Process of Class P1.**

This class consisted of fourteen children, nine boys and five girls. The children were seated on the floor and the teacher was sitting on the chair. The lesson was on the learning of the basic Arabic alphabet (which is, of course a different script from the roman one of Bahasa Malaysia). The teacher introduced the lesson, 'OK. class today we are going to learn how this letter. It is written in two ways. Can you do it class?' (All quotations are, of course, English translations from the original utterance in Bahasa Malaysia). The Arabic letters which were the focus of the lesson were written on the board and the children were asked to repeat what the teacher said. Some of the children were watching attentively and repeated what she said in chorus but others were playing with one another. The teacher stopped the lesson and tried to discipline the children. This took about ten minutes and the children appeared restless and bored. Then the teacher stopped the lesson again by asking the children to do physical education in the classroom for five minutes. After further choral repetition on how to spell some words by using the particular letters the children were asked to sit in their own places. This was followed by filling in words on a worksheet prepared by the teacher. Some of the children quietly did the work while others shouted for help complaining of not knowing what to do. The teacher was busy disciplining the
children and at the same time trying to show those who did not understand the original instruction what to do.

**Summary of Teaching and Learning Process of Class P2**
The class consisted of thirteen children, seven boys and six girls. The recorded lesson was about art and craft. The children were seated in their own places. The lesson started with the teacher distributing to each child a pair of scissors and cardboard with the uncoloured drawing of a butterfly. Then the teacher gave instructions asking the children to colour and then cut the shape of the butterfly. Then the teacher sat down to talk in a friendly manner to a few children about the butterfly. All the children tried to tell stories about butterflies without any turn taking. When some questions arose from the children they were not answered by the teacher. Everybody tried to talk at the same time. Some children quietly did their work and were left alone in another corner of the class. The teacher then walked around to check whether the children had completed their cutting of the shape of the butterfly and the children were asked to colour in the shape. The teacher asked some questions e.g. 'What is the difference between a butterfly and a moth?' There was no answer from the children. Then the teacher was interrupted by a child asking for feedback: whether the colouring was beautiful. Then everybody started to ask the same question for feedback. The teacher then asked the children to sing a song, to fill time until the break. Songs were repeated many times before the bell rang.

**Summary of Teaching and Learning Process Class B1**
This class consisted of seventeen children, ten boys and seven girls. Two boys were under age but were allowed entry because their parents were staff in the school. The lesson videoed was on group work. The class was divided into three groups. One of the groups was practising pre-numbers, that is playing at throwing rubber bands into a basket from one end. The partner was seated in front and waited for a turn. Children had to count how many bands were finally in the basket in order to
determine the winner. Children showed the teacher how many rubber bands they managed to get in. In the other corner was a group of six playing with Lego in free play. In the last group were children painting. The teacher was very busy organising the children, helping the children to put on their aprons before they were given a paintbrush. The groups were supposed to change places after twenty minutes spent in each corner. The class was very noisy because the children were running about and the teacher was very busy trying to organise and discipline the children. The recording focused on the activity of each group in turn.

**Summary of Teaching and Learning Process Class B2**

This class consisted of sixteen children, ten boys and six girls. The recorded lesson was an art lesson. The teacher divided the class into two groups and they were seated on the floor. The idea according to the teacher was that she cannot handle a large group at one time. The teacher was trying to explain to the group what to do with colours and marbles. The teacher gave all the children in the group some liquid colours on cardboard and rolled a few marbles in the tray. The children imitated the teacher and patterns of colours were produced on paper. The children were trying hard to get it right. They wanted to see the results. When the children had done the work they referred to the teacher for feedback. The other group were playing Lego, individually, even though they were all in the same corner. Later, the two groups swapped places. The teacher went round to check the children and this lasted for about twenty five minutes till the class stopped, ready to go home.

**Summary of Teaching and Learning Process Class S1**

This class consisted of sixteen children, seven boys and nine girls. Two children have learning difficulties. The recorded lesson was on free play. The group were divided into two equal groups of children. One group was playing with Lego and the other group with modelling clay. There were a lot of noises made by the group using a hammer to flatten the modelling clay. Almost all the children were working
individually even though they were seated at the same table. The teacher went round asking the children what shape they were making. This was the extent of her involvement with the children. Some children responded to the teacher's questions but others just ignored them. The children at the lego corner later made a lot of noise and started to throw the pieces of lego around. They seemed quite bored. After ten minutes the two groups changed places.

Summary of Teaching and Learning Process Class S2
The class consisted of eighteen children, ten boys and eight girls. The class was divided into two groups. The teacher explained to each group what the children were supposed to do. One group was given a set of a lego to play with but they were not given any kind of objectives by the teacher. The teacher with another group of children was doing craft work. The children were told to trace the shape of a petal and later they were supposed to cut it. The children were given coloured paper and they each worked individually within the group. The teacher then showed the children a ready made flower so that the children would follow exactly what they were supposed to do. The teacher did a lot for the children when they had difficulty, such as cutting the shape of the petals. While the children were doing the work the teacher sat on the chair in front of the class waiting for the children to come forward if any problem arose. The other group of children were playing on their own in free play. After twenty minutes the groups changed places.

Below are general conclusions of baseline information of teaching and learning as shown from the six videos described above.

a. Generally all the teachers practise a quite similar teaching approach that is very formal. Almost every teacher stands in front of the class and children sit on the floor and listen to what the teacher explains.
b. The teaching is very teacher-centred. Almost all the six teachers controlled the whole class discourse of teacher-pupil interaction. Most of the time the teachers are talking: either transmitting knowledge, giving instructions or asking questions to check the children's knowledge. Some of the teachers' questions were ignored or remained unanswered, possibly because they seemed to be routine formulae rather than meaningful initiations. Children responded to the teachers' questions, even though not all of the children were involved. If the right answer was given by the children the teacher gave feedback. Most talk seemed to conform to the IRF exchange structure (see section 4.8.1).

c. After about ten minutes of teaching in front of the class the children are then divided into two smaller groups to do the smaller session's activities. The children work individually even though they are in small groups. Most of the time the teacher circulates to check the children's work.

d. During the activities the children depend on the teacher's approval for evaluation. Generally the children do not show any initiative to ask questions. When a small number do ask questions, these are not related to the current activities but are more concerned with organising the materials.

e. The children do not interact with each other during the activities given by the teacher because most of the work is prepared in work sheet format. The children are asked to colour in or to match pictures and words on the work sheet. The children working individually. The task itself does not require co-operation or communication to be completed.

These observations describe the general atmosphere and teaching procedures in the six classrooms before the selection of Test and Control Groups. These initial findings are not surprising: the teachers have similar training and are working in similar pre-
school situations in a system which, on the whole, is generally consistent. Certainly schools in Malaysia offer a more uniform approach than schools in Britain. As stated earlier, the teachers generally teach in a formal manner and this is borne out by these video observations. The style of teaching revealed is probably common to a wide range of developing countries. Although it would, perhaps, be negatively evaluated by British teachers or teacher trainers, the Malaysian context needs to be carefully considered before such judgements are made. The point of the present study is, of course, to see whether, and how such teaching might be developed.

4.4.3 The Selection of Test and Control Groups
After all the recordings had been made, the choice as to which class would be the experimental one (one in each pair of classes for two of the schools) was made by tossing a coin as both teachers from the same school were willing to volunteer to be in the test group. Since all teachers had volunteered, it can be concluded that the Control/Test teachers were not self-chosen. In fact, all teachers were very eager to learn some new ideas from the researcher and finally the Test group classes were decided upon. The researcher attempted to meet the request of teachers for new educational ideas by visiting the Control Groups to discuss topics on children's activities but not mentioning anything that might defeat the purposes of the study i.e. the Control Group teachers were not informed of any details of the ECI approach until the end of the project.

4.5 Workshop with the Test Group Teachers
The workshop was held for about twelve working hours over four days and was organised after school hours. It was conducted in Bahasa Malaysia, this being the teachers' first language and the language they teach in; since they were not English specialists it would not have been appropriate to use English. The workshop included the following points:
i. Explanation of the theory and approach to the teachers

The ECI approach was introduced to the teachers in several ways. A handout was given to the teachers for reference with the following contents, together with explanation, discussion and practical activities.

a. Notes on the theory involved, that is the social learning approach based on Vygotsky's ideas and the neo-Vygotskian developments (as discussed in Chapter 2) translated into Bahasa Malaysia, were given to the teachers.

b. The role of teachers in helping the children based on the concept of the 'Zone of Proximal Development,' as expounded by Vygotsky and extended by neo-Vygotskian scholars, was generally discussed. The role of the competent adult or well trained pre-school teacher in assisting the children's learning was explained.

c. Notes on the concept of Enhanced Classroom Interaction and its importance were introduced. These notes were based on the information in chapter three. They were translated into Bahasa Malaysia and the researcher explained the concept very explicitly relating the concepts to the teachers' understanding of relevant theory and practice.

d. The importance of language in learning stressing the need for active talk by children was discussed. A video showing examples of good practice in British schools, videoed by the researcher herself, was shown to the teachers to demonstrate what is meant by active interaction between the class teacher and child, and also between child and child, and how it might be developed. Since the video was in English the researcher translated the language into Bahasa Malaysia whenever the teachers found it difficult to understand. The teachers were encouraged to comment and gave their opinions.

e. There were also practical activities for the preparation of materials and tasks to be used in the test classroom based on peer collaboration and interaction. The researcher showed some examples of tasks that were used in British schools. Some of
the tasks were based on game-like activities which are very attractive and elicit interactive talk, as demonstrated by Cortazzi (Personal Communication, 1994). The task based activities were developed either for a group of children or a pair of children. These workshop materials would serve as an initial bank of material on which teachers could draw systematically over the time of the project.

ii. Briefing and Instruction to the Teachers

a. On the basis of these written notes for the teachers, the researcher conducted further training with the Test Group class teachers. The researcher explained the importance of teacher-pupil talk in learning and the role of language in cognitive development. The theory involved is the social learning approach based on Vygotsky's ideas and the neo-Vygotskian developments (discussed in Chapter 2).

b. The Test Group teachers were asked to act in the role of the instructor and performer when trying out the games that had been prepared by the researcher from Britain. Initially, the teachers played the role of the children, and the researcher took the role of the model teacher. The teachers were then asked to practise performing task based activities in pairs, taking alternate roles of instructor and performer, so that they became thoroughly familiar with the ideas, strategies and procedures of the ECI through practical experience.

c. The teachers were shown further examples of task-based material that needed a pair of children to work on. Then the teachers were asked to give their own ideas and comments about the task-based materials. The teachers then produced their own task based materials appropriate for teaching and learning in their own classrooms. This activity was designed to help them to internalise the concepts, beside enabling them to make materials for their own classes.

d. The teachers were also told about the instrument that would be used to test the children's interaction after the 'Enhanced Classroom Interaction' had been implemented, without giving details of the test, however.
iii. Practical Activity of Enhanced Classroom Interaction with the Teacher

The last stage of the workshop was to practise by micro teaching. It was based on the micro teaching skills to which trainees are exposed in teacher training (Husin, 1990). The researcher outlined some of the skills that are to be stressed in the ECI. The tasks that were prepared by the teachers were tried out with a pair of children (who were not from the school). The following points were emphasised.

a. In the introduction the teacher should introduce the joint activity to the children, and the objectives and purposes of the task in clear terms, through instruction, modelling and demonstrating.

b. In order to vary the stimulus, the teacher should enhance intensively according to the need of the child. The teacher must always encourage interactive activity among the children by discussion, questioning, hypothesising, as long the children can express themselves. It is very important for the teacher to know when to assist and when to 'handover' (see in chapter 2) so the child can be independent.

c. The skills introduced, such as scaffolding, prompting, cueing, extending responsive contingencies were practised, and intensive enhancing was stressed.

d. Examples of tasks were practised, such as predicting, describing and arranging and others mentioned in the use of Communicative Language Teaching (see Chapter 3). Most of the materials can be improvised by the teachers since Malaysia is rich in cheap natural resources that can be used in the classroom.

4.5.1 Teacher's Reactions to the Workshop

The researcher assumed that the teachers understood the ECI concept and the approach. They had all received the same basic training from the teaching colleges of Malaysia and they have a similar background concerning knowledge of the learning theories and teaching models that they had encountered as a key element of their training. The notes were designed to build on this common background. Teachers had ample time to discuss the concept and to raise queries. There were no
changes in the curriculum content suggested, although the ECI involves a new approach and new techniques.

The teachers showed their interest through the role play in pairs and by asking plenty of questions during the practice sessions. From the comments they gave, it was judged that they understood the concept of 'Enhanced Classroom Interaction' approach.

All the teachers seemed very enthusiastic about the new approach. This was judged by their willingness to stay back after school in the afternoon to discuss the task-based activities that they produced and which could be used the following day.

4.5.2 Discussion with Control Group Teachers

During the early part of the second week, a meeting was held after school with the Control Group teachers about the research and their participation. The teachers were informed of the general testing, the video recording that was to be carried out in their classrooms, and about the timing involved in the project. However, they were not given details of the Enhanced Classroom Interaction approach nor were they shown the materials or Test Group activities. All the Control Group teachers were briefed individually about the whole project because it was considered unnecessary for this group to discuss the procedures and concepts among themselves, unlike the Test Group teachers. They were all given the same information.

The Control Group were very co-operative. These teachers waited till the end of the study and then discussed openly what had been going on in the Test Group within the previous ten weeks. Teachers in the two groups were asked not to discuss the project with each other during the course of the project. As far as could be observed they did not do so. Also, it seemed clear from the eventual discussion between teachers at the end of the project that Control Group teachers knew nothing of the tasks, the ECI
approach or the aim of the project beyond what they had seen in their own classroom, i.e. the tests.

4.6 Implementation of the Test
The Test Group and the Control Group teachers from the same school were briefed in detail about the test so that the teachers would get the same message and the results would in this respect be valid for comparison between the two groups. All the teachers were given the same written guidelines to administer the test (see Appendix V).

i. Selection of Pairs
The selection of the pairs of the children was done by the class teachers, based on the language ability of the children, so that reasonable levels of the interaction and working relations would be likely. The Control Group children were grouped in pairs even though in the other activities in the class the children would not be likely to be working with their own partners as the Test Groups would. This was an attempt to rule out undue influence of social factors between the two groups.

ii. Procedure for Testing
The procedure for testing was as follows
a. Ten children or five pairs from each group had been already selected and matched by the class teacher.
b. All the interactions were tape recorded from the moment the teacher started the task until the task was completed. The time taken to complete the task and the accompanying language is defined as a 'Transaction' (cf. section 4.8.3).
c. A pair of children must complete the two tasks (the Car task and the Rod task) for the first test and the second test (Progress Test One and Progress Test Two). Details are presented in Figure 4.2 below.
The implementation of the whole test in the study can be referred to in Figure 4.2. The materials to test the children's interaction and language were categorised into two phases. These are Progress Test One and Progress Test Two which were given at different times. The tasks given were not same even though the same material was used.

4.6.1 Progress Test One (the Car task 1 & the Rod task 1)
Progress Test One involves two tasks: the Car task (1) and the Rod task (1) which the children would perform in sequence. These tasks consisted of four sets of 12 photographs of the car accident sequences and one set of the photographs of the Cuisenaire rods arranged in a particular manner for each child. The researcher had planned to test the children with the Car task (1) and follow up with the Rod task (1) almost immediately but a problem arose. The idea of conducting the second task for the test 'the Rod task 1', five minutes after the 'Car task 1', was to test whether the children were really independent of the teachers' help and at a 'Handover' stage (Bruner 1983). However, the 'Rod task 1' was given after all the children had done the 'Car task 1', i.e., the two kinds of test materials for a given pair of children could not be given at the same time of the day, but they were used within the same week with all the Test and Control Groups. The reason was that problems had to be faced such as:

i. The other children were restless waiting for their turns and it was seen that over-long delays would introduce extra variables of impatience, frustration or loss of interest.

ii. The participants looked quite tired and this, it was thought, would affect the interaction. The children's age and their limited attention span had to be taken into account. In fact, the first pair of children took more than half an hour to complete all the transactions. This was first tried out with the Control
Group children. It is, of course, normal for young children to switch classroom activities at frequent intervals.

iii. The researcher had planned that the test would be given to the selected children by the teacher. In fact, all the children in the class from the Test and Control Groups were given the chance to take part in the test even though the researcher's focus was on only ten or five pairs of children selected by the teacher from each class. The reason was that all children were eager to 'play the game', as they term it, and they were looking forward for their turn to take part. Again, this would be the procedure for normal class activities.

The test (Progress Test One i.e. the Car task & the Rod task) was given after four weeks (weeks 5-6). The teachers of the Test Groups, implemented the new ideas in the classroom to enhance children's interaction, whereas the teacher from the Control Groups practised the normal teaching methods, as far as could be judged.

Why progress test one could not be given before the intervention. The researcher had planned to test the children before any intervention (i.e. in week 1 or 2) in a normal pre-post treatment research design but due to the following reasons it was not possible to carry this out.

i. During the first week after school hours the researcher tried to estimate the time taken to complete the test with each pair of children by trying it out with the neighbour's children of the same age. The time taken was about forty minutes for the 'Car task' and thirteen minutes for the 'Rod task'. The time taken for the British children from a KS 1 class during the pilot study took about thirty minutes for the 'Car task' and ten minutes for the 'Rod task'. The time taken for the Malaysian children was discussed with the teachers and it was deemed impossible to run the test before the workshop (i.e. in week two).
IMPLEMENTATION OF THE TEST

TEST FOR INTERACTION

PROGRESS TEST ONE
WEEKS 5 & 6
THE CAR TASK (C1)
THE ROD TASK (R1)

PROGRESS TEST TWO
WEEKS 10 & 11
THE CAR TASK (C2)
THE ROD TASK (R2)

C1

R1

C2

R2

KEY:
TR = TRANSACTION
SB = SUB-TRANSACTION
P = PICTURE

FIGURE 4.2 IMPLEMENTATION OF THE TEST
ii. All the classes function for only three hours from half past eight to half past twelve. The teachers were willing to run the test with the children without interrupting the morning outdoor routine and the break time. The school meal takes about half an hour everyday and the morning outdoor routine takes about half an hour. Given such timing, if there had been a test before the intervention it would have required at least two additional weeks and this would have postponed the workshop and therefore it would have shortened the teaching and learning process to an unacceptably brief period (since the whole project was restricted to 12 weeks).

iii. During the first week all the children in all schools were given the coloured Raven's matrices test and the scores were taken down as a baseline data. Even though the time taken was ten to twenty-five minutes per child, the management of this test consumed a lot of time since the children needed to be organised to take part. The children were, of course, also engaged in normal curriculum activities throughout the period. The standard language skill scores of the children were also collected from all the teachers of the pre-school classes that took part in the study. These two types of baseline data of the children were considered sufficient to indicate the children's level from the two groups. There is, after all, a limit to the number of tests one can administer to young children in a classroom.

iv. If there had been an additional test before the intervention it would have used too much test material, in the sense that the children would have become too familiar with the material, engendering a 'backwash' effect. Furthermore, the Test Group teachers agreed that the test would be given after the intervention. They wanted to know the effectiveness of the new approach that they had tried out.

However, Progress Test One would show the short term impact after a four week period. Thus, it can not be called a 'pre-test'. Both the Test and Control Group
children were, of course, given another test later to know the progress made, and this is called Progress Test Two (the 'Car task 2' and the 'Rod task 2'). The research results will be based on comparisons between the groups and between the tests.

4.6.2 Progress Test Two (the 'Car task 2' & the 'Rod task 2')

After eleven weeks, the same pairs of children were given a similar test (but using a different set of materials) to ascertain the long term effect in both the Test and Control Groups. This second test consisted of two tasks. The Car task involved four sets of 12 photographs of car accident situations. The Rod task involved one set of the photographs of the Cuisenaire rods arranged in a particular manner for each child. The materials in both tasks for the second test were slightly different so as not to look too familiar compared with the Progress Test One. The second test was given after the tenth week when the teachers from the Test Groups had implemented the new ideas in the classroom to enhance children's interaction, whereas the teachers from the Control Groups were still using the normal teaching methods.

4.7 Data Collection

The researcher had considered doing the tests and observation and recording by taking the children to somewhere away from the normal classroom noises in order to obtain a high quality recording and avoid possible distractions for the children. However, all the head teachers disagreed with this. Consequently, the tests were run in a corner of the classroom, either being blocked from other children's view by a cupboard or in the children's toy corner. Care was taken to ensure that the test procedure could not be seen by the other children in the classroom.

4.7.1. Recording and Observation

i. Audio recording

Initially, the researcher considered using a video recording to monitor the test but this notion was dismissed. Not only would the cameras affect the children's conversation
because they would be very conscious of the recording in such a small group but the teacher might be affected too. The audio recording method was finally adopted. As described above, the test was done in one corner of the classroom itself while the other children had to carry on with other normal curriculum activities and sometimes the researcher needed to help out with the other children so that they would not interrupt the teacher during the test. This meant that visual observation of the test was occasionally interrupted. Video recordings made on other occasions were used for part of the data analysis. The whole process of performing the task by the Test Group and the Control Groups with the presence of the teachers from the start till the end of the whole set of tasks for each group was audio recorded.

There were, inevitably, problems with noise in and outside the classroom. There were also technical problems with the recorder and faulty tapes before the recording. In addition some of the schools were near to the road side and the microphone seemed to be particularly sensitive to motor engines. On the whole, however, the arrangements worked surprisingly well, and the researcher was able to obtain reasonably clear recordings. Clearly, the test procedures would have been more easily carried out in a laboratory or separate classroom. On the other hand, the tests-as in fact carried out-do represent a near normal classroom situation, with all the 'normal' difficulties that this entailed.

ii. Video recording

Video recordings were used to record the teaching and learning process of both groups in week 5 and week 11 as originally planned (refer to descriptive documentary of the video recording in Chapter 5 part one).

It was planned to include the video cassettes as an appendix to this thesis, however the picture quality on the British video system emerges very poorly. Nevertheless, a descriptive commentary on the recording is given in chapter six and the video recording itself was used for part of the data analysis.
iii. Written notes

Written notes were used to record any on-the-spot observations and teacher's comments on the implementation of the test, to be used for further reference. The researcher intended to observe fully the conduct of the test but as mentioned this proved impossible. Instead the researcher had to attend to the non-test children if at times the classroom helpers were away or absent. The tests were run simultaneously in each classroom within the same time. However, since each test was audio-recorded it was relatively easy to check that the testing was carried out in a valid and reliable manner according to the researcher's instructions.

The three months of research work in Malaysia turned out to be hectic, but full of experience. All the data required for the study were obtained and made ready for the next step to be taken.

4.8 Conversation Analysis Model

This model has been developed by sociologists and linguists to analyse everyday conversation. The model is introduced in this chapter because it is the linguist framework for analysing the data (see Chapter 6 and 7).

According to Asher and Simpson (1994) Conversation Analysis is a bridge between linguistic analysis (especially pragmatics) and the sociological investigation of society, conversation being a primary medium of interaction in the social world, and the medium through which children are socialised into the linguistic and social conventions of society (1994, p. 749). In the last two decades the analysis of conversation has become an active and fast developing field in the study of language and communication. Originally the concept of the structure of conversation exchanges came from the work of the sociologists Sacks, Schegloff and Jefferson (Sacks, et. al. 1974). Sacks introduced the idea that conversation consists minimally
of a string of at least two turns. This concept of turns was used in this study to measure language interaction by identifying the number of turns during each transaction of the task between the teacher and a pair of children. The greater the number of turns per participant the more 'active' the verbal participation of the speakers. (This is offset by means of length of turn). The study also focuses on the structure of exchanges which is described below.

4.8.1 The Development of Structure of Exchanges
In the UK the study of classroom discourse was originally associated with the names of Sinclair and Coulthard and others. In 1975 they set up a scheme for analysing and categorising the structure of exchanges in the classroom. They pictured the formal social order of a typical classroom as patterns of talk that represent how the teaching and learning happens. Their scheme offers a way of categorising classroom talk under the hierarchical headings of lesson transactions, exchanges, moves and acts. Thus a lesson consists of a transaction which in turn consists of one or more exchanges, and so on, in rank order (Sinclair and Coulthard, 1975). According to Sinclair and Coulthard (1975), an exchange consists of an initiating move and any responding moves which the initiation elicits. In fact the most characteristic exchange in formal teaching has a three part structure: *Initiation (I)* by the teacher, followed by a *Response (R)* from the pupil, followed by a *Feedback (F)* to the pupil's response from the teacher (*IRF*)

An example of an *IRF* structure is:

Teacher: What colour is this? (Initiation)
Child: Yellow (Response)
Teacher: Good (Feedback).

Initiations expect a response, and a response occurs as a response to a preceding initiation. The feedback move is to close an exchange as a kind of 'response' to a
Response. Thus, the sequence of I-R-F can be regarded as two pairs of utterances, I-R and R-F. In each of these pairs the first element anticipates the second and when the second occurs it confirms the speaker's understanding of the first element.

Stubbs (1979) developed Sinclair and Couthard's idea of IRF further, maintaining that it was more flexible and fluid than the latter had suggested. He believes that the structure of an exchange is not fixed at only IRF but the possible exchange is I-R/I-R-F where F is regarded as optional (as a follow up) and R/I means the second speaker may respond (R) or himself initiate (I), i.e. R/I is a choice.

For example:
T: Can anyone tell me what this means? (Initiation)
P: Does it mean 'that it's going to rain'? (Response and Initiation by a question)
T: Yes (Response to pupil question- also a feedback)

In this case the pupil not only answers the teacher's question but explicitly requests for the response from the teacher, hence the second utterance is R/I.

The structure of exchanges is further elaborated by Coulthard and Brazil (1981). They proposed that an exchange structure consisting minimally of two structure elements, always I and R, and maximally of four, I-(R/I)-R-(F), where bracketed elements are optional.

Willis's (1992) research was based on an adaptation and extension of Sinclair and Coulthard's (1975) model in the foreign language classroom. She tried to use the description of the structure of language classroom discourse, and at the same time analyse language which maintains the flow of the interaction, and show the relationship between the two. In seeking to separate out the two uses of language, she adopted the terms 'Outer' and 'Inner' structure.
The 'Outer' structure is the mechanism for controlling and stimulating pupils' utterances in the 'Inner' structure which gives formal practice in the foreign language. The 'Outer' structure may be in learner's mother tongue (L1) but the 'Inner' structure is designed to be in the target language (L2). Hence the 'Outer'- 'Inner' sequence is intended, by the teacher, to be an L2 practice device. Usually the 'Outer' structure consists of instructions or management talk to facilitate the 'Inner' structure practice.

Example taken from Willis (1992, p. 164) is:

**Outer**

1. T: Let's go on where, shall we?
2. T: What page is it?
   Child 1: Page 30.
   Child 2: Page 30.
   T: Page 30, yes.
3. T: We were looking at Fred, weren't we, in bed, Fred in bed, mm.
4. T: Erm, can we make the questions by the picture. Don't look at the writing. OK? (non-verbal response)
5. Erm, can we make the question by the picture? Look at Fred. When, Fred, army.
6. Can you make the question Scoop?
   Would you like to try that?

Here the lesson begins with the outer level, the teacher finds the page and before setting up the activity establishes the picture and accompanying words and the students find the right page. No 1. shows a teacher initial exchange of No. 2. There is a typical three part move IRF. A further move by the teacher at No. 3 and No. 4 is an Initiation followed by a non-verbal Responding move as the students find the words by the picture. At No. 6, Scoop is asked to make a question, and the teacher
gives cue words, 'when, Fred, army' these cue words are an example of an utterance from the Inner level.

In this study the researcher has adapted the idea of 'Outer' and 'Inner' to account for framing patterns used by the teachers of the Test and Control Group. In the case of this study the teacher does not switch to any other languages since all talk is in Bahasa Malaysia.

Willes (1983), another supporter of Sinclair, carried out a study of talk in an infant school and the structure was found to be surprisingly similar to that typified in the secondary classroom in terms of IRF.

Stenstrom (1994) partly modified the Sinclair and Coulthard model (1975) and partly adapted the conventions adopted by other discourse and conversation analysts. In the analysis of this study the researcher has adapted the term 'repair' used by Stenstrom (1994). She defines it as 'an utterance which holds the exchange together by clarifying misunderstanding' (1994 p. 36).

Another proponent of using the concept of exchange in the analysis of talk is Tsui (1994) who emphasises a new pragmatic approach which is much needed in the description of conversation. Her model recognises that these are different language functions which are realised for each element of the exchange. Tsui drew up the taxonomy of discourse acts which is summarised below.
There are also others who have extended the concept of exchange e.g. Taylor and Cameron (1987), Francis and Hunston (1992) and Hoey (1993). Hoey develops the notion of complex exchanges which comprise of branching, converging, subordinating and compound patterns. Such categories follow an analogy with grammar and allow for various combinations of exchanges in more complex structures, e.g. combining in chains (compound) or combining by the embedding of one exchange inside another (subordinating).

Lier (1996) describes types of IRF and the relationships among them as shown in Figure 4.4 below.

Lier's describes the functions of IRF as being dependent on how the exchange is being used. The IRF can be seen in two poles. It has four elements: repetition, recitation, cognition and expression. It could be regarded as negative as seen on the left of the above diagram and probably as positive, as shown on the right of the above diagram. Thus, whether the outcome is positive or negative depends on the use and purpose, in a given context.
Lier's describes the functions of IRF as being dependent on how the exchange is being used. The IRF can be seen in two poles. It has four elements: repetition, recitation, cognition and expression. It could be regarded as negative as seen on the left of the above diagram and probably as positive, as shown on the right of the above diagram. Thus, whether the outcome is positive or negative depends on the use and purpose, in a given context.

The concept of exchanges has become a current issue in the teaching and learning process beyond purely linguistic considerations. The IRF which has become interpreted as ground rules, which since a few centuries ago may have changed (Edwards and Mercer, 1987). The latest development is by Oyler, (1996) which focuses on young children's learning during teacher-led read-alouds of information books. Therefore this study, too, takes account of the differences in the exchanges between the Test and Control Group.

However, the development of the Concept of 'the Exchange' can be summarised in the Figure below.
<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Main Idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinclair and Couthard</td>
<td>1975</td>
<td>IRF (basic exchange structure)</td>
</tr>
<tr>
<td>Stubbs</td>
<td>1981</td>
<td>I-R-I-R-F-F (further choices)</td>
</tr>
<tr>
<td>Willis</td>
<td>1981</td>
<td>'Outer' and 'Inner' structure.</td>
</tr>
<tr>
<td>Hoey</td>
<td>1993</td>
<td>Complex exchanges</td>
</tr>
<tr>
<td>Lier</td>
<td>1996</td>
<td>Positive and Negative exchanges</td>
</tr>
</tbody>
</table>

Figure 4.5 Development of the Concept of 'the Exchange'

Generally, from the above figure the concept of exchange can be seen as an evolving one. Researchers from several disciplines have taken up the concept to investigate social interaction and classroom language. As noted, few researchers have developed the concept with young learners and even fewer have employed the concept when studying language outside Europe or North America.

The transcribed text of each pair of children's utterances in an exchange structure is analysed to identify the different exchange structures between the two groups of children. Some of the concepts (see definitions of terms, section 4.8.3) was adopted by the researcher in analysing the conversation during the test. The data is then analysed quantitatively (see Chapter 6) and qualitatively (see Chapter 7).
4.8.2 Transcription of Tapes

Bahasa Malaysia is the National Language and also the medium of language in the government schools in Malaysia. English as a subject in school is only introduced in the second half of the first year in a primary one classes. The medium of language used in all the selected annexe pre-schools is Bahasa Malaysia. Therefore, the video tapes were transcribed in Bahasa Malaysia. The examples from the transcription which are quoted throughout the thesis are all translated into English and are presented in italics (some examples of the original Bahasa Malaysia version can be found in the Appendix VI and IX).

When all the tapes were collected from both Test and Control Groups, the researcher was faced with the task of listening to the tapes and extracting and transcribing all conversations between each pair of target children and the teacher, while ignoring the taped noises in the class made by other children who were not involved in that task. For this purpose two Malaysian stenographers were employed to transcribe the interaction of every pair of children and the teacher. Then these transcriptions were checked and rechecked by the researcher to ensure that the written version was complete and accurate. The final product was a complete record of the actual words used but not everything could be transcribed in detail, for example, intonation and gestures were not included. Thus, some aspects that may well be important for the total communicative situation were omitted, since the present study does not focus on these aspects.

Any researcher considering a similar study should note that this process of transcribing and editing is very tedious and time consuming. One hour of a school tape took nine hours to transcribe (Tizard 1984, p. 34). Thus, in this study approximately three hundred hours of work was involved in transcribing audio and videotapes (the audio and video recordings were listened to three times=300x3=900 hours), and checking and adding context notes, before the analysis could even begin.
The transcribed texts were analysed systematically by amalgamating some of the 'exchange structure models' that have been developed by researchers involved with analysing conversation. Below is the diagram figure 4.6 showing the detailed example of the Car tasks.

Figure 4.6 Components of a Transaction (the Car task)

Key: T= Teacher; C1=Child 1; C2=Child 2; P1, P2, P3=Photographs

The description of the terms below refers to the above schematic diagram e.g. from the 'Car task' (and similarly the 'Rod Task').

4.8.3 Definition of Terms

The type of words and sentences uttered by the teacher as analysed from the transcriptions and video contributed to the different kinds of exchanges produced by the children of the Test and Control Groups (as they would in a Vygotskyian model). On the other hand, the words and sentences spoken by the children reflected their language acquisition and competence linked to the actions taken in each task.

- **TRANSACTION**: A transaction consists of conversation generated by a teacher and a pair of children during the performance of each task. In practice, it
is defined by the teacher initiating and terminating the task which is the basis on which the timing was conducted. Therefore, for each task, a transaction refers to the total number of sub-transactions (which are described below).

- **SUB-TRANSACTION**: In a transaction there are two or more sub-transactions. A sub-transaction refers to the interaction generated by a teacher and a pair of children during the performance of the task related to one car accident (i.e. using 3 photographs (P1, P2, P3) or to one model made with rods (i.e. using one photograph of rods). A complete car task involves all the interaction sequences with four sets of photographs (four sub-transactions). While a complete rod task involves the interaction with two photographs (two sub-transactions). As children move from one sub-transaction to another they change sets of photographs and exchange the instructor and performer roles.

- **Exchanges**: Each sub-transaction is realised by one or more IRF sequence. In the 'Car task' there are four sub-transactions and each sub transaction uses 3 photographs. Therefore there are, at least, 3 exchanges (IRF) in one sub transaction. The extent of the data can be seen by calculating the number of exchanges. Each exchange (necessarily) involves both children, with or without the teacher. In the 'Car task' there are all together 12 pictures and in the 'Rod task' there are two sub-transactions with 2 pictures, and at least one exchange per child. The calculation of the exchanges can be seen in the following table.
Table 4.5 Calculation of the Exchanges

<table>
<thead>
<tr>
<th>In a Transaction</th>
<th>In a Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Car task</td>
<td>The Rod task</td>
</tr>
<tr>
<td>Sub-transaction 1-2-3</td>
<td>Sub-transaction 1</td>
</tr>
<tr>
<td>Sub-transaction 1-2-3</td>
<td>Sub-transaction 1</td>
</tr>
<tr>
<td>Sub-transaction 1-2-3</td>
<td>Sub-transaction 1</td>
</tr>
<tr>
<td>Sub-transaction 1-2-3</td>
<td>Sub-transaction 1</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Pairs of children 15x12=180</td>
<td>Pairs of children 15x2=30</td>
</tr>
<tr>
<td>Progress Test One &amp; Two(2x180)=360</td>
<td>Progress Test One &amp; Two(2x30)=60</td>
</tr>
<tr>
<td>Test Group and Control Group=720</td>
<td>Test Group and Control Group=120</td>
</tr>
</tbody>
</table>

From the above table there are at least 720 exchanges in pairs for the 'Car task' and at least 120 exchanges in pairs for the 'Rod task' giving a minimum of 840 exchanges in the study (Car & Rods=720+120=840).

- **Moves**: is a verbal action which carries the conversation forward (Stenstrom, 1994 p. 36). In each exchange there are at least there are 3 moves. Therefore there is all together a minimum of 840x 3 = 2520 moves.

- **Child I (CHI)**: is the code given to the first child (instructor) who starts the task. This code is used throughout the transaction for the purpose of analysing the data. This is a role label. Children take the Child 1 role alternately as they move from one sub-transaction to another.
Child 2 (CH2): is the code given to the second child (performer), who performs the task. This code is used throughout the transaction for the purpose of the analysis of data. Again, this is a role label and each will take this role with alternate transactions.

Teacher (T): refers to a particular teacher in the transaction with a pair of children.

Initiation (I): refers to the opening of the exchanges at the beginning of the transaction till the end. An initiation anticipates a response.

Response (R): refers to the utterance of the participant who continues the exchange in response to the initiation.

Feedback (F): refers acknowledgement given during the task either from the teacher or the child. This acknowledgement follows the response and generally gives an evaluation of whether the response (and the arrangement of the cars or model) is correct or not, or how it should be improved. This is a follow-up in Tsui's terms (1994).

Turn: one person's turn at speaking; for example, instructing and describing to the partner with either a short or a long utterance. Back channels such as er, mm.. etc. do not count as turns but utterances containing clear feedback are counted as turns e.g. 'that's right'. In every transaction between the pair of children and the teacher the turns were given a code according to the role taken, the first child as CH1 (Instructor role), the second child as CH2 (Performer role) and teacher as T, to enable easy counting. The term CH1 thus refers to any and every child who takes the first role in a transaction, as instructor. The term CH2 refers to any and every child who takes the second role in a transaction, as performer. As explained earlier, all the children alternately take CH1 and CH2 roles.
• **Utterance:** For many scholars, this is the basic unit of discourse; typically shorter and less complete than a sentence in conversation, an utterance may be a sentence, or the equivalent (in speech) to several written sentences in an unbroken flow. An utterance is a spoken piece of language used to someone, in context. In every turn it is essential to consider the utterance of a particular child or teacher in the context of the task. In practice, in this research, an utterance is usually a turn, although technically a turn might consist of several or many utterances.

• **Morpheme:** The smallest grammatical unit of words spoken by a particular participant in the transaction (by CH1, CH2 or T). The word is potentially broken down to morphemes e.g. in Bahasa Malaysia 'jalankan' translated *moving* is broken down into two morphemes (jalan +kan) or (move+ing). More examples are shown in the table below. Thus a word may consist of one, two, or more morphemes. Below are several rules for counting morphemes in Bahasa Malaysia. Obviously, the morpheme count for the English translations is not necessarily the same as the morphemes count for the original Bahasa Malaysia utterance. It is the Bahasa Malaysian morphemes which are calculated in this research to measure the mean lengths of utterance and turn (see below).

• **Mean Length of Turn (MLT):** The average number of morphemes per turn. This is counted by the total number of morphemes divided by the total number of turns for each child in the whole transaction. This is a common general measure of conversational competence (Snow 1996). MLT has been used as an index in assessing child language as a ratio of child to mother MLT (Snow 1977). Snow commented that even though it is a 'quick and dirty index' in looking at conversational skill, it has been frequently used. She stressed that 'the tool must be sharpened' (Snow 1996, p. 87). Here it is used
as a general measure of language to ascertain differences between the Test and Control Groups. Figure 4.7 below shows the guidelines to calculate morphemes in Bahasa Malaysia.

1. All the morphemes in the transaction are counted manually.
   e.g. CH1: Letak kereta merah di kanan jalan = 6 morphemes (in this case each word is one morpheme).
   
   Put car red [direction] right road
   eg. CH2: Di mana = 2 morphemes, (di+mana)
   
   [direction] where (one morpheme in English)

2. All the compound words are counted as more than one morpheme e.g.
   perlahan-lahan=3 morphemes (per+lahan+lahan) (only 2 morphemes in English)
   [verbal prefix] slowly
   e.g. berhati-hati=3 morphemes (ber+hati+hati) (only 2 morphemes in English)
   [verbal prefix] careful
   3. All the repetitions of words are also counted as more than one morpheme. This is common in Bahasa Malaysia, e.g. reduplication.
   such as broom..broom=2 morphemes, lagi..lagi=2 morphemes,
   [broom] (sound of car) [little by little] [move on]
   (3 morphemes in English)

4. All the prefixes and suffixes are counted as one morpheme in each case e.g.
   prefixes ber, ter, etc. Such prefixes and suffixes are characteristic features of Bahasa Malaysia. e.g.
   berlanggar=2 morphemes (ber+langgar) terlanggar=2 morphemes (ter+langgar)
   [verbal prefix, action perform] hit [verbal prefix action perform] hit
   accidentally
   (one morpheme in English) (3 morphemes in English)
   e.g. suffix kan e.g. naikkan=2 morphemes (naik+kan)
   go on top [emphatic towards/to] (3 morphemes in English)
   5. Backchannels in the utterances such as ah...(indication of wrong) and ya...emm (indication of right) are considered one morpheme.

Figure 4.7 Guidelines to Calculate Morphemes in Bahasa Malaysia.
• **Mean Length of Turn (MLT)**: The average number of morphemes per turn. This is counted by the total number of morphemes divided by the total number of turns for each child in the whole transaction. This is a common general measure of conversational competence (Snow 1996). MLT has been used as an index in assessing child language as a ratio of child to mother MLT (Snow 1977). Snow commented that even though it is a 'quick and dirty index' in looking at conversational skill, it has been frequently used. She stressed that 'the tool must be sharpened' (Snow 1996, p. 87). Here it is used as a general measure of language to ascertain differences between the Test and Control Groups.

• **Mean Length of Utterance (MLU)**: The average number of morphemes per minute. It is counted by the total number of morphemes divided by the time for the whole transaction. This is a common general measure of language development, particularly as an indicator of syntactic growth (Snow 1996). Some researchers count the average number of morphemes for 50 or 100 utterances, rather than per unit of time (Scholfield, 1996).

• **Time**: the length of time taken from the start of the test till the end of it. This will be generally indicated verbally on the tapes by the teacher who tells children when to begin and when to finish. The time taken on task can therefore be measured from the audio tapes. The time taken for each transaction was calculated by using a stop watch to indicate the time from the start and this was rechecked by calculating the total time taken for the three *sub-transactions* in the case of the Car task. The time of any short pauses during the test was also included as being part of the task. These calculations of the time taken were done separately from the process of making transcriptions of the data to avoid errors in timing. So all the tapes of the Test and Control Group children were listened to once again to measure the time taken for each pair. This also gave
another chance for the researcher to reflect on what was happening during the test and helped her to check the notes and observations.

- **Repair**: An utterance which holds the exchange together by clarifying misunderstandings (see earlier, p. 144 definition by Strenstrom, 1994).

The above terms and measures will be used in chapter 6 and 7, which report quantitative and qualitative data analysis.
5. **CHAPTER FIVE: CASE STUDIES OF THE TEACHING AND LEARNING PROCESS**

5.1 **Introduction**

PART I

5.1.1 Descriptive Commentary on the Video Recording

PART II

5.2 **Objective of the Case Studies**

5.2.1 Descriptive Analysis of the Teaching and Learning Process
5.2.2 Test Group Classes
5.2.3 Control Group Classes

5.3 **Evaluation of Overall Teaching and Learning Process**

5.3.1 Test Group Classes
5.3.2 Control Group Classes

5.4 **Teachers' Thoughts about of ECI Approaches following the Study**
5. CHAPTER FIVE: CASE STUDIES OF THE TEACHING AND LEARNING PROCESS

5.1 Introduction

The first part of this chapter will give a commentary on the video recordings of all the classes of the Test and Control Groups. The second part will explain the objectives of the case studies of the teaching and learning process of both the Test and Control Group classes. A descriptive analysis and evaluation of each group will follow separately. Teachers' reactions to the ECI following the study will be reported in the last part of the chapter. This Chapter characterises the teaching in the two groups in broad terms. This will lay the ground for the more precise investigations to be reported in Chapter 6 and 7. Where this Chapter describes the 'normal' teaching recorded in the two groups, Chapter 6 and 7 give detailed analyses of the two Progress Tests.

A first video (Video I) was taken as a baseline data of the teaching (see chapter 4.4.2). The second video (Video II) for the teaching and learning processes was recorded in the fifth week and the third video (Video III) was recorded in the eleventh week of the fieldwork (see Table 5.1 below). The aim of these recordings is to observe whether the teachers from the three Test Group classes were actually practising the Enhanced Classroom Interaction approach. The Control Group classes were also recorded, whatever approach they were applying in the classes with the children, in order to enable the researcher to get more knowledge of 'normal' classroom approaches so as to compare them with the Test Groups. See Table 5.1 below.
Table 5.1 Class and Code of Video Recording.

<table>
<thead>
<tr>
<th>TIME</th>
<th>VIDEO</th>
<th>CLASS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week one</td>
<td>Video 1</td>
<td>B1</td>
<td>B1V1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B2</td>
<td>B2V1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S1</td>
<td>S1V1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2</td>
<td>S2V1</td>
</tr>
<tr>
<td>Week five</td>
<td>Video 2</td>
<td>P1 (Test Group)</td>
<td>P1V2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P2 (Control Group)</td>
<td>P2V2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B1 (Test Group)</td>
<td>B1V2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B2 (Test Group)</td>
<td>B2V2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S1 (Test Group)</td>
<td>S1V2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2 (Control Group)</td>
<td>S2V2</td>
</tr>
<tr>
<td>Week eleven</td>
<td>Video 3</td>
<td>P1 (Test Group)</td>
<td>P1V3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P2 (Control Group)</td>
<td>P2V3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B1 (Test Group)</td>
<td>B1V3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B2 (Control Group)</td>
<td>B2V3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S1 (Test Group)</td>
<td>S1V3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2 (Control Group)</td>
<td>S2V3</td>
</tr>
</tbody>
</table>

All six teachers were informed of the recording date. They all agreed with the researcher that they would teach any topic from the same curriculum for the recording. This was to enable a fair comparison between the Test and Control Group classes since all the pre-school classes have a similar pre-school curriculum to cover which is provided by the Curriculum Development Centre (Pre-school Curriculum Guideline for Malaysia, 1988). During Video 2 teachers decided to cover the...
curriculum for Early Numbers and for Video 3 the teachers chose any topic from the same curriculum of Language Development. The specific objective was not known to the researcher. The teaching session took about 25 to 30 minutes (i.e. following the normal timetable). The descriptive commentaries of these second videos are labelled P1V2, B1V2, and S1V2 for the three classes in Test Groups respectively and P2V2, B2V2 and S2V2 for the respective Control Groups (see Table 5.1). These designations will be used to represent the video recordings for the same classes throughout this chapter. The baseline videos (P1, P2, B1, B2, S1, S2) have already been described (see section 4.4.2 baseline data-teaching approach). Comments on Video 3 will be given after those on Video 2.

PART 1

5.1.1 Descriptive Commentary on the Video Recording

The teaching and learning process is shown in the recordings (P1V2, B1V2, S1V2 and P2V2, B2V2 and S2V2) which were observed. The researcher focused on the presentation aspect, based on the current guidelines for evaluating pre-school teachers in the practicum (Unit kurikulum, Bahagian Pendidikan Guru, 1992). The researcher therefore only focused on four selected aspects: introduction and beginnings; teaching techniques; teaching resources and children's involvement. These aspects to some extend relate to exchange structure and turn taking which will be analysed quantitatively and qualitatively in Chapters 6 and 7.

a. Video 2

These are the descriptive comments on the video 2 recording that was recorded after the fifth week of the fieldwork between Test and Control Groups in the study. The classes are labelled as Class P1V2, B1V2 and S1V2 (referring to the Test Group, see
Table 5.1) and Class P2V2, B2V2 and S2V2 (referring to the Control Group, see Table 5.1). The curriculum topic is to learn the numbers 1-10.

I. Test Group Classes - Video 2

P1V2 (compare with P1V1 baseline data- 4.4.2)

The teacher started the lesson by asking the children to work in pairs. The children were asked to count various numbers three and so...on with their fingers and show their partner. Then the children tried to correct each other. Then the teacher asked two volunteers to come forward and face each other to show which was their left and right hand (this concept is easy for these children because in a Malay culture they invariably use the right hand to eat, a fact which the teacher reminded the children about). The concept of left and right was discussed by each pair of children to ensure that both of them knew the concept (this took about 5 minutes). Then the teacher explained the objective of the next activity which was 'describe and arrange'. The teacher demonstrated the activity by calling two volunteers to come forward and gave each one cards of different colours. One of the cards had a grid and the performer child was supposed to arrange a number of beads within the squares on the grid. The other card depicted an arrangement of beads for the instructor child to give instructions to the performer child. Specific materials and instructions were given to the pair of children. The remaining children were asked to observe at this stage. When the first pair had finished demonstrating a part of the activity, the class were then asked to be seated with their own partner face to face. Similar materials with different levels of complexity were given to each pair. The teacher knew the ability or each pair of children. While the children were busy doing the activity the teacher worked intensively with one pair of children who needed more help. The recording focused on how the teacher assisted these children and also concentrated on the interaction of some of the other pairs of children while they were doing the task.
From the video there was an element of ECI (see Chapter 3). The teacher knew when and how to help children to support learning. The teacher encouraged verbal communication and intensive interaction among children by pairing the children through the task based activities. It was seen in the video that the children were able to express themselves during the paired work and did not depend very much on the teacher. They completed the tasks effectively.

**B1V2 (compare with B1V1 baseline data 4.3.2).**

The children had been learning the concept of number the day before and the video recorded a follow-up activity of the previous lesson. The teacher began by dividing the class into two groups (the children already had their own partners) She explained the objective of the activity to each group. In the first group the teacher gave each child a card. On every card a figure was arranged at random. The first child gave instructions to the second child who was supposed to pick up the right symbol from a box (matching). The partner's card was kept aside for his turn to give instructions. Children were not allowed to see each other's cards. The second task was for the second child to arrange the right number of objects according to the symbols that he had already picked up. The first child gave the feedback. Then the latter child instructed the former. There was interaction between the pair of children because the children effectively challenged each other to test their own knowledge. They took turns to do the activity while the teacher at the same time went round to assist pairs of children. (According to the teacher, she concentrated on different pairs of children everyday: this gave a chance to each pair of children to have a joint activity with the teacher). The other group were learning the values of numbers by arranging the correct number of lego pieces and blocks while their partner read the symbols which were written on the card. The two groups switched the activity when everybody had taken part. Although the teacher had to work with one particular group still she went round to assist the other children by responsive contingency, prompting others who were facing difficulties in the concept of numbers. At the same time the teacher also
gave verbal and non-verbal feedback for those who did well. At the end of the lesson some children looked satisfied. They were cheerful judging by the conversation heard; some said to their friends that they could manage to do the activity successfully.

As can be seen from the video, the teacher was able to practise the ECI because she encouraged children to interact through pair work. The fact that the teacher prepared the task based activity showed that she was interested in practising the ECI. The teacher prepared two types of activity so that children could experience different materials and change activities by breaking up into smaller groups. The children were seen actively to interact with their partners and also with the teacher.

S1V2 (Compare with S1V1 baseline data 4.3.2)
The teacher started the lesson by explaining to the children that they were going to do a paired activity. The children already had their own partners. The teacher distributed the cards with the symbols to the instructor children but they were not supposed to touch anything until they were told to do so. Their partners were given a small box with the symbols; they were supposed to predict the symbols on the card (prediction). The second part was to arrange the correct number of objects (classification). The children started the activity after an explanation and modelling from the teacher (see example 5.2 below). The teacher made use of improvised materials such as cockle shells, rubber seeds and other objects that were in the classroom. The teacher wanted the children to work with a variety of activities with different materials but all were focused on the same concept. The class seemed to be very busy as soon as the teacher told the children to start. Most of the children were interacting with each other, asking questions, clarifying and some were arguing about the task. The teacher helped those with a common problem who did not want to speak out or had learning difficulties. The recordings concentrated on how the assistance was given and on children's interaction. After each pair of children had
completed the task they were told to swap places with another group with different materials. The lesson ended after the teacher had asked for feedback from the children about how they felt about the lesson. As usual they answered in chorus: they had really enjoyed it. While it is difficult to be certain (from the video) about how much they had learned, but they could at least show their friends that they knew how to do the tasks. This would help in developing the children's self-concept.

The above class showed that ECI was practised. The teacher had prepared a task-based activity and the children were paired. The children were seen to be busy and engrossed with their activity. The classes looked very informal and the children worked in pairs.

ii. Control Group Classes - Video 2

P2V2 (Compare with P2V1 baseline data 4.3.2). The teacher sat on the chair and the children were asked to sit on the mat. The teacher was trying to introduce the concept of simple addition to the children. The teacher was holding a basket of fresh fruit. The teacher started by bringing out an orange and asking how many oranges were there. The children answered in chorus. Then the teacher took another orange and asked about the total number of oranges. The teacher repeated this with different numbers. The teacher showed other examples: the number of leaves a goat had eaten, and so on. The children were then asked to sit in their own places. The teacher distributed previously prepared worksheets to each child. The children were asked to colour the correct number of objects to match the symbols. While the children were doing the work the teacher went round to check whether the children got the right answers. Children kept calling the teacher, either wanting clarification or feedback. Even with the children seated face to face in a group there was rarely any interaction among the children themselves except in managing materials: such as sharing erasers, asking for pencils and rulers.
etc. The lesson ended with the teacher asking the children to pass back the worksheets to the teacher.

It can be seen that this class is very formal: the teacher sat in front and the distance was rather far from the children, who sat on the mat and were asked to listen. The teacher initiated the lesson and asked the class to respond. The children were only listening to the teacher and she sparingly chose who could answer the questions. The worksheets were distributed to the children and there was no interaction among the children during the activity. This is the normal classroom culture to which the learners in Malaysia conform.

B2V2 (Compare with B1V1, see baseline data 4.3.2)

The teacher hung the symbols 1 to 10 on a line in front of the class. The teacher pointed to symbols at random with a long ruler and the children were asked to repeat the names after the teacher in chorus. Then the teacher told the class that only a particular child should answer if their name was called and the rest had to keep quiet (for some examples see 5.11). This was followed by an activity. The teacher had prepared at the sideboard some blank spaces for the children to fill in. The children chosen by the teacher had to collect the number required from the boxes and baskets on the table. One group of children was selected at a time to fill in the correct figure on the board. After the children had done this the teacher checked the answer and asked for feedback from the class, followed by the teacher's own comments. The questions were repeated many times till most of the children had taken part. The exercises were not the same as with the former group because the teacher had prepared different materials. After all had taken part, the teacher asked the class to repeat the sequencing from 1 to 10 again in chorus. The teacher then distributed worksheets to match the figures for the children to do by themselves. The teacher went round and discovered that some children still could not recognise the difference between numbers 3 and 5. The teacher asked them to say the numbers 1 to 10 and try
to recognise their mistakes by repeating the sequence 1 to 10. The lesson ended when the teacher reminded the children to give in their completed work.

This is a typical teacher dominated classroom. With a long ruler she pointed at the symbols in order to teach the children. The children were to repeat what she said and at the same time she used checking questions. The teacher's approach implied a passive role for the learners. The class was seen to be very formal and the children were only trying to answer the teacher's questions and not trying to make sense of the learning. The teacher used a worksheet for the children to do the follow up activity, working individually.

S2V2 (Compare with S2V1, baseline data 4.3.2)

The teacher started the lesson by dividing the children into two groups of eight. The teacher seemed very busy with materials such as hangers, paper clips and so on. It took her about ten minutes for her to arrange them on the floor. Finally the children were given instruction where to start from and the teacher explained to each individual child what they were supposed to do. Then the teacher asked the children to repeat after her the names of all the objects on the floor (see example below). Finally the children were asked to count the number of objects displayed by the teacher and put the right number symbol by it. The children were trying the work individually, and counting the numbers alone, while the teacher went round to check. The teacher reminded the children to be careful with objects such as safety pins and needles. Some children still could not recognise some of the symbols and the teacher tried to show them. Some of the children's questions were completely ignored by the teacher (examples are given later in the analysis of the data). The children in the other corner were left on their own; there was a great deal of noise as the children were dropping the pots and pans. After about twenty minutes the children changed places.
The above teacher tried to be very creative by using varieties of objects for teaching aids. But she was applying formal classroom teaching even to a small group of children. The children worked individually, without much interaction even though they were ostensibly in a small group of six to seven children.

b. Video Recording 3

These are the descriptive commentaries on the video recording recorded in the eleventh and twelfth weeks of the fieldwork. During Video 3 all the Test and Control Group teachers chose Language Development as the curriculum topic. The teaching session again took about 25 to 30 minutes. The same teachers and children were involved throughout the fieldwork as stated in the Video 2 sessions. (P1V3, B1V3, & S1V3 refers to Test Group classes and P2V3, B2V3 and M2V3 refers to Control Group classes in video 3, see Table 5.1).

i. Test Group Classes - Video III

Class P1V3

The teacher introduced the lesson by explaining for about three minutes what the children would have to do. The teacher demonstrated a story on the board with a series of pictures. The story was told very briefly and the children had to verbalise the right sequence with their own partner (sequencing). Then a few children were asked to rearrange the pictures in the correct order on the board. The teacher provided a 'format' and 'routine' as Bruner (1983) termed it, for the children to start the activity. The teacher had prepared different stories. Working in pairs, one child had the complete set of pictures of a story and the partner had to arrange the series of pictures into the right order (sequencing) according to the first child's telling of the story. The 'information gap' technique was applied here so that the performer child could not see the instructor child's picture. The children generally were seen to
be very involved in telling the stories to the other child. When the children had finished both of the children were asked to role play the character of the animals or any of the subjects in the story pictures. The class were seen to be very lively, and surprisingly a child came out to suggest to the teacher that he would like to act. Then the teacher started to organise a role play: several children volunteered to take part and the lesson ended with lots of laughter and much fun.

The teacher was seen to practise the ECI in the language class. The teacher showed her interest by preparing the task-based activity. There were many sets of pictures, so that the children could move to other pictures. This was appropriate because young children's attention span is very short. The class was very informal and the teacher intensively enhanced the interaction amongst the children. This lesson conformed to the ECI approach.

Class B1V3

The children were seated together on the floor and the teacher sat with them. The teacher started the lesson by discussing different animals that can be found in the Zoo in a picture. The children were asked in turn to describe a picture, name the animals and make animal voices before pair tasks were given to the children. There was a lot of interaction between the teacher and the children, and the teacher answered all the children's queries. The teacher explained to the children that the person with the photos of the animals would give the description of the animal (as a 'quiz master') while the partner was asked to guess the name of the particular animal. The first child would not give the answer till the partner had asked a lot of questions. Clues were also given by the first child. The children had 5 different photos each and they took turn to ask the questions. The interaction turned out surprisingly well, as the 'quiz masters' asked numerous questions (see examples below). The class generally looked very interactive with every child engrossed in the exchanges. The teacher only provided cues and prompts to those children who had some difficulty.
At the end of the lesson the teacher showed the class some further pictures of animals and some children volunteered to make animal noises which were repeated by the class. This was just to finish the time left before the bell rang. On the way home, as observed by the researcher, the children were still making animal noises with their friends indicating they had really enjoyed the lesson.

At the end of the fieldwork study, this class seemed to understand the ECI approach. The teacher was very creative. She came out with the idea that allowed children to interact among themselves through a 'language game' of question and answer. The teacher still gave prompts and cues to sustain the children's language. The children asked questions and interacted with tasks effectively.

Class S1V3

There were many kinds of fresh flowers on the table that the children had been told earlier to bring to school. The teacher introduced the lesson by showing a colourful poster of a garden of flowers. During the introduction there were a lot of exchanges with the children to discuss the flowers. The teacher gave most of the children a chance to talk (see some examples below). At the same time, certain parts of the flowers were introduced (some of them were already known by the children) such as petal or stem. The children were then divided into pairs and they were given different kinds of flowers. The pairs of children were asked to dissect the flowers with their partner and count the petals, and see whatever was inside the flower (This was exploratory talk). From the recording and observation, the children discussed this activity and showed each other what they saw. Few children asked for the specific name for other parts of the plant. Then finally the teacher closed the discussion by giving a task using the 'information gap' technique. In pairs, one of the children was given pictures of different types of familiar flowers, arranged on a grid on the board (for describe and arrange). The other child was supposed to arrange the pictures in the right place on a card with a grid. The first child only described the flower and did
not give the name. The performer, after some exchanges, guessed the correct name and arranged it in the proper place, as instructed. After the children had completed the task (not all of them could do it fast) a jigsaw puzzle of the flowers was given by the teacher. The pairs of children discussed it a lot because the puzzle was mixed up with all sort of flowers. Two groups tried it out and only one group managed to complete it because it was a harder exercise. The aim here was for the children to interact with each other, and as the recording shows, there was high participation in an interactive class, including interaction both among the children and with the teacher.

This class seem to have internalised the ECI approach. The class is very informal because the teacher interacted intensively with the children and encouraged children to interact among themselves. The teacher was very creative, encouraging exploratory talk in the class which was very unusual in a pre-school class. The teacher had also prepared a variety of activities to enable the children to switch activity.

i Control Group - Video 3.
Class P2V3
The teacher was seated on the chair and the children as usual on a mat. The teacher wanted to discuss road safety as their topic for the language development. The teacher was asking the children about road safety but nobody seemed to answer the questions. Perhaps it was too boring for them or they could not follow what the teacher said. Only a few children were listening attentively but others started climbing the chairs near the blackboard and tried to draw something. Then the teacher started to organise the children. Finally the teacher brought out pictures showing different kinds of transport, such as a bus, cars and lorries. The teacher showed a picture and asked checking questions and the children answered in a chorus. One child was trying to say something about lorry accidents but was ignored by the teacher (see example
below). Some other children were talking to themselves about the pictures while the teacher was talking extensively. It became very noisy and the teacher started to organise the children again. The teacher now introduced a road sign and brought out a model of traffic lights and a road safety sign board. There was interaction between the teacher and the class (refer to the example below). When the bell rang the children immediately went back to their own places before the teacher had ended the lesson. Judging from the researcher's observation in the classroom the children were bored with the topic chosen and they were not willing to listen. These was were little interaction between children.

Class B2V3

The teacher started the lesson by asking the children to say in chorus the alphabet from A to Z. All the letters which were on a line in front of the class. Then the teacher pointed to letters randomly and asked a particular child to answer. The same checking questions were repeated many times to different children. Almost all the children were asked. If the children gave the answer, this was followed by feedback from the teacher (this process took about ten minutes). It seemed that the teacher conformed strongly to the traditional IRF structure of exchanges (see some examples below). When a child answered wrongly, the teacher asked the child to recite the whole alphabet from A to get it right. This seemed like rote learning. Then the teacher distributed worksheets and the children were asked to complete them before they were collected. The teacher ended the lesson by asking the whole class to recite the alphabet from A to Z with the children shouting at the tops of their voices.

The same teacher from Video II applied the same technique by pointing with a long ruler to the alphabet for the children to repeat names after her. The teacher applied checking questions and the response was followed by the teacher's feedback. Then the worksheets were distributed for the children to complete individually, without interaction.
Class S2V3

The teacher as usual divided the class into two groups. The teacher told the children that first of all they were going to match pictures with real objects: cups, spoons, forks etc. The teacher applied the traditional method of class teaching. The teacher introduced the objects to the children and the children were asked to repeat all the names of the objects after her. At the same time, the teacher placed each object to match the picture (instead of asking the children to do so). Then the children were asked individually to say the names of the ten objects. In the second part of the lesson the teacher tried to introduce the spelling that matched the objects. Then the teacher showed the spelling and the children were asked to repeat the printed spelling from the card. The teacher again matched each spelling with the appropriate object and the picture. Next the teacher tried to test the memory of the children by putting away the pictures and the objects, and asking the children to remember the correct spelling previously show by the teacher. The teacher reminded the children to say the first letter as a cue to the right spelling. The lesson ended with the teacher asking the children to match the correct spelling to the picture shown. After every child had done the exercise they invariably referred to the teacher for feedback, and the teacher asked the other children to clap their hands.

The same teacher divided the children into small groups but was still teaching in a formal style. The children were not given opportunity to interact, instead the teacher herself did the actual matching and also organised the turns to answer her questions. The feedback only came from the teacher.
5.2 Objective of the Case Studies
Throughout the study the researcher wrote the transcriptions from the video in Bahasa Malaysia since all the participants in the study are Malays and Bahasa Malaysia was their normal language for day to day communication. All the examples from the transcripts in this chapter were translated into English (for the original transcript see appendix). The videos were transcribed, but were also viewed several times in order to analyse any differences existing in the approaches of both groups. The objectives of this section are:

i. To investigate whether the Test Group Teachers were practising the Enhanced Classroom Interaction approach following the workshop and to see any problems the teacher or children faced.

ii. To investigate whether the Control Group Teachers made any changes in the teaching approach over the same time.

iii. To compare the classroom interaction of the Test and Control Groups.

The reader is reminded that besides the particular lessons recorded on video, the Test Group teachers tried to practise the ECI approach as much as they could in the everyday curriculum learning during the project fieldwork. This was realised as a result of day to day general class observation. These video recordings were only intended to enable the researcher to compare any difference in the teaching and learning approaches used by the Test and Control Group teachers. By observing the Test and Control Groups teaching a similar curriculum topic a fair and valid comparison can be made.
5.2.1 Descriptive Analysis of the Teaching and Learning Process

The teaching and learning processes of both groups have been discussed in the descriptive commentary on the video recording. The discussion in this section is based on the significant elements that were observed in the video among all Test Group classes. Section 5.2.3 discusses similar elements in the Control Group Classes. The main aim is to identify the components of the ECI present in the recording and thus to ascertain whether and how far the teachers were practising the ECI in 'normal' classes. The main components are teacher, children, task and interaction (for details refer to 3.3.2). The researcher did not discuss the ECI under these headings because the lessons are interrelated but these elements are highlighted in the examples given below.

5.2.2 Test Group Classes

Below are some extracts from the Test Group lessons, selected after careful observation of the videos (P1V2, B1V2, S1V2 from Video 2 and P1V3, B1V3, S1V3 from Video 3).

From the start of the activities, the Test Group teachers closely involved the children and enhanced the interaction by pairing them and preparing them for their roles in the paired task. Then the teachers used modelling to ensure that children understood what they were supposed to do. Examples are as follows:

Example, 5.1 from class P1V2.

T: We are going to play describe and arrange. I have two cards, the white card with a number is for Zarina and Arrifin has a blue with the grid lines, and some beads. Zarina will tell how many beads that Arrifin needs and Arrifin will arrange them on the card with the grid. Zarina cannot show Arrifin the card. Now (to the class) observe how those two interact with each other.
another example, 5.2 from S1V2

_T: Here I have a card with a row of symbols on and the other person has to take the correct number from the box and then by using those blocks, count according to the number. The one with the card with the number is supposed to tell the friend whether he is doing the right thing. I need two children and let's see how they interact, okay?. Later the others can do it with their own partner._

another example, 5.3 from S1V2

_T: Now I will give every one 5 photos and we are going to play question games to ask about the right animals. The first child can start as a 'quiz master'. Never show your photos to your partner. We will start now._

another example, 5.4 from S1V3

_T: Every group can take some flowers here and both of you can talk about the flower (exploratory talk between the children) (giving instruction to the whole class before the children began to work)._  

It is clear from the above examples (5.1-5.4) that the teachers are trying to practise the ECI approach as shown in the following elements. The teachers prepare the children for the activities using 'information gap' techniques. In each case the teacher is encouraging the children to interact by pairing the children. The teachers use modelling to show the other children how the example pair of children are going to interact with each other in doing the task. Once the children know the format of how to work with the task, they become more independent of the teacher. The teachers were still practising the elements of the ECI even towards the end of the fieldwork, as can be judged in Video 3. In Video 3, the teacher (S1V3) trusted the children to discuss the flowers that they brought from home. In another example from Video 3
from (B1V3), some of the children, as can be seen, could initiate exchanges between themselves like a 'quiz master', which seldom happens in the traditional classroom interaction. Slowly the teachers were handing power to the children in their learning. This is very rarely found in Malaysian pre-school classes. Generally the classroom discourse is tightly controlled by the teachers and most of the learning exchanges are decided by the teacher (seen in the Control Group Videos). In examples 5.3 and 5.4 from Video 3 the teacher did not model the task further. This could well imply that the children might have already learned it as part of their classroom activity, since the children were able to interact and complete the tasks readily when the time come to do so.

Below are examples of how the children interact with their partner during the task and how the conversation was sustained by the children in understanding the concept of number.

Example 5.5 from class P1V2,

CH1: Take three beads, then take four beads (Initiation)
CH2: Where to put them? (Repair)
CH1: On the top, wrong. wrong (Response and Feedback)
CH2: Wrong? Then where shall I put them? (Repair and Initiation)
T: Which part of the grid are you referring to? (Teacher prompted to CH1)
CH1: Left (Response)

Another example 5.6 from another pair of children from class P1V2.

CH1: First you have to take 6 beads, put them at the bottom (Initiation)
CH2: Up or down? (Repair)
CH1: Down (Response)
CH2: Is it here? (Repair)
CH1: At the centre, right in the middle. (Response)
CH2: Is it here? (Repair)
CH1: Correct, mm, then take 8 beads and put them at the bottom (Response, Initiation)

Another example 5.7 from other pair of children from the same class, P1V2.
CH1: No. 2 is on the left.
CH2: Where shall I put it?
CH1: In the middle.
CH2: Is it here?
CH1: I said, it is in the middle.

another example 5.8 Class B1V3
CH1: The body is brown in colour.
   It has a long tail.
   It has four legs.
   What animal is it?
CH2: Is the animal very big?
CH1: No, it's not big.

another example 5.9 Class B1V3
CH1: One day the rabbit was walking. On the way she met a tortoise. The rabbit asked the tortoise, 'tortoise, tortoise, do you want to have a race?' (doing the animal's voice).

From the above extracts it can be seen that the children were able to interact with each other, initiate the task, respond to their partners and give feedback. The children were able to maintain the conversation if mistakes were made and they continued to sustain the exchanges through repair. The children were involved with the task and once they had begun the task they were not dependent on the teacher.
Sometimes the feedback was from the children themselves. This is highly unusual in Malaysian pre-school contexts. In Video 3 it can be judged that the children were more active and articulate than Control Group children especially in language development. They could phrase a question like a quiz master, as exemplified in 5.9 above.

Another element that can be noticed in the analysis is how the teachers assist the children. The notion of 'scaffolding' and of the 'zone of proximal development' (discussed in chapter three), have two important properties (Edwards and Mercer 1987, p. 86). First, they take place in the context of guidance by the teacher or more competent peer. It is a process of guided discovery, in which an individual's competence begins as his or her part in a social transaction, and language is a major constituent. Second, there is the notion of internalisation, in which the end-product of the learning process is the competent individual who can solve the problem alone after being assisted by the teacher. Bruner (1983) calls this a 'handover' process (discussed in chapter two). Sequence 5.9 shows an example of how the Test Group teachers try to use the idea of scaffolding.

5.10 from Class B1V3

T: What symbol are you holding?
CH2: Six.

T: Try and take six blocks from there (pointing to the blocks)
CH2: (Child counting the blocks) 1..2..3..4..5..6..7

T: How many?
CH2: Seven.

T: How many do we need? (referred to Child 1)
CH1: Six only

CH2: Oh yes I need only six of these,
CH1: That's right, only six.
C2: So what should I do next?
C1: I have to take 8 blocks.

In the above example, the teacher works in joint action to show how the group can solve the problem. Child 2 was struggling with the symbol 6 when child 1 instructed her to pick out the symbol and the number needed. Child 1 automatically gave the feedback so that they could move on. Toward the last exchanges the child is able to take the initiating role of the teacher, C2: So what should I do next? Indeed, by asking such a question the children gradually takes over the actual structuring of the task, rather than simply responding to the initiations of the teacher as they would in a conventional IRF exchange.

Below are examples of the teacher's prompting and extending the child's language (albeit through repeated initiations)

Example 5.11 from Class SIV3

T: Can anyone describe what you can see in the poster?
C1: There is a coconut there?
T: Is it only coconut? (Prompting)
C3: A plant, a paper plant.
T: Something more?
C2: Bunga Raya (National Flower of Malaysia - the focus of the lesson)
T: Describe for me how the Bunga Raya looks.
C2: The colour is red. It has five petals and the leaves are light green in colour.

The teacher used prompting in assisting the children's learning as shown in the example above. At the end of the exchanges the teacher has extended the child's language by asking the child to describe what she knows about the flower, eliciting example C2: The colour is red. It has five petals and the leaves are light green in colour.
Another example 5.12 came from a child in the same lesson who suddenly stood up and initiated an exchange at the moment that the activity was about to change.

Child: Teacher, I saw pink Bunga Raya near my house, can I bring you some and show you tomorrow? (child initiation)

T: That's good, we will be happy to look at it tomorrow.

These are only some of the examples which can be seen in video. The fact that the Test Group teachers knew how to enhance the children's interaction is further seen in other curriculum learning after they had experienced the workshop led by the researcher. Below the Control Group lessons are discussed.

5.2.3 Control Group Classes

This section discusses the same four elements of the teaching and learning process: teacher, children, activity and interaction. The transcription of the video is analysed to find out whether the Control Teachers might be using the elements related to the ECI (even though they had not experienced the ECI workshop as the Test Group had done.

Below are some of the extracts from the Control Groups after careful observation of the videos (refer to P2V2, B2V2, S2V2 from the second video and P2V3, B2V3 and S2V3 from the third video).

The teachers still practised whole class teaching even though the group might be smaller. The teachers controlled the talk, predominantly testing the children's knowledge. The teachers conformed strongly to the traditional IRF pattern. Even when the groups were broken into two, the teacher treated the small group work as a class i.e. the general approach and the teaching exchanges were invariant. The
researcher focused only on some of the examples. Even in the final recording of the fieldwork it was observed that not many changes could be seen. Nevertheless, the researcher still needed to compare the Control Group with the ECI teachers' approach. This can be illustrated by how the teachers introduced the lesson with 6 children in the final recording.

Examples 5.13 from S2V3.

*T:* Now look down here and say these words. *This is a thread*

*Children:* Thread.

*T:* (nodding, showing non-verbal feedback)

*T:* This is a lamp.

*Children:* Lamp.

*T:* (nodding, showing non-verbal feedback)

*T:* This is a spoon.

*Children:* Spoon.

*T:* (nodding)

*T:* This is a zip.

*Children:* Zip.

Another example 5.14 from B2V2.

*T:* Look here and speak (teaching pointing the number that was hanging on the line).

*Say these symbols.*

*Children:* (counting) 1, 2, 3, 7

*T:* How many are these?

*CH:* (citing) 3, 8, (and so on).

*T:* Very clever.

Another example 5.15 from P2V3.

*T:* This is an orange and this is another orange. 1 + 1 = how many all together?
Children: 2.
T: Is that right class?
Children: Yes...
T: Good.

Similar examples to those cited above were commonly found in the Control Group's lessons and there was no evidence from the video to show that the children were interacting among themselves in pairs or among the group. The interaction was usually based on 'bidding', or through the teacher organising the turns. Most of the exchanges were initiated and followed up by the teacher.

Another element in the Control Group was that teachers apparently preferred explicit directions and instructions to the children in answer to children's queries or doubts. Sometimes a child's question was not answered. An example of how the teacher helped a child working on the worksheet is quoted below.

Example 5.16
T: Why aren't you doing your work?
C: Teacher, I don't know how to do it.
T: Okay, you do it like this, look here (the teacher does it for the child).

another example from another class
T: Draw the arrow towards this picture (doing it for the child).

Below is an example of how a child's personal comment is not taken up or extended during the discussion of the transport in P2V3. Example 5.17
C: Teacher, I saw an accident.
T: Okay, look up here, what other type of transport you can see?

Another example 5.18 of a child's question.
There is a strong element of rote learning in the teaching and learning process of the Control classroom. Examples are shown below, (example 5.20)

T: What is this letter of the alphabet, Hidayah?
C: E (the right one is H)
T: Look up there and recite from letter A.

another example 5.21
T: This is wrong, say it from number 1.
C: 1, 2, 3, 4, 5, 6, 7 (Child counting 1 to 7)
T: So, its 7.

5.3 Evaluation of Overall Teaching and Learning Process

Both the Test and Control Group teaching and learning processes will be evaluated separately to see the differences.

5.3.1 Test Group Classes

The analyses of the transcriptions also take into account when and why ECI cannot be put into practice. Some of the Test Group children are still not really independent
of the teacher. This can be seen when they have completed a task; they have to call 
the teacher either to ask for feedback or to change to another task.

Example 5.22 is given below.

C1: Teacher, we have done it.
C2: Teacher, we have done it.

The reason, partly seem to be as observed earlier in the recording, that the teacher 
reminds the children to wait for her when they have done the task so that the teacher 
could change the card with another group, so that they had some variety of task. A 
further stage would, of course, be to train the children to be independent in the 
aspect of task management so that they could exchange materials themselves, or 
choose tasks on a self-access basis.

ii. Another problem is that the teachers had prepared the same tasks for the whole 
class. Some may be too easy and some too difficult for certain children. An example 
below from the activity of the jigsaw puzzle of the flower, seemed too complicated 
for these children.

Example 5.23

C1: Teacher, it's difficult I cannot do it.
C2: Teacher, it's difficult.

As a conclusion at this stage, the children were not totally independent of the 
teacher. They were used to referring to the teacher even they have completed their 
part, so they waited for the teacher to tell them to change places. The teacher still 
seemed to dislike handing the power to the children fully, in the sense that the 
teacher thought that the feedback must always come from them. The Test Group 
teachers went round to give feedback to the children. However, the Test Group
teachers are clearly making efforts to implement the ECI; the new approaches do show some differences in the teaching and learning process as listed below.

i. There is a lot of interaction between teacher and children. The teacher seems to be applying joint work with the children.

ii. There is a lot interaction between each pair or group of children because most of the time the children work in pairs or sometimes in threes.

iii. The teacher interacted extensively and assisted any child in difficulty, or pairs of children.

iv. The children in the Test Groups are more involved with the task and they are cooperating very well, as judged from the recording.

These points represent considerable developments from the baseline data information (see Chapter 4.3.2).

5.3.2 Control Group Classes

The analysis of the transcriptions attempts to investigate whether there is any other approach that the teachers practised (other than the 'normal' teaching) or whether there are any changes over time. Unfortunately in the Control Groups, there are no observable changes in the approach used, as compared to the baseline data which was recorded in the video during the first week of the implementation of the fieldwork. Thus the teaching and learning process can be summarised as below.

i. The three Control Group teachers still practised the traditional method of teaching, which is very teacher-centred. The teachers consistently used the traditional teacher-dominated exchanges, in which the teacher initiates and gives feedback to the children's responses (as in the IRF pattern). The teacher-talk controls the class and teachers are the dominant figures in all interactions.
ii. The children are not encouraged to take turns in answering questions or to speak individually but, rather, are expected to speak in chorus. It is very rare for the children to initiate questions. If the children do initiate, the language is not extended by the teacher.

iii. Children are very dependent on the teacher for feedback. The children do not ask any friend next to them for help when they have a problem.

vi. The children are not interacting with each other during the activity because most tasks, although given to a group, are in fact performed individually; everybody is concentrating on completing the work individually, without peer interaction.

In all the three classes observed, there are not many changes in teaching and learning styles compared with the baseline data information (which was recorded before any class was selected as the Test or Control Group).

5.4 Teachers' Thoughts about ECI approaches following the Study

The researcher was curious to know the long term effects of the ECI approach a year after the original fieldwork study was done. Ideally, further classroom observations and interviews with teachers would have been carried out, but this would have necessitated further fieldwork in Malaysia and this was not possible. However, in December 1995 an open brief questionnaire was posted to the all the teachers (P1, B1, S1 - representing the Test Group teachers and P2, B2, S2 - representing the Control Group teachers) and a month later all the teachers had responded either through correspondence or by telephone. The comments cited below show something of the impact of the ECI fourteen months after the research project fieldwork had been carried out. The questions were:
i. Did you try out the ECI approach in the class with the children after the fieldwork?

ii. How far was this approach effective in the process of teaching and learning?

iii. What problems did you have in applying the approach?

The teachers also asked a few children about the games that they had played a year previously (i.e. the Car and Rod tasks used in the research to test the interaction). The children were already in primary one in their schools. The question posed to the children was:

What do you remember about the Car and Rod task that we did before when you were in pre-school?

Below are the responses indicated by the following teachers:

1. Did you practice the ECI approach after the fieldwork?

Of the three Test Group teachers, two used the approach whenever they felt "it was necessary" and the other one used it "once in a while". The answers were unfortunately not elaborated.
As teacher P1 indicated:

Saya menggunakan pendekatan ini bagi aktiviti-aktiviti/ pelajaran yang sesuai yang mana.

*I used this approach whenever I find it necessary in any activity and lesson* (i.e. whenever it suits the topic of the curriculum).

S1 indicated:

Saya menggunakan apa sahaja pelajaran di mana kanak-kanak perlukan.

*I always use it in whatever lesson whenever I realised that the children need it* (i.e. whenever it suits the topic of the curriculum).

B1 indicated:

Ada, sekali sekala saya cuba menggunakan pendekatan tersebut. Saya buat peralatan yang seakan serupa dengan alat yang di gunakan masa menguji kanak berinteraksi.

*Yes, I try it once in a while (with the approach). I prepared quite similar material to that which was used during the test for the children’s interaction.*

The questions were also responded to by the Control Group teachers. Surprisingly, they had tried out the approach (as far as they understood it, since they had received no workshop training, only a post-fieldwork explanation) from the post-test explanation by trial and error and wanted to know more.

As Teacher P2 responses to the questions posed:

Saya cuba beri peluang pada kanak-kanak bercakap tetapi saya tak begitu jelas dengan objectivenya. Saya ada minta penerangan dari guru yang dapat workshop dari Puan.

*I try to give opportunities for the children to interact more but I am not sure of the objective. I did ask for an explanation from the teachers that have attended your workshop.*

Teacher B2 indicated:
Sekali sekala saya tiru kawan saya tetapi saya harao dapat mengetahui lebih mendalam.

_Sometimes I imitate what my friend (in the Test group) did but I want to know more about it._

Teacher S2 indicated:

_Ada, kadang-kadang tetapi saya tidak tahu sama ada betul atau tidak._

_Yes, once in a while, I'm not sure whether I did the right thing or not._

The teachers were keen to use the ECI approach but, not surprisingly, did not fully understand it as well as, the Test Group teachers did, nor were they confident about it.

**Second questions**

ii. Sejauhmanakah pendekatan ini berkesan dalam proses pengajaran dan pembelajaran?

_How far is the ECI approach effective in the teaching and learning process?_

All the three Test Group teachers gave generally quite similar answers but with different wording.

This is an example from P1 indicated:

_Perkara yang saya suka ia lah kanak-kanak boleh berinteraksi sama sendiri dan saling membantu. Dengan itu pengawasan bilik darjah kurang sebab kanak-kanak terlalu asik dengan aktiviti yang diberi, masing masing nak bercakap._

_One thing that I appreciated is that there were interactions among children and they incorporated learning from one another. I found that there was less need for classroom-control because the children were involved with one another and everybody tried to talk._
Teacher B1 indicated:
Kanak-kanak dapat mempelajari dengan lebih mudah kerana mereka dapat berinteraksi dengan kawan dan saya tidak bergitu penat hendak mengawal kelas.
Children are able to learn easily among themselves together with their friends and I don't get so tired with disciplining the class.

Teacher S1 indicated:
Satu perkara yang saya nampal ialah kita beri kepercayaan kepada kanak-kanak dan tidak perlu mengangu banyak. Mereka tahu kita confident dengan mereka dan tidak anggap mereka tidak tahu, dan ini medorong mereka menunjukan kebolehan mereka.
One thing that I realised (by the teacher) was that I have trust in the children, I don't need to interrupt more often. The children knew that we (teachers) had confidence in them and didn't think that they do not know, and this encouraged the children to show their ability.

All the three Control teachers indicated that the children can learn through talk when it is structured.

P2 teacher indicated:
Kanak-kanak boleh belajar melalui pecakapan yang aktiviti di strukturkan.
Children can learn through talk when (the activity) is structured.

B2 teacher indicated:
Kanak-kanak pra-sekolah bolehjadi active dalam pembelajaran.
Pre-school children can be more active in learning

S2 teacher indicated:
Kanak-kanak nampak aktif.

*The children look more active*

Finally the third questions were posed to them and everybody responded. Everybody had a similar problem with the exception of these two Test Group teachers.

Teacher P1 indicated:

Tiap kali saya sediakan bahan saya sediakan banyak-banyak untuk dua kumpulan yang berlainan. Saya gunakan bahan yang ada di persekitaran, manik, biji getah dan sebagai masa mengajar concept nombor. Kami berkonsi dengan cik gu kelas sebelah.

*Every time I prepared the activity I made many sets of materials for two different groups so that I could swap over. Sometimes I improvised using the materials that already existed in the class such as beads, rubber seeds etc. for counting. We shared materials with another pre-school teacher.*

Teacher B1 indicated:

Saya setuju dengan peryediaan bahan seperti mana yang di tujukan semasa workshop sebab sesuai dengan concept ‘bermain sambil belajar’ dan saya tak perlu fikir atau susah hati semasa kanak-kanak berinteraksi sebab mereka akan belajar sesuatu.

*I agreed with the preparation of the activity that was exemplified during the workshop because it was suitable to the concept of learning through play and I did not need to think or worry when the children interacted with each other because they were learning something.*

P2, a Control Group teacher, indicated:

Saya kurang jelas bagaimana nak menyediakan bahan walaupun saya berkongsi bahan dengan rakan saya. Saya harap dapat puam ajar kami.

*I'm not quite sure how to prepare the material. I hope you can teach us how to do it.*

B2 teacher showed similar hesitation:
Saya masih kurang jelas approach yang puan gunakan dan ingin mengetahui lebih lanjut.

*I am not clear about the approach that you have introduced and I want to know more.*

S2 indicated a similar point, although she had made an effort to find out more:

*Kawan saya yang ikuti workshop ada jelakan tentang the objektif pendekatan yang di gunakan tapi kurang faham, tapi saya rasa baik kalau dapat penerang detail dari puan.*

*My colleague that attended the workshop on the approach had to explain the objective to me but I'm still not clear and hope to find out more details from you.*

The answers given by the children in the Test and Control Groups were surprisingly very similar to each other. They just gave the answer that they remembered the task activities and they liked them.

These are the typical comments from children.

i. Kanak-kanak: Kereta merah langgar kereta bomba. Rod yang kita kena susun?

*Child: The Red car knocked the fire engine. The rod which we have to arrange?*


*Child: The one playing with accident. The short rod?*

iii. Kanak-kanak: Best main kereta langgar langgar.

*Child: The best thing was playing with that car which knocked the other.*

Generally, the ECI was introduced to the Test Group teachers in a very short time and was practised for less than three months during the fieldwork study. Then after the fieldwork the researcher discussed it very briefly with the Control Group as had been promised earlier at the beginning of the fieldwork. It was apparent that the Test Group had put the ECI partly into practice in everyday curriculum learning. Surprisingly, the Control Group teachers had also tried (after the project), even...
though they were not sure of the ECI, judging from the responses above. Therefore, the ECI approach might well have a very positive impact, if it is introduced on a large scale to all the pre-school teachers, to the benefit of the learners. The fieldwork teachers realised its advantages.

It seems significant that fourteen months after the fieldwork the Test Group teachers had evidently internalised the objectives and practice of the ECI approach and that the Control Group teachers (who had, after all, very little exposure to the approach) were still interested in trying it out and wanted to know more about it. Even more interesting is the fact that the children, in spite of their young age, after fourteen months still had some clear memories of the tasks.

This chapter has discussed the 'normal' teaching in the Test and Control Group classes, as shown in the second and third video recordings. The next chapter looks in some detail at quantitative analysis of the data from the Progress Tests.
6. **CHAPTER SIX: QUANTITATIVE ANALYSIS**

6.1. **Introduction**
   6.1.1 Methodology
   6.1.2 Implementation of Quantitative Analysis
   6.1.3 Comparison of Performance Between the Test and Control Groups

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   6.2.3 Analysis of Time Taken to Complete Task.
   6.2.4 Analysis of Estimated Value of Mean Length of Utterance (MLU)
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6.3. **Analysis of the Progress of the Test and Control Groups**
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   6.3.2 Analysis of Progress in Mean Length of Turn
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6. CHAPTER SIX: QUANTITATIVE ANALYSIS

6.1 Introduction
This chapter explains the methods of statistical analysis, the implementation of the quantitative analysis, the overall/global performance between Test and Control Groups, and the progress in the tasks between the Test and Control Groups, and finally it presents the conclusions and the implications of the quantitative analysis.

The objective of the quantitative analysis is to find, firstly, whether there are any overall differences in performance between the Test and Control Groups in both Progress Tests. Secondly, it is to find whether there is progress in the performance of the Test and Control Group with the two tasks, given at different times (Progress Test One and Progress Test Two). Both types of differences are then tested for their statistical significance. This quantitative analysis will involve a comparison of the average number and proportion of turns and morphemes uttered by the respective groups and subsequent derivation of the Mean Length of Turn (MLT) of the children and teachers. In addition, a comparison on the amount of participation by the children as compared to the teacher, and the time taken to complete the tasks is given.

6.1.1 Methodology
Generally, the abilities of the children to actively participate (as indicated by the number of turns) and to freely express themselves (as indicated by the number of morphemes uttered) in performing the task show the children's competence to verbalise their ideas and thoughts, at least in general quantifiable terms. As to the proportion of participation by the children and teachers, this shows the latitude and opportunity given to the children by the teacher. Finally, the time taken to complete the task shows the rate of efficiency in performing the given task. Ultimately, what the children say in terms of meaning, relevance, appropriateness, responsiveness and
their contribution to task achievement is what matters. These kinds of issues will be examined in the next chapter which focuses on qualitative aspects of the data. The present chapter focuses on global measurements, some of which, e.g. Mean Length of Turn (MLT) and Mean Length of Utterance (MLU), have an established place in child language acquisition research (Snow 1996).

There are some limitations in the use of the measures selected. The number of turns does not indicate the true participation rate, and it must be recognised that one participant's turn may be at the expense of another's (since not everyone in a group or class can talk at once). The children's participation is in a sense, granted by the teachers, therefore the balance between the participation rate of both children in a pair and of children versus the teacher is important. Further, this measure assumes that participation is verbal (since this is measurable) but it can also be silent or cognitive - a child can learn by listening and thinking, without verbal interaction. Some participation may be non-verbal; a child may perform a task correctly without speaking. The latter is taken into account by calculating the task completion times.

The data on conversation among the pairs of children and the teacher in the respective Test and Control Groups have been transcribed. The terms 'Child 1' and 'Child 2' refer to all the children in the study, working in pairs, where Child 1 takes the first role in the selected tasks and Child 2 takes the second role (they reverse these roles with alternate picture sets). This is important because the research focuses on children's (and teachers') roles in interaction, with the language used to accomplish tasks. The research does not focus on children's language as individuals (irrespective of task). The essential question is whether, and how, the classroom participants can take on the new roles in interaction proposed by the ECI. Teacher' means the teacher in Test and Control Group classes, working with pairs of children in the recorded tasks. The children are identified as Child 1 and Child 2 for the purpose of differentiating the three separate participants in performing the task. This
is because when the indicators (i.e. number of turns, morphemes, mean length of turn and participation rates) of their respective performance are quantified, they can be attributed according to the respective participants (i.e. Teacher, Child 1 and Child 2).

The original transcription of the conversation is in Bahasa Malaysia. This was converted to quantitative data by identifying and counting the number of turns, morphemes and time taken to complete the task by Child 1, Child 2 and the Teacher (see definitions in chapter 4.8.3). In addition, the proportion of the number of turns and morphemes of the respective participants (Child 1, Child 2 and Teacher) as compared to the total number of turns and morphemes generated in doing the task has been calculated as a percentage to indicate each respective participation rate. The numbers obtained were transcribed into a master table to be used for further analysis.

This quantitative data are then analysed by using the Statistical Package for Social Sciences (SPSS for Windows Version 6.0) to find the sum, mean and standard deviations of the numbers and proportion of turns, morphemes and Mean Length of Turns (MLT). The t test is applied to the above data to find whether there are significant differences in the performance between the Test and Control Groups and the progress of the performance of the children and the Teacher in the Test and Control Groups. The results are then placed into the Lotus 123 R 2.4 worksheet to facilitate the combination of tables of the raw data and the results of statistical analysis as given in Appendix VII(abc) and VIII (abc).

6.1.2 Implementation of Quantitative Analysis

It will be clear that the study has been done with two groups: a Test and a Control Group. Each group consists of teachers and children from four schools (6 classes). The sample from each class consists of ten children and one teacher. The total number of children involved is 30 children and 3 teachers in each of the Control and
Test Group respectively (in pairs $2 \times 15 = 30$). Therefore, the total number of persons involved is 66 comprising 60 children and 6 teachers.

The exercise consisted of performing two tasks in each of two progress tests. The tasks consist of re-enacting a Car Accident at a Road Junction and arranging of Cuisenaire Coloured Rods. This was done in the following sequence:

A. Progress Test One
   (a) Re-enacting a Car Accident at a Road Junction (the Car task 1)
   (b) Arranging the Cuisenaire Coloured Rods to Construct a Model (the Rod task 1)

B. Progress test Two
   (a) Re-enacting Car Accident at a road Junction (the Car task 2)
   (b) Arranging the Cuisenaire Coloured Rods to Construct a Model (the Rod task 2)

Each of the above tasks is done by a pair of children, identified by role as Child 1 and Child 2, together with the Teacher (T). In re-enacting the Car Accident at a Road Junction, the pair of children undertake to replicate four sets of car accidents, each doing two sets in an alternate manner. Arranging Cuisenaire Coloured Rods to construct a Model consists of two sets with each pair of children, doing one arrangement each. In undertaking each task, the routine consists of one child holding the picture (photograph) while the second child carried out the re-enacting of the sequence of the car accident, or placing the rods in the appropriate manner, as described by the former child to the latter (who cannot see the photographs).

The conversation is recorded on the basis of four transactions (refer to definition of terms in chapter 4.8.3). One transaction for the car consists of the recorded conversation of the two children and a teacher in performing four sets of pictures and model of the first car task (the Car task 1). This can be illustrated as follows:
a. Conversation on Transaction for the Car task (the Car task 1 and 2) consists of
i. Picture Set (A) P1, P2, P3 - the first child with the pictures and the second child with the model cars
ii. Picture Set (B) P1, P2, P3 - the second child takes the role of Child 1 with the pictures and the first child takes the role of Child 2 with the model cars
iii. Picture Set (C) P1, P2, P3 - Children change roles, as in step i: Child 1 with the pictures and Child 2 with the model cars
iv. Picture Set (D) P1, P2, P3 - Children change roles, as in step ii.
( A teacher also participates in the whole transaction i.e. for every one of the four sets)

Therefore throughout the study the total number of transactions in the Car tasks for each group is (15 pairs of children each with a teacher) = 15 transactions, or 30 transactions for each Test and Control Group (the Car task 1 and the Car task 2).

b. Conversation on Transaction for the Rods (Rod task 1 and 2) consists of:

i. Picture Set 1 - Child 1 with the pictures and Child 2 with the coloured rods
ii. Picture Set 2 - Children change roles
( A teacher also participates in the whole transaction i.e. for every one of the two sets)

Therefore throughout the study the total number of transactions in the Rod tasks for each group is (15 pairs of children each with a teacher) = 15 transactions, or 30 transactions for each Test and Control Group (the Rod task 1 and the Rod task 2).

Therefore in the whole study the quantitative data is based on the 60 transactions from each group and a total of 120 transactions from Progress Test One and Progress Test Two (Each transaction will be further analysed qualitatively in terms of sub-transactions in Chapter 7).
I. Tabulation of the Raw Quantitative Data

For each task involving Child 1, Child 2 and the Teacher performing (the Car task 1 and 2), and (the Rod task 1 and 2), the recorded conversation was examined to count the number of turns and the amount of morphemes generated by the respective participants in their conversations. The method of recording is tabulated in Table 6.1 below. (This is a schema for data analysis - actual figures will be presented later in this format).

Table 6.1 Tabulation of Raw Data

<table>
<thead>
<tr>
<th>Task Indicators</th>
<th>C1 tur</th>
<th>C2 tur</th>
<th>R1 mor</th>
<th>R2 mor</th>
<th>Av mor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Child 2</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Teacher</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Key: C1= Car task 1; C2=Car task 2; R1= Rod task 1; Rod2=Rod task 2; tur=turns; mor=morphemes; Av=average; x=figures to be presented later.

The tabulations of the quantitative data are done for global/combined scores, i.e. both the Car task and the Rod task, for the Test and the Control Groups, respectively, although a separate score for each task is also presented below.

a. The Combined scores of the Car & Rod tasks data for the Test Group (refer to Appendix VIIa)

b. The Combined scores of the Car task & Rod tasks for Control Group (refer to Appendix VIIIa).

II. Calculation of the Performance Statistics

Based on the tabulated data above, the various statistics for the number and proportion of turns, morphemes, participation rates, Mean Length of Turn and time
for the task completion are calculated, as shown in the schematic table, 6.2. Actual figures will be presented later.

Table 6.2 Calculation of the Performance Statistics

<table>
<thead>
<tr>
<th></th>
<th>No. of Turns</th>
<th>No. of Morphs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td><strong>Std Dev</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td><strong>Participation Rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td><strong>MLT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>xx (mins)</td>
<td></td>
</tr>
</tbody>
</table>

Key: Child 1+2 = Child 1 and Child 2; Mins=minutes; Morp=Morphemes
MLT=Mean Length of Turn; Std. Dev=Standard Deviation;

x=figures to be presented later.

The statistics on the performance obtained from the quantitative raw data are calculated from global/combined scores, the Car and the Rod tasks, for the Test Group and the Control Group respectively, namely:

a. The Car and Rod tasks Combined Data for the Test Group (refer to Appendix VIIb)
b. The Car and Rod tasks Combined Data for the Control Group (refer to Appendix VIIIb)
iii. **Calculations of the Progress Statistics**

Based on the calculation of the performance statistics of the number and proportion of turns, morphemes, Mean Length of Turn and time, a comparison is made within the Test and Control Group in performing the Progress Test One (the Car task 1 and Rod task 1) and Progress Test Two (the Car task 2 and Rod task 2) to determine the progress of the performance in the process as shown in the schematic table below.

**Table 6.3 Calculation of the Progress Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Change in the No. of Turns</th>
<th>Change in the No. of Morphemes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td><strong>Std Dev</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td><strong>Participation Rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td><strong>(MLT)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>Child 2</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>Child 1+2</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>xx</td>
<td></td>
</tr>
</tbody>
</table>

Key: Child 1+2= Child 1 and Child 2, Std Dev=Standard Deviation;

MLT=Mean Length of Turn; x=figures to be presented later.
The statistics on the progress made derived from the quantitative raw data are calculated for global/combined scores, the Car and Rod task; for the Test Group and the Control Group, namely,

a. Combined scores for the Car and Rod tasks of Test Group (refer to Appendix VIIc)
b. Combined scores for the Car and Rod tasks of Control Group (refer to Appendix VIIIc)

The net results of the various statistics in i., ii., iii., and iv., are the final outcome of the quantitative derivations from the raw data. They are tabulated in two tables 6.4 and 6.5 below. These are codes to interpret the two tables 6.4 and 6.5 are displayed in Figure 6.1.
PERFORM = overall performance
PROGRESS = Progress, as the difference between scores on Test One and Two
Means = the total average of the Car tasks and Rod tasks
Morphe = Morphemes
MLT = Mean Length of Turn
MLTC 1 = Mean Length of Turn of all the Child 1
MLTC 2 = Mean Length of Turn of all the Child 2
Ch1 = Child 1
Ch2 = Child 2
T = Teacher
Ch1+Ch2 = Total scores of both children
Proportion = the proportion (%) of total talk shared by Child 1 or Child 2.
C/T = Ratio of total of Child 1 or Child 2 compared to teacher talk
T/C = Ratio of teacher talk compared to Child 1 or Child 2
STD DEV or STD = Standard Deviation
MLU = Mean Length of Utterance
Utter = Utterance
PARTICIP = Participation
Times = In minutes

Figure 6.1 Codes to Read Table 6.4 and 6.5
### TABLE 6.4 Average Performance of the Test Group

<table>
<thead>
<tr>
<th></th>
<th>PERFORM</th>
<th>PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Turns</td>
<td>Morphe</td>
</tr>
<tr>
<td>PERFORM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEANS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1</td>
<td>27.9</td>
<td>179.4</td>
</tr>
<tr>
<td>Ch 2</td>
<td>27.67</td>
<td>177.2</td>
</tr>
<tr>
<td>Ch 1&amp;2</td>
<td>27.85</td>
<td>178.3</td>
</tr>
<tr>
<td>Teacher</td>
<td>4.9</td>
<td>34.72</td>
</tr>
<tr>
<td>STD DEV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1</td>
<td>8.75</td>
<td>39.2</td>
</tr>
<tr>
<td>Ch 2</td>
<td>8.74</td>
<td>22.19</td>
</tr>
<tr>
<td>Ch 1&amp;2</td>
<td>8.87</td>
<td>32.49</td>
</tr>
<tr>
<td>Teacher</td>
<td>1.22</td>
<td>3.39</td>
</tr>
<tr>
<td>Proportion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1 %</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>Ch 2 %</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>C/T%</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>T/C%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>STD DEV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>Ch 2</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Ch 1&amp;2</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Teacher</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>MLT</td>
<td>Mean</td>
<td>Std Dev</td>
</tr>
<tr>
<td>MLT C 1</td>
<td>6.68</td>
<td>1.19</td>
</tr>
<tr>
<td>MLT C 2</td>
<td>6.62</td>
<td>1.62</td>
</tr>
<tr>
<td>MLT C 1&amp;2</td>
<td>6.65</td>
<td>1.44</td>
</tr>
<tr>
<td>MLUTc</td>
<td>7.71</td>
<td>1.3</td>
</tr>
<tr>
<td>TIME</td>
<td>Mean</td>
<td>-2.86</td>
</tr>
<tr>
<td>STD</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>ML U</td>
<td>Estimated value of mlu</td>
<td>40.3</td>
</tr>
</tbody>
</table>
### TABLE 6.5 Average Performance of the Control Group

<table>
<thead>
<tr>
<th></th>
<th>PERFORM</th>
<th>PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Turns</td>
<td>Morphe</td>
</tr>
<tr>
<td><strong>PERFORM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MEANS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1</td>
<td>24.7</td>
<td>94.55</td>
</tr>
<tr>
<td>Ch 2</td>
<td>22.3</td>
<td>81.92</td>
</tr>
<tr>
<td>Ch 1&amp;2</td>
<td>23.5</td>
<td>88.24</td>
</tr>
<tr>
<td>Teacher</td>
<td>37.2</td>
<td>215</td>
</tr>
<tr>
<td><strong>STD DEV</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1</td>
<td>12.3</td>
<td>39.6</td>
</tr>
<tr>
<td>Ch 2</td>
<td>10.9</td>
<td>36.2</td>
</tr>
<tr>
<td>Ch 1&amp;2</td>
<td>11.8</td>
<td>39.9</td>
</tr>
<tr>
<td>Teacher</td>
<td>20.15</td>
<td>114</td>
</tr>
<tr>
<td><strong>Proportion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1 %</td>
<td>29%</td>
<td>25%</td>
</tr>
<tr>
<td>Ch 2 %</td>
<td>27%</td>
<td>21%</td>
</tr>
<tr>
<td>C/T %</td>
<td>28%</td>
<td>24%</td>
</tr>
<tr>
<td>T/C %</td>
<td>44%</td>
<td>55%</td>
</tr>
<tr>
<td><strong>STD DEV</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 1</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Ch 2</td>
<td>12%</td>
<td>9%</td>
</tr>
<tr>
<td>Ch 1&amp;2</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>Teacher</td>
<td>13%</td>
<td>29%</td>
</tr>
<tr>
<td><strong>MET Mean STD No Proportion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLTC 1</td>
<td>3.84</td>
<td>1.09</td>
</tr>
<tr>
<td>MLTC 2</td>
<td>3.67</td>
<td>1.04</td>
</tr>
<tr>
<td>MLTC 1&amp;2</td>
<td>3.76</td>
<td>1.14</td>
</tr>
<tr>
<td>MLT T</td>
<td>5.79</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>TIME</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>13.43</td>
<td></td>
</tr>
<tr>
<td>STD DEV</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>MLU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esti value mlu</td>
<td>29.1</td>
<td>-7.68</td>
</tr>
</tbody>
</table>
6.1.3 COMPARISON OF PERFORMANCES BETWEEN THE TEST AND CONTROL GROUPS.

In the above derived data on performance and progress of the Test Group (table 6.4) and the Control Group (table 6.5), the detailed quantitative analyses are summarised. The tables consist of the comparison of the performance and the progress of the respective participants (i.e. child 1, child 2 and teacher) on the various indicators (i.e. turns, morphemes, participation rates, MLT and time taken to complete the task) of the Test Group against the corresponding scores obtained by the Control Groups.

The objectives of this comparison are to find out the following:

a. Whether the average number and proportion of turns and morphemes of children in the Test Group are significantly higher or lower than the average number of turns of children in the Control Group. This will indicate the degree of active involvement and participation between children in the Test Group and children in the Control Group.

b. Whether the average number and proportion of turns and morphemes of the teachers in the Test Group is significantly lower than the average number of turns of the teacher in the Control Group. This will indicate the degree of teachers' involvement and dominance in managing the children in the Test and Control Group respectively.

c. Whether the average Mean Length of Turn (MLT) of children in the Test Group is significantly higher or lower than the average MLT of children in the Control Group. This will indicate the length of expression measured by the number of morphemes between the children in the Test Group and the Control Group.
d. Whether the average Mean Length of Turn (MLT) of the teachers in the Test Group is lower or higher than that of the teacher in the Control Group. This will indicate the amount of teachers' contributions in the respective Test and Control Groups.

e. Whether the average time taken to complete the task by the Test Group is faster or slower than the Control Group. This will indicate the efficiency of task achievement, assuming tasks turns are completed satisfactorily.

f. Whether the estimated value of Mean Length of Utterance (MLU) of the children in the Test Group is lower or higher than that of the Control Group. This will indicate the comparison of the average number of morphemes of the children as a measure of their ability to express themselves fluently within a given period of time.

This detailed comparison between the performance and progress of the Test and Control will be done at two levels, namely:

i. The comparison of the whole performance i.e. the difference between groups on the combined scores obtained as indicated by the average number and proportion of turns, morphemes Mean Length of Turn, time taken to complete the task, and estimated value of Mean Length of Utterance for the children and teacher.

ii. The comparison of the progress of the performance i.e. the difference between scores obtained for the performance of the first tasks (Progress Test One) and the second tasks (Progress Test Two) as indicated by the average number and proportion of turns, morphemes, MLT, time taken to complete the task, and estimated value of MLU for the children and the teacher.

The results of the above comparisons will reveal the findings of this quantitative analysis as to whether there is a significant difference between the performance and progress of the Test Group as compared to the Control Group. This will lead to a
general conclusion on whether the Test Group performs and progresses better, at par, or less than the Control Group.

6.2 ANALYSIS OF THE OVERALL PERFORMANCE BETWEEN THE TEST AND CONTROL GROUPS

The analysis of the overall performance will be discussed under the following headings:

i. Average Number and Proportion of Turns and Morphemes
ii. Mean Length of Turn (MLT)
iii. Time Taken to Complete Task
iv. Estimated Value of Mean Length of Utterance

6.2.1 ANALYSIS OF TURNS AND MORPHEMES

The number and proportion of turns and morphemes generated by the teacher and the children during the process of performing a task indicates the level of active verbal involvement and their ability to express themselves. A comparison made on these quantitative indicators between the Test and Control Group is aimed at finding the difference in their performance. The reader is reminded again that Child 1 and Child 2 refer to all the children in the study, working in pairs, where Child 1 takes the first role in the selected tasks and the second Child takes the second role. Children alternated these roles with different sets of pictures. 'Teacher' means the teacher in the Test and Control Group classes, working with the same pairs of children in the recorded tasks.

i. Average Number and Proportion of Turns and Morphemes of Child 1

The following table shows the average number and proportion of turns and morphemes enumerated for Child 1 in the Test and Control Group.
Table 6.6 Average Number and Proportion of Turns and Morphemes of Child 1

<table>
<thead>
<tr>
<th></th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURNS</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>5%</td>
</tr>
<tr>
<td>Mean</td>
<td>27.9</td>
<td>24.7</td>
<td>3.2</td>
<td>0.89</td>
<td>46</td>
<td>29</td>
<td>17</td>
<td>3.47*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>8.75</td>
<td>12.3</td>
<td>-4.52</td>
<td></td>
<td>10</td>
<td>14</td>
<td>-4</td>
<td></td>
</tr>
<tr>
<td>MORP</td>
<td>Mean</td>
<td>179.4</td>
<td>94.55</td>
<td>84.85</td>
<td>7.71*</td>
<td>46</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Std Dev</td>
<td>39.2</td>
<td>39.6</td>
<td>-0.4</td>
<td></td>
<td>13</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Key: Test=Test Group; Con=Control Group; Diff=Difference; Std Dev=Standard Deviation; MORP=Morphemes * Significant (p<0.05)

It can be observed from the above table that Child 1 in the Test Group has the mean of 27.9 turns with a standard deviation of 8.75 as compared to the Control Group with the mean of 24.7 turns and a standard deviation of 12.3. This shows that the Test Group Child 1 was more active by 3.2 turns on average as compared to the Control Group Child 1. The Test Group Child 1 is also more consistent as indicated by a lower standard deviation, 4.52 lower than that of the standard deviation of the Control Group. By applying the t Test, the t value is 0.89, that is below 1.701, which indicates that even though there is difference in the number of turns between the two groups, it is not statistically significant at 5% level of confidence. As to the proportion of turns of Child 1 vis-a-vis, Child 2 and the teacher (shown in column 5 of table 6.6), the Child 1 in the Test Group has 46% turns with a standard deviation of 10 as compared to the Child 1 of the Control Group with 29 turn with the standard deviation of 14. Therefore, Child 1 in the Test Group has a proportionally higher number of turns (46%-29%=17%) than the Child 1 in the Control Group. This difference in the proportion of turns between the children is statistically significant at the 5% level of significance (p<0.05).
In terms of the number of morphemes, Child 1 in the Test Group has the mean number of 179.4 morphemes with a standard deviation of 39.2. On the other hand, Child 1 in the Control Group has the mean of 94.55 with a standard deviation of 39.6. This shows that the Test Group Child 1 can express themselves in a longer total number of morphemes, 84.85 more than the Control Group, but there is not much difference in the standard deviations. By applying the t test, the t value is 7.71, which indicates that the higher number of morphemes in the Test Group, as compared to the Control Group, is statistically significant (p<0.05). As to the proportion of morphemes of Child 1 vis-a-vis Child 2 and the teacher, (shown in column 5 of table 6.6). Child 1 in the Test Group has 46% of the morphemes with a standard deviation of 13, as compared to the Child 1 in the Test Group who has 25% with a standard deviation of 6. This difference of 21% in the proportion of morphemes between the children in the Test and Control Group is statistically significant (p<0.05).

Generally, Child 1 in the Test Group has a higher average number of turns and morphemes and a higher proportion of turns and morphemes. This shows that they are more verbally active and probably able to express themselves better than Child 1 in the Control Group. These differences in the average number morphemes and proportion of turns and morphemes between Child 1 in the Test and Control Group are statistically significant.

ii. Average Number and Proportion of Turns and Morphemes of Child 2
The following table summarises the average number of turns and morphemes of Child 2 of the Test and Control Groups.
The above table shows that Child 2 in the Test group has a mean number of 27.67 turns with a standard deviation of 8.74 as compared to the Control Group with the mean number of 22.3 turns and a standard deviation of 10.9. This shows that the Test Group Child 2 was more active than the Control Group Child 2 by 5.37 average turns. Using the t Test, the t value is calculated as 1.65 that is lower than 1.701, indicating that the difference between the two groups is not significant at (p<0.05).

As to the proportion of the number of turns, Child 2 in the Test Group has 46% of the turns with a standard deviation of 10 as compared to the Child 2 of the Control Group with 27% turns with the standard deviation of 12. Therefore, Child 2 in the Test Group has a proportionately higher percentage of turns (46%-27%=19%) than Child 2 in the Control Group. This difference in the proportion of turns between the children is statistically significant at 5% level of significance (p<0.05).

In terms of number of morphemes, Child 2 in the Test Group has a mean of 177.2 with a standard deviation of 22.19. On the other hand, Child 2 in the Control Group has a mean of 81.93 with a standard deviation of 36.2. This shows that the Test Group Child 2 can express themselves in a longer number of morphemes (by 95.27 morphemes on average) than the Control Group Child 2 and the standard deviation is also less as compared to these of the Control Group, showing that the Test Group
children are more consistent in this aspect. The t value is 8.80, that is above 1.701, showing that the number of morphemes of the Test Group is significantly higher than those in the Control Group (p<0.05). As to the proportion of the number of morphemes, the Test Child 2 has 46 percent with a standard deviation of 6 as compared to Child 2 of the Control Group with 21 percent, with the standard deviation of 9. Therefore, Child 2 in the Test Group has 25 % more in the proportion of morphemes between the children. This is statistically significant at a level of 5% (p<0.05).

Generally, Child 2 of each Test Group have a higher number and proportion of turns and morphemes and this implies that they are more actively participating verbally and can probably express themselves better than the Child 2 in the Control Group. The difference in the proportion of turns and morphemes between Child 2 in the Test and Child 2 in the Control Group is statistically significant and so is the average number of turns. The reason is that all the children used many turns in the transaction but the difference is that the Test Child 2 has a longer turn with higher morphemes.

iii. Average Number and Proportion of Turns and Morphemes of Both Children

The following table shows the combined number of turns and morphemes of both children (Ch 1 and Ch 2) in the Test and Control Group combining the scores of the children.
Table 6.8 Average Number and Proportion of Turns and Morphemes of Both Children.

<table>
<thead>
<tr>
<th></th>
<th>TEST mean</th>
<th>CON mean</th>
<th>DIFF</th>
<th>t test</th>
<th>TEST %</th>
<th>CON %</th>
<th>DIFF %</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURNS</td>
<td>27.85</td>
<td>23.5</td>
<td>4.35</td>
<td>1.80*</td>
<td>46</td>
<td>28</td>
<td>18</td>
<td>5.75*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>8.87</td>
<td>11.8</td>
<td>-2.93</td>
<td></td>
<td>10</td>
<td>13</td>
<td>-3</td>
<td></td>
</tr>
<tr>
<td>Morph</td>
<td>178.2</td>
<td>88.2</td>
<td>-90</td>
<td>11.78*</td>
<td>45</td>
<td>24</td>
<td>21</td>
<td>9.85*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>32.49</td>
<td>39.0</td>
<td>-6.6</td>
<td></td>
<td>6</td>
<td>11</td>
<td>-5</td>
<td></td>
</tr>
</tbody>
</table>

Key: Con=Control Group, Test=Test Group, Diff=Difference; Morph=Morphemes
*Significance(p<0.05)

The above table shows that Children in the Test Group have a mean of 27.85 turns with a standard deviation of 8.87 as compared to the Control Group with a mean of 23.5 turns and a standard deviation of 11.8. This shows that the Test Group Children were more active than the Control Group and they have a lower standard deviation as compared to the Control Group indicating, again, a higher degree of consistency.

The t value is 1.80, that is, above 1.701, indicating that there is significant difference between the two groups. As to the proportional number of turns of the Child 1 and Child 2 to the teacher, both the children in the Test Group have 46% of the turns with a standard deviation of 10. Therefore, both children in the Test group have a proportionately higher percentage of turns (46%-28%=18%) than both children in the Control Group. This difference in the proportionate number of turns between the children is statistically significant (p<0.05).

In terms of morphemes, the children in the Test Group have a mean of 178.2 with a standard deviation of 32.49. On the other hand, the children in the Control Group have a mean of 88.2 with a standard deviation of 39.0 This shows that the Test Group children can express themselves in longer morphemes on average than the
Control Group children and the standard deviation is lower as compared to the Control Group indicating, again, a higher degree of consistency. The t value is 11.78, that is above 1.701, showing that there is a significant difference between the two groups. As to the proportional number of morphemes of both children to the teacher, the children in the Test Group have 45% of the morphemes with a standard deviation of 6 as compared to the children of the Control Group with 24% of the turns with a standard deviation of 11. Therefore, both children in the Test Group have a proportionately higher percentage of turns (45%-24%=21%) than both children in the Control Group. This difference in the proportion of morphemes between the children is statistically significant (p<0.05).

Generally, both children of the Test Group have a higher number of turns and morphemes and this demonstrates that they are more actively participating verbally and probably can express themselves better than the pairs of children in the Control Group. The differences in the average number of morphemes, proportionate number of turns and morphemes between children in the Test and Control Groups are statistically significant with the exception of the average number of turns of Child 1 and Child 2, but the average number of turns of the combined Children are statistically significant. Therefore it confirmed that the children in the Test Group used more turns than the Control Group. The children in the Test Group are much better in interaction; they used many turns; they are more interactive with their partners because of the longer turns and higher numbers of morphemes used. The Control Group children used many turns, but shorter turns with a low average number of morphemes.
iv. Average Number and Proportion of Turns and Morphemes of the Teachers.

The following table shows the average number and proportion of turns and morphemes by the teachers in the Test and Control Groups.

Table 6.9 Average Number and Proportion of Turns and Morphemes of the Teacher.

<table>
<thead>
<tr>
<th></th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURNS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.9</td>
<td>37.2</td>
<td>-32.3</td>
<td>17.6*</td>
<td>8</td>
<td>55</td>
<td>-47</td>
<td>-8.07*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>1.22</td>
<td>20.15</td>
<td>-19.93</td>
<td></td>
<td>2</td>
<td>13</td>
<td>-11</td>
<td></td>
</tr>
<tr>
<td>MORPH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>34.72</td>
<td>215</td>
<td>-180.26</td>
<td>-5.85*</td>
<td>9</td>
<td>55</td>
<td>-46</td>
<td>-11.2*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>3.16</td>
<td>114</td>
<td>-110.84</td>
<td></td>
<td>1</td>
<td>29</td>
<td>-28</td>
<td></td>
</tr>
</tbody>
</table>

Key: similar code as above table. * Significant (p<0.05).

It can be observed from the above table that the teachers in the Test Group have a mean of 4.9 turns with a standard deviation of 1.22 as compared to the Control Group with the mean of 37.2 turns and a standard deviation of 20.15. This shows that the Test Group teachers participate very much less (thus encouraging the children to speak more, to be more independent, and to interact and express themselves) than the Control Group teachers and they were more consistent with a standard deviation of only 1.22 as compared to the standard deviation of 20.15 by the teachers of the Control Group. The t value is calculated at 17.6, that is more than the critical value of 1.701, indicating that there is a significant difference between the teachers in the two groups in their turns (p<0.05). As to the proportionate number of turns vis-a-vis the children, the teacher in the Test Group has 8% of the total turns with a standard deviation of 2 compared with the Control Group teacher's proportion which is 55%, and a standard deviation of 13. Therefore, the teacher in the Test Group has a proportionately far lower number of turns (8%-55%=-47%) than the teacher in the
Control Group. This difference in the proportion of turns between the teachers is statistically significant (p<0.05).

In terms of morphemes, the teachers in the Test Group have the mean of 34.72 with a standard deviation of 3.16, while the teachers in the Control Group have the mean of 215 with a standard deviation of 114. This shows that the Test Group teachers express themselves in a far fewer average number of morphemes than the Control Group teachers and their standard deviation is far lower than the Control Group standard deviation, indicating greater consistency. The t value is -5.85, that is a significance difference between the two groups (p<0.05). As to the proportional number of morphemes of the teacher vis-a-vis the children in the Test Group has 9% of the morphemes with a standard deviation of 1 as compared to the Control Group teachers with a mean proportion of 55% with the standard deviation of 29. Therefore, teachers in the Test Group had a proportionately much lower percentage of morphemes (9%-55%=-46%) than the teachers in the Control Group. This difference in the proportion of turns between the teachers in Test and Control Groups is statistically significant (p<0.05).

Generally, the teachers in the Test Group have a far lower number and proportion of both turns and morphemes. This implies that they give much more opportunity to the children to participate and express themselves, and interact between themselves, as compared to the teachers in the Control Group, assuming that the teachers and children take turns talking through out the task (which is the case). The difference in the number and proportion of turns and morphemes between the Test and Control Group is significant (p<0.05). Clearly, the Control Group teachers talk more, with more turns and longer turns than the Test Group teachers. The Control Group teachers can be seen to dominate the verbal interaction.
6.2.2 ANALYSIS OF MEAN LENGTH OF TURNS (MLT)

The Mean Length of Turns (MLT) is calculated by dividing the total number of morphemes with the number of turns of the participants. This is a common general measure of conversational competence (Snow, 1996). MLT was used by Heather and Wood (1982) to measure child loquacity, that is the mean number of words spoken by a child in response to teacher moves. In this study it will show the average number of morphemes uttered by a participant in one turn. In this study the analysis of the MLT will be done at the teacher and child level to find the average number of morphemes uttered by each participant: Child 1, Child 2 and teacher in the Test and Control Groups. Then they will be compared to find the differences and test the level of significance at 5% (p<0.05).

1. Mean Length of Turn of Child 1

The Mean Length of Turn of Child 1 in the Test and Control Groups is given in the following table:

<table>
<thead>
<tr>
<th>Statistics</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6.68</td>
<td>3.84</td>
<td>2.84</td>
<td>6.46*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>1.19</td>
<td>1.09</td>
<td>-0.1</td>
<td></td>
</tr>
</tbody>
</table>

Key: Test=Test Group; Con=Control Group; Diff=Difference
Std Dev=Standard Deviation; * Significant (p<0.05)

The above table shows that the Mean Length of Turn of Child 1 in the Test Group is 6.68 and the standard deviation of 1.19. This is higher than the Mean Length of Turn of the Control Group Child 1 which is 3.84 with a standard deviation of 1.09. Generally, the MLT of the Child in the Test Group was 2.84 higher than the Control Group. The t value was 6.46, and this indicated that the difference between the two
Groups is significant \(p<0.05\). It can be concluded that Child I of the Test Group was able to attain a higher level of Mean Length of Turn as compared to Child I in the Control Group.

ii. Mean Length of Turn of Child 2

The Mean Length of Turn of Child 2 in the Test and Control Groups is given in the following table:

<table>
<thead>
<tr>
<th>Statistics</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6.62</td>
<td>3.67</td>
<td>2.95</td>
<td>6.39*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>1.62</td>
<td>1.04</td>
<td>0.58</td>
<td></td>
</tr>
</tbody>
</table>

Key: Same as above table 6.10  *Significant \(p<0.05\)

The above table shows that the Mean Length of Turns (MLT) of the Child 2 in the Test Group is 6.62 and the standard deviation is 1.62. This is higher than the MLT of the Control Group Child 2, with the mean of 3.66 and the higher standard deviation of 1.04. Generally, the MLT of the Child 2 in the Test Group was 2.92 higher than the Control Group, although the difference in standard deviation shows that the Control Group children are slightly more consistent in this aspect. The \(t\) value was 6.39, and this indicated that the difference between the two groups was significant \(p<0.05\).

iii. Mean Length of Turn of both Children

The Mean Length of Turn of both children (Ch1 and Ch 2 together) in the Test and Control Groups are given in the following table:

217
Table 6.12 Mean Length of Turn of both Children

<table>
<thead>
<tr>
<th>Statistics</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6.65</td>
<td>3.76</td>
<td>2.89</td>
<td>6.3*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>1.44</td>
<td>1.14</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>

Key: similar as above table 6.10. *Significant (p<0.05).

It can be observed from the Table 6.11 that the Mean Length of Turn (MLT) of the Children in the Test Group is 6.65 and the standard deviation is 1.44. This is higher than the Mean Length of Turn of the Control Group children with a mean of 3.76 and the standard deviation of 1.14. Generally, the MLT of the Children in the Test Group was 2.89 higher than the Control Group although the difference in the standard deviation indicates that the Control Group children were slightly more consistent. The t value was 6.3 and this indicated that the difference between the two Groups was significant (p<0.05). It can be concluded that the Test Group children were able to attain a higher level of Mean Length of Turn. In the next section this is related to the MLT of the teachers. It is expected that the MLT of the Test Group teachers will be lower than the Control Group Teachers.

iv. Mean Length of Turn of the Teacher

The mean Length of Utterance of the Teacher in the Test and Control Groups are given in the following table:

Table 6.13 Mean Length of Turn of the Teacher

<table>
<thead>
<tr>
<th>Statistics</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>7.71</td>
<td>5.79</td>
<td>1.92</td>
<td>3.38*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>1.3</td>
<td>1.9</td>
<td>-0.6</td>
<td></td>
</tr>
</tbody>
</table>

Key: Same as above table 6.10 Significant (p<0.05).
With reference to the above table, the Mean Length of Turn (MLT) of the teacher in the Test Group is 7.71 and the standard deviation of 1.3. This is higher than the Mean Length of Turn of the Control Group teachers, which is 5.79 and a standard deviation of 1.9. Generally, the MLT of the teacher in the Test Group was 1.92 higher than the MLT of teacher in the Control Group. The t value was 3.38, and this indicated that the difference between the two Groups was significant (p<0.05). Previous results showed that, the Test Group teachers performed better than the Control Group in their number and proportion of turns and morphemes allowing children to talk more while still guiding task performance. Surprisingly, here the Test Group teachers' MLT is higher. The reason is apparently that the teachers in the Test Group, even using a lower number of turns in the transaction, used more morphemes per turn in prompting and trying to extend the children's language compared to the Control Group teachers, who have a higher number of turns, but lower number of morphemes per turns, probably because they use more checking questions and control the children's turns more (see Chapter 7).

6.2.3 ANALYSIS OF TIME TAKEN TO COMPLETE TASK

The time taken to complete a given task is measured in minutes. In a way, this indicates the level of competency and efficiency of the group in performing the given task given that all pairs completed all tasks successfully, in the end. The following table shows the average time taken to complete the task by the respective Test and Control Group in the following table.

Table 6.14 Time Taken to Complete the Task (in minutes)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>9.7</td>
<td>13</td>
<td>-3.30</td>
<td>5.16*</td>
</tr>
<tr>
<td>Std Dev</td>
<td>1.20</td>
<td>1.80</td>
<td>-0.61</td>
<td></td>
</tr>
</tbody>
</table>

Key: similar as above table 6.13
The table above shows that the time taken by the Test Group to complete the tasks is a mean of 9.7 minutes and the standard deviation of 1.19. On the other hand, the time taken to complete the tasks by the Control Group has a mean of 13 minutes and a standard deviation of 1.8. The Test Group clearly completed the tasks faster (i.e. on the average 3.30 minutes less) than the Control Group. In terms of use of class time to complete tasks successfully this difference is important: the Test groups are much more efficient. Time taken is not, of course, the only indicator of learning - a teacher will be happy if children take longer, but learn, compared to those who work faster, but do not learn. Still, this significant difference in average time taken to complete tasks successfully is a strong indication of better interaction, and it fits in with all the other results so far. The differences in standard deviations show that the Test Group were slightly more consistent in this respect. The t value of the time is 5.16 that is more than 1.701 and therefore there is a significant difference between the two group in the time taken to complete the task (p<0.05).

6.2.4 ANALYSIS OF ESTIMATED VALUE OF MEAN LENGTH OF UTTERANCE (MLU)

Crystal, (1984) states that MLU was introduced by Roger Brown (1973) into language acquisition studies to compute the length of utterances in terms of morphemes. The technique is then used to show a child's utterances over time, as a baseline for carrying out studies on the development complexity of syntax (Crystal, 1984, p. 244). The Mean Length of Utterance in this study is defined here as the number of morphemes uttered over a period of time (i.e. amount or morphemes per minute). The enumeration of the quantitative data only permitted the researcher to obtain the total number of morphemes per participant namely: Child 1, Child 2 and Teacher generated in a transaction. This was done by counting the morphemes of each participant from the start of the transaction till completion was indicated by the
teacher, as can be heard from the audio tape. The time taken to complete the task was a
group effort, a teacher and a pair of children. It is tedious (and unnecessary in this
case) to calculate exactly the Mean Length of Utterance for individual participants.
The only practical way here is to obtain the Mean Length of Utterance of the group
in order to compare the Test and Control Groups. In this study the researcher is not
focusing on the MLU of every participant but is interested to know the difference of
MLU for each group by the estimated value since the focus is on the group
comparison. Therefore the estimated value of MLU for each group is shown as in

Table 6.15 Estimated Value of the MLU of the Children.

<table>
<thead>
<tr>
<th></th>
<th>Test Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLU of Group</td>
<td>40.3</td>
<td>29.1</td>
</tr>
<tr>
<td>MLT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>6.68</td>
<td>3.84</td>
</tr>
<tr>
<td>Child 2</td>
<td>6.62</td>
<td>3.67</td>
</tr>
<tr>
<td>Teacher</td>
<td>7.71</td>
<td>5.79</td>
</tr>
<tr>
<td>Morphemes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>46%</td>
<td>25%</td>
</tr>
<tr>
<td>Child 2</td>
<td>46%</td>
<td>21%</td>
</tr>
<tr>
<td>Total Child</td>
<td>91%</td>
<td>45%</td>
</tr>
<tr>
<td>Teacher</td>
<td>9%</td>
<td>55%</td>
</tr>
<tr>
<td>Est. Child MLU</td>
<td>+40.3</td>
<td>+29.1</td>
</tr>
</tbody>
</table>

Key: MLU=Mean Length of Utterance; MLT: Mean Length of Turn
Est: Estimated value

It can be seen that the MLU of the Test Group is 40.3 morphemes per minute which
is 18.6 morphemes (44%) more than the Control Group at 29.1 morphemes. This is
linked to the higher MLT of the participants of the Test Group (ranging from 6.68 to
and 91% of the morphemes are from the two children. Therefore, it can be
deduced that the MLU of the children in the Test Group is more or equal to 40.3
morphemes. On the other hand, the MLU of the Control Group is linked to the lower
MLT of the child participants (ranging from 3.84 to 5.79) who only have 45% of the
morphemes. Therefore, it can be deduced that the MLU of the children is equal or
less than 29.1 morphemes. The main point here is that the MLU of the children in the
Control Group is lower than of the MLU of the Test Group children. Generally it is
confirmed that the Test Group children have a higher average number of morphemes
per minute. With the estimated value of MLU the children from the ECI classes were
able to express more morphemes in a minute. They were able to verbalise in a higher
average number of morphemes, so linguistically they were more fluent in the
language used. This could be interpreted in several ways: The Control Group
children's language is less developed; the Control Group children are less fluent on
these particular tasks; the Control Group children interact less, linguistically; the
Control group children use more pauses (this would affect the time taken and hence
affect the MLU as estimated); the Control Group children need more time to think in
these tasks. Several of these interpretation may simultaneously be valid.

It is worth noting that the researcher's, and other Malay speakers', impression is that
in a Malay culture the people apparently talk very fast compared to British speakers.

6.2.5 SUMMARY AND CONCLUSIONS OF THE OVERALL
PERFORMANCE

The above comparative analysis of the Test Group and the Control Group, can be
summarised in the table 6.16 shown below:

Generally, the children in the Test Group have a higher number and proportion of
turns as compared to the children in the Control Group. This reflects that they are
more actively participating and the turns are generated between the children
themselves (to be seen in the next chapter) rather than being generated by the teachers.

Table 6.16 Summary Performance of Test and Control Groups

<table>
<thead>
<tr>
<th>Turn</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
<th>TEST</th>
<th>CON</th>
<th>DIFF</th>
<th>t test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>p&lt;.05</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>5%</td>
</tr>
<tr>
<td>Child 1</td>
<td>27.9</td>
<td>24.7</td>
<td>3.2</td>
<td>0.89</td>
<td>46</td>
<td>29</td>
<td>17</td>
<td>3.47*</td>
</tr>
<tr>
<td>Child 2</td>
<td>27.67</td>
<td>22.3</td>
<td>5.37</td>
<td>1.65</td>
<td>46</td>
<td>27</td>
<td>1%</td>
<td>4.63*</td>
</tr>
<tr>
<td>Child 1&amp;2</td>
<td>27.85</td>
<td>23.5</td>
<td>4.35</td>
<td>1.80*</td>
<td>46</td>
<td>28</td>
<td>18</td>
<td>5.75*</td>
</tr>
<tr>
<td>Teacher</td>
<td>4.9</td>
<td>37.2</td>
<td>-32.2</td>
<td>17.6*</td>
<td>8</td>
<td>55</td>
<td>-47</td>
<td>-8.07*</td>
</tr>
<tr>
<td>Morpheme:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>179.4</td>
<td>94.55</td>
<td>84.85</td>
<td>7.71*</td>
<td>46</td>
<td>25</td>
<td>21</td>
<td>5.99*</td>
</tr>
<tr>
<td>Child 2</td>
<td>177.2</td>
<td>81.93</td>
<td>95.27</td>
<td>8.8*</td>
<td>46</td>
<td>21</td>
<td>25</td>
<td>8.04*</td>
</tr>
<tr>
<td>Child 1&amp;2</td>
<td>178.2</td>
<td>88.24</td>
<td>90.02</td>
<td>11.78</td>
<td>45</td>
<td>24</td>
<td>21</td>
<td>9.85*</td>
</tr>
<tr>
<td>Teacher</td>
<td>34.72</td>
<td>215</td>
<td>180.3</td>
<td>5.85*</td>
<td>9</td>
<td>54</td>
<td>-35</td>
<td>-11.2*</td>
</tr>
<tr>
<td>MLT:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1</td>
<td>6.68</td>
<td>3.84</td>
<td>2.84</td>
<td>6.46*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 2</td>
<td>6.62</td>
<td>3.67</td>
<td>2.95</td>
<td>6.30*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 1&amp;2</td>
<td>6.65</td>
<td>3.76</td>
<td>2.89</td>
<td>6.30*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>7.71</td>
<td>5.79</td>
<td>1.92</td>
<td>3.38*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>9.7</td>
<td>13.43</td>
<td>-3.73</td>
<td>5.16*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLU</td>
<td>40.3</td>
<td>29.1</td>
<td>11.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: Test=Test Group; Control=Control Group; Diff=Difference; MLT=Mean Length of Turn; MLU=Mean Length of Utterance * significant (p<0.05)

Even though the difference in the number of turns is not statistically significant, the differences in the proportion of turns of the children between the Test and Control Group is statistically significant (p<0.05). Since the task is undertaken as team work this difference of turns is more significant, as each participant has to take his turn at the expense of another. However, the proportion of the children's turns constitutes 92% of the total turns in the Test Group while in the Control Group it consists of only 55%, where the teacher's proportion of turns is higher. This indicates that in the Test Group the children are much better interactively and verbally, probably because they are given (and they take) the opportunity to interact with each other compared to the children in the Control Group.
In terms of morphemes, the children in the Test Group have a higher number and proportion of morphemes as compared to the Control Group children. Both the differences in the number and proportion are statistically significant. These results show that the Test Group children used more morphemes in their interaction during the tasks. The children from the ECI classroom were able to express themselves by the use of language. It could be concluded that the Test Group children have developed conversation skills through negotiating meaning during the tasks.

The derivative from the number of turns and morphemes is the Mean Length of Turns. Result show that the children in the Test Group have a higher MLT as compared to the Control Group. The difference in the MLT of the Test and Control Groups is statistically significant (p<0.05). In terms of the time taken to complete the task successfully, the Test Group were able to complete the task much faster compared to the Control Group. The estimates made of the MLU of the children also shows that Test Group has a higher MLU than the Control Group.

Generally, it can be concluded that the children in the Test Group have a higher number and proportion of turns, morphemes and MLT, yet a shorter time taken to complete the task, and a greater estimated MLU as compared to the Control Group children. All the children in Test and Control Group used many turns but the difference is that the Test Group children are using longer turns in the interactions. This is supported by the higher average number of morphemes by the Test Group children and the difference is significant (p<0.05). Therefore it could be concluded that the Test Group was much better throughout the Test because they were more active and were more linguistically competent than the children from the normal class teaching in the study.

As to the teachers, the Test Group teachers have a lower number and proportion of turns than the Control Group teachers, which is statistically significant. The Test
teachers also have a higher average number of morphemes that is again statistically significant. The participation rate by the Test Group teachers is minimal, leaving more time and opportunity for turns to be taken by the children as required in the ECI approach. In the final analysis, the performance (as indicated by the number and proportion of turns, morphemes, MLT and MLU and the time taken to complete the task) of the children and the teacher in the Test Group is statistically significantly different from that of the Control Group.

6.3 ANALYSIS OF THE PROGRESS BETWEEN THE TEST AND CONTROL GROUPS

The objective of analysing the progress of the Test and Control Groups in the first and second task is to see if there is any significant improvements are made by the respective Groups after being exposed to the tasks for some time. The figures on the progress made by the respective participants are obtained by comparing the results of the two transactions of the same task (e.g. the scores for performance indicators of the Car task 2 minus the scores on the Car task 1). Any positive(+) figures show that there is an increase in the scores of the second task while a negative(-) sign indicates a reduction of the turns, morphemes, MLT, participation rate or time. The same procedure is carried out for the second task i.e. the scores obtained from the Rod task 2 minus those of the Rod task 1.

These two figures on the progress scores in performing the Car and Rod tasks are averaged out to derive a net progress figure for the group. Correspondingly, the same procedure is carried out for the Control Group. The average progress figures obtained from the Test Group are then compared with those of the Control Group. The magnitude of the net figures (either positive or negative) will indicate the relative rate of progress made by the participants in the respective groups.
It is important to note here that both the Test and Control Groups are expected to show a certain degree of progress made. We cannot presume that the Control Group, which continued solely to use the normal classroom teaching, will remain static or even regress. Such an assumption would imply that the existing teaching method is totally ineffective, thus denying the usefulness of the prevailing educational system. It is within the present teaching approach that the ECI operates and that any improvement in the skills and level of cognitive development occurs. Also, the Test Group, while using the ECI when possible, is still using the normal classroom teaching at other times. What is important here is to see whether the progress made by the Test Group (using the ECI approach) can offer some improvement over the present approach (shown by the Control Group Progress). The aim is to find whether the Test Group is progressing better, equal or even worse than the Control Group.

Another point that should be noted is that the process of carrying out a similar task for the second time (Progress Test Two) will inevitably result in some degree of improvement (over Progress Test One) which will be reflected by the lowering of the number of turns, and morphemes, as well as the time taken to complete the tasks. This is mainly due to the familiarity of the children with the task format and the repetition of doing the task, even though the second test is not identical to the first. The children have some benefit of previous knowledge and experience to apply for the second time. This factor applies, of course, to both Test and Control Groups in equal measure as far as the Progress Tests are concerned. What is critical is how far they can progress to do the task on their own, which is indicated by a gradual move toward 'hand over' by the teacher and finally the complete take over by the children. The aim is to observe the rate of improvement and acceleration of the teaching and the learning process, to obtain the final results. The teaching process covers the participation by the teacher in the number of turns and morphemes (and the derivative MLT) while the learning process includes the participation in the number of turns and...
the amount of morphemes expressed as well as the final result of the Mean Length of Turn of the children.

6.3.1 ANALYSIS OF PROGRESS IN TURNS AND MORPHEMES

The comparison of the progress of the Test Group as compared to the Control Group in their average number of turns and morphemes is as follows, calculated by subtracting Progress Test One measures from the comparable figures for Progress Test Two:

Table 6.17 Progress in Turns and Morphemes

<table>
<thead>
<tr>
<th>Group</th>
<th>Test Group</th>
<th>Control Group</th>
<th>Difference</th>
<th>t Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Items</td>
<td>Turn</td>
<td>Morp</td>
<td>Turn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No ch.</td>
<td>CH1</td>
<td>-14.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CH2</td>
<td>-14.80</td>
<td>9.57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOTH</td>
<td>-14.76</td>
<td>10.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEA</td>
<td>-4.07</td>
<td>-21.57</td>
</tr>
<tr>
<td></td>
<td>% Ch</td>
<td>CH1</td>
<td>-42%</td>
<td>7.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CH2</td>
<td>-42%</td>
<td>7.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BOTH</td>
<td>41%</td>
<td>7.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEA</td>
<td>-59%</td>
<td>-47%</td>
</tr>
</tbody>
</table>

Key: morp=morphemes; no.ch.=number of Change; BOTH=Child 1+Child 2; TEA=teacher %Ch=percentage of change  *significance

From the above table, it is observed that the average number of turns of Child 1 in the Test Group has decreased by -14.74 turns while in the Control Group the turns are reduced by a lower number of -9.97 turns. This shows that Child 1 in the Test
Group has decreased by -4.74 turns more than the Control Group but the difference is not statistically significant (p<0.05). On the other hand, the change in the number of morphemes between the two groups shows that Child 1 of the Test Group has increased by +11.8 morphemes that is more than the Control Group which is reduced by -15.9 morphemes and the difference is 27.7 morphemes, which is statistically significant (p<0.05). Generally, this shows that Child 1 in the Test Group has decreased more in the number of turns, but increased more significantly in the number of morphemes. On average, as compared to the Control Group, Child 1 has fewer, but longer, turns in the Test Group.

The above figures indicate the changes in absolute terms. This change in the number of turns and morphemes in the Test and Control Group should be related to the base number of turns and morphemes of the respective groups. Child 1 in the Test Group has the base number of 35 turns which is reduced by 14.7 turns to result in 20.3 turns (a 42 percent reduction). On the other hand the Control Group Child 1 has a base number of 29 turns which is reduced by 9.97 turns to result in 19.03 turns (a 35 percent reduction). The difference in the proportion of turns between the two children is -12% which is statistically significant (p<0.05) The net turn reduction shows that the Test Group still maintains a slightly higher level of turns, 20.3 as compared to the Control Group 19.03.

On the other hand, the change in the average number of morphemes between the two Groups shows that Child 1 of the Test Group has increased by +11.8 morphemes to a higher level, while the Control Group which is reduced by -15.9 morphemes, that is, reduced to a much lower number of total morphemes. This net increase in the number of morphemes in the Test Group apparently shows the use of more words or more complex language (morphologically) and certainly longer expression, by the Child 1. The base number of morphemes of Child 1 is 173.5 morphemes and the increase is equal to 6.8% increase. While the base number of morphemes of Child 1
in the Control Group is 102.5 morphemes and it further decreases by -15.6%. The difference in the proportional change of morphemes between the two groups of children is -18.4% which is not statistically significant (p<0.05). The Child 1 in the Test Group not only have a higher number of morphemes but also increase the percentage of morphemes while the Control Group Child 1 is at a lower level of average number of morphemes and this was further reduced. The net number of morphemes of the Test Group is 185.3 which is twice more than the Control Group with 93.2 morphemes.

The progress of Child 2 in the Test and Control Group also showed a similar pattern as above (see table 6.16), thus having the same implications. The average number of turns of Child 2 of the Test Group has decreased by -14.80 turns while the average number of turns of Child 2 in the Control Group was reduced by -9.3 turns (the difference is -5.58 turns), which is not statistically significant (p<0.05). However, the proportional change of the turns of child 2 in the test group is -42% as compared to -34% in the Control Group. The difference between the groups is -8% which is statistically significant (p<0.05). The number of morphemes, of Child 2 in the Test Group has increased by +9.57 as compared to reduction of -13.4 by the Control Child 2 resulting in a difference of +22.97 turns which is significant (p<0.05). The proportional change of morphemes of Child 2 in the Test Group is 7.0% as compared to -15.2% in the Control Group and their difference is -8.2% which is not statistically significant (p<0.05). The same pattern is also observed for the number and proportion of changes in the turns and morphemes for the average of Child 1 and Child 2 (both children) between the Test and Control Groups.

The Teacher's turns in the Test Group has decreased by -4.07 turns while the Teacher in the Control Group has reduced by -12 turns, thus giving a lesser rate of decrease of -8.2 turns by the Test Group Teacher. Again, these figures should be related to the base figures. The base number of turns of the Test group Teacher is low at 7 turns
and it was reduced by -4 turns to end at 3 turns which a reduction of -59%. On the other hand, the base turns of the Control Group teacher was high at 46.7 turns and it was reduced by -12.2 which is only 28%. Generally, the reduction in the turns by the Control Group teacher is relatively higher by -31% in proportionate terms as compared to the reduction of turns by the Test Group Teacher and the difference is statistically significant (p<0.05). The Test group Teacher's turns are much lower and are further reduced as compared to the Control Group Teacher's number of turns which remained high with a relatively low reduction. This can be interpreted as reflecting the conscious handing over process by the Test Group Teacher, giving more opportunity for the interaction (turns) to the children.

On the other hand, the average number of morphemes of the Teachers in the Test Group is decreased by -21.5 morphemes as compared to the large decrease of -109 morphemes of the Teacher in the Control Group. The difference in the progress of the number of turns is 87.43 which is statistically significant (p<0.05). The Teachers in the Test Group have a base of 45.5 morphemes and it was reduced by 47.3% while the Teacher in the Control Group has a base of 234.5 morphemes and it was reduced by 46%. The difference in the proportionate reduction of morphemes of -1% is not statistically significant (p<0.05), even though there is still a lot of intervention by the Control Group Teacher. The higher reduction of morphemes of the Teacher in the Control Group is almost proportionately equal to that of the Test Group but the average number of morphemes (showing intervention in dominance) is still very high. This implies that the Test Group Teacher has progressed better than the Control Group teacher in withdrawing and handing over to the children.

6.3.2 ANALYSIS OF PROGRESS IN THE MEAN LENGTH OF TURNS
The comparison of the progress in the Mean Length of Turn of the Test Group as compared to the Control groups is as follows:
Table 6.18 Progress in the Mean Length of Turn

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>TEST</th>
<th>CONTROL</th>
<th>DIFF</th>
<th>t TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLT Ch 1</td>
<td>3.46</td>
<td>0.89</td>
<td>2.57</td>
<td>-2.16*</td>
</tr>
<tr>
<td>MLT Ch 2</td>
<td>3.69</td>
<td>0.94</td>
<td>2.75</td>
<td>-2.45*</td>
</tr>
<tr>
<td>MLT Ch 1&amp;2</td>
<td>3.57</td>
<td>0.91</td>
<td>2.6</td>
<td>-3.39*</td>
</tr>
<tr>
<td>MLT T</td>
<td>1.11</td>
<td>-0.96</td>
<td>2.07</td>
<td>-1.59</td>
</tr>
<tr>
<td>% change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLT Ch 1</td>
<td>56%</td>
<td>23%</td>
<td>33%</td>
<td>1.93*</td>
</tr>
<tr>
<td>MLT Ch 2</td>
<td>56%</td>
<td>25%</td>
<td>35%</td>
<td>-1.83*</td>
</tr>
<tr>
<td>MLT Ch 1&amp;2</td>
<td>56%</td>
<td>24%</td>
<td>32%</td>
<td>-2.69*</td>
</tr>
<tr>
<td>MLT T</td>
<td>14%</td>
<td>-19%</td>
<td>33%</td>
<td>2.13*</td>
</tr>
</tbody>
</table>

Key: Test=Test group; Control=Control group; Diff=Difference; MLT=Mean Length of Turn; Chi 1&2= Combination of both children.

The above table shows that the Mean Length of Turn (MLT) of the Child 1 in the Test group has increased by 3.46 morphemes as compared to only 0.89 morphemes for Child 1 of the Control Group. Therefore, the Child 1 of the Test Group has gained 2.57 morphemes in their Mean length of turn and the difference is statistically significant (p<0.05). The MLT of Child 2 in the Test Group is increased by 3.69 morphemes compared to only 0.94 morphemes in Child 2 of the Control Group with a difference of 2.75 morphemes which is statistically significant (p<0.05). The same pattern of progress is evident in the average of combined Child 1 and Child 2 of the Test Group as compared to the corresponding Children in the Control Group. On the other hand, the MLT of the teacher in the Test Group has increased by 1.11 morphemes while that of the Teacher in the Control Group MLT was reduced by 0.96 morphemes resulting in a difference of 2.07 morphemes which is not statistically significant (p<0.05).

This is the net result of the process where the Child's capability is expressed in terms of the Mean Length of Turn, that is, their ability to express themselves in one
continuous sequence or turn. The absolute figures on the net increase and decrease in the MLT may not provide a full picture of the progress made unless it is examined in relation to the base MLT in the first task and the new MLT in the second task. The base MLT of Child 1 in the Test Group is relatively high at 4.95 morphemes and it has increased by a proportion of 56% (3.46 morphemes) to result in 8.41. On the other hand, Child 1 in the Control Group has a relatively low base MLT of 3.4 morphemes and it has increased by 23% (0.89 morphemes) to result in 4.49 morphemes. Therefore, Child 1 in the Test Group has progressed much more (by 33% in Table 6.18 or 2.57 more morphemes) and this is statistically significant (p<0.05) which is also evident in the case of Child 2. The proportionate increase in the MLT of the teacher in the Control Group is 14% as compared to a decrease of -19% of the teacher in the Control Group which results in a 33% difference that is statistically significant (p<0.05). It is interesting to note that the MLT of the Teacher in the Test Group also increased (although there was a reduction of their turns there was an increase in the number of morphemes) implying, probably, meaningful and quality intervention made by the Teacher. The reason why the Test Group Teachers have increased their MLT is because the number of turns has decreased yet usually the Test Group Teachers used longer turns which will be interpreted as quality intervention, as shown in the quantitative analysis.

The Teachers in the Control Group still maintain their MLT with a slight decrease (-0.96 morphemes) in the MLT. The Control Teachers in the second Progress Test have slightly toned down their involvement by reducing the number of turns and morphemes because, it was observed, generally they were quite bored with teaching similar tasks and the children were not interactive, as they complained after the test to the researcher. They tried to give a chance to the children to do the tasks, but did not encourage the children to use language nor did the Control Group Teachers attempt to extend the children's language. Therefore, there is a reduction of turns and morphemes in the second test. The test was done very briefly in the Control Groups.
and it can be heard from the tape that the children were whispering their answers and pointing instead of describing. Generally, in the second tasks the Control Group Teachers let the children do so as heard from the audio tape.

Therefore, it can be concluded that the children in the Test Group progressed better, as shown by their use of a higher MLT at the second stage. The progress of the children was also dependent on the teacher. The Test Group teachers still maintained themselves as interactive partners right to the end of the second task by encouraging and prompting the children so that the children could sustain their interaction. This does not necessarily mean that the 'hand over' had not been completed by the teacher. Even a lower average number of turns by Test Group Teachers gave qualitative intervention which means that the children were helped to sustain the interaction in an elaborate manner.

6.3.3 ANALYSIS OF PROGRESS IN THE TIME TAKEN TO COMPLETE TASK.

The comparison of the progress in the completion time of the Test Group as compared to the Control Group is shown in the table below. This indicate that the progress in the time taken is marginally lower in the Test as compared to the Control Group.

Table 6.19 Progress in the Average Time Taken to Complete the Task (in mins)

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>TEST</th>
<th>CONTROL</th>
<th>DIFF</th>
<th>t Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (mins)</td>
<td>-2.86</td>
<td>-2.7</td>
<td>-0.16</td>
<td>0.46</td>
</tr>
<tr>
<td>% Change</td>
<td>-29%</td>
<td>-20%</td>
<td>-9%</td>
<td>2.17*</td>
</tr>
</tbody>
</table>

Key: Diff=difference; % Change=the difference in %; mins=minutes
From the above table, it can be seen that the progress (i.e. reduction in the time taken to complete the task) is only very slightly different between the Test and Control Groups at 0.16 minutes which is not statistically significant (p<0.05). In order to compare correctly the progress in the time taken to complete, the time reduction should be compared to the original time. The original average time taken by the Test Group was 11.11 minutes and it was reduced by 29% (-2.86) to result in 8.25 minutes. On the other hand, the original average time taken by the Control Group was 14.64 minutes and it was reduced by -20% (-2.7 minutes) to result in 11.14 minutes. Therefore, the reduction in the time taken by the Test Group is proportionately more than the Control Group and it is statistically significant (p<0.05), which also indicates better progress made by the Test Group (which had a lower average completion time in the first place).

### 6.3.4 ANALYSIS OF PROGRESS IN THE ESTIMATED VALUE OF MLU.

The progress in the estimated MLU was also compared, which is summarised in the following table:

<table>
<thead>
<tr>
<th>Progress in MLU</th>
<th>Test Group</th>
<th>Control Group</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in MLU</td>
<td>+8.7</td>
<td>-7.67</td>
<td>+15.37</td>
</tr>
<tr>
<td>Change in MLU</td>
<td>+19 %</td>
<td>-27 %</td>
<td>46 %</td>
</tr>
</tbody>
</table>

Key: MLU= Mean Length of Utterance;

From the above table, it can be observed that the progress in the estimated MLU of Utterance shows that the Test Group gained by 8.7 MLU as compared to the Control Group, which is a reduction of -7.67 MLU. This is reflected in terms of the rate of progress where the Test group gained by 19.44 % while the Control Group decreased by -27%. Therefore, the progress made in the MLU is much more in the
Test Group. It should be noted that the t test is not done for the progress MLU of the Test and Control Group because this MLU is an estimated figure derived from the aggregation of the group MLU. Generally it can be concluded that the children from the Test Group gained more in MLU than the Control Group children.

6.3.5 SUMMARY AND CONCLUSIONS OF PROGRESS

In the analysis of the progress of performance, the number of turns of the children showed that the Test Group children decrease more than the Control Group but that it is not statistically significant. However, when the proportion (percentage) of the decrease in their turns is examined, the rate of decrease of the turns of the children in the Test Group is also more than that of the Control Group and this is statistically significant. This pattern is similar to the result of the previous analysis of the difference on the performance of turns of the children where the difference in the number of turns is not statistically significant but the difference in the proportion of turns is statistically significant. Since the exercise is a group effort by three parties (or it can be also viewed as the progress of the participation of the children and the progress towards handover by the teacher), the proportion of turns of the respective participants is more indicative and representative of the progress made.

For the teacher, the progress in the reduction in the number of turns of the Test Group Teacher is less than that of the Control Group's teacher but it is not statistically significant. However, when the proportion (in the percentage) of the difference in the rate of decrease is compared, the Test Group Teacher showed a higher rate of decrease as compared to the teacher in the Control Group and the difference is statistically significant. Therefore, the progress of the performance for the teacher and the children in the Test Group is better in the number of turns than that of the Control Group and it is statistically significant in the proportion of turns.
As to the comparison of progress with morphemes, the number of morphemes of the Test Group children increased as compared to the children in the Control Group, which in fact decreased in the number of morphemes. This difference in the progress in the number of morphemes between the two group is statistically significant. However, when the proportion (in percentage) of the decrease or increase in the morphemes is examined, the rate of increase in the proportion of morphemes of the children of the Test Group is more than the decrease in the proportion of morphemes of the Control Group, but it is not statistically significant. This can be attributed to the relatively large base number of morphemes and even though the percentage change occurred, it is not statistically significant. The same pattern is also observed for the progress in the number and proportion of morphemes of the Test and Control Group Teacher.

The progress of the mean length of turn (MLT) showed that the MLT of the children in the Test Group increased by a higher number and proportion of morphemes as compared to the children in the Control Group and they are both statistically significant. On the other hand, the progress of MLT of the teacher is more than that of the teacher of the Control Group (which decreased its MLT) but this is not statistically significant. However, when the progress of the proportion of the MLT is compared, the increase in the Test Group percentage is more than the decrease in the Control Group teacher MLT and their difference is statistically significant.

Finally, the progress in the time taken to complete the given task showed that the Test Group reduced its time by a small time unit but it is not statistically significant. However, when the proportions in change in the time are compared, the Test Group reduced its time by a higher percentage which is statistically significant.

Generally, the analysis of the progress of the performance in the number and proportion of turns and morphemes, the mean length of turn and time taken by the
children and the teacher showed that not only the Test Group performed better but it also progressed better especially in the comparison of the proportional change in turns, MLT and the time taken to complete tasks, with the exception of the average number of morphemes. But there is still a difference in progress in this number of morphemes.

6.4 SUMMARY AND CONCLUSIONS OF THE QUANTITATIVE ANALYSIS

6.4.1 Findings on the Overall Performance and Progress of Test and Control Groups

The overall quantitative comparison made between the Test and Control Groups at the combined and individual levels for the Car and Rod tasks, can be summarised from the relative performance attained for the average number of turns, morphemes, Mean Length of Turn, time taken to complete tasks and estimated value of mean length of utterance. It can be summarised in the following table.

<table>
<thead>
<tr>
<th>PERFORM</th>
<th>COMPARISON</th>
<th>PROGR</th>
<th>ESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test (No.)</td>
<td>Control (No.)</td>
<td>Test (+/-)</td>
</tr>
<tr>
<td>CHILD 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turns no</td>
<td>High</td>
<td>Low</td>
<td>More(-)</td>
</tr>
<tr>
<td>Turns %</td>
<td>High</td>
<td>Low</td>
<td>More(-)</td>
</tr>
<tr>
<td>Morphemes</td>
<td>High</td>
<td>Low</td>
<td>More(-)</td>
</tr>
<tr>
<td>Morphemes %</td>
<td>High</td>
<td>Low</td>
<td>More(+)</td>
</tr>
<tr>
<td>MLT</td>
<td>High</td>
<td>Low</td>
<td>More(+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHILD 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turns no</td>
<td>High</td>
<td>Low</td>
<td>More(-)</td>
</tr>
<tr>
<td>Turns %</td>
<td>High</td>
<td>Low</td>
<td>More(-)</td>
</tr>
<tr>
<td>Morphemes</td>
<td>High</td>
<td>Low</td>
<td>More(+)</td>
</tr>
<tr>
<td>Morphemes %</td>
<td>High</td>
<td>Low</td>
<td>More(+)</td>
</tr>
<tr>
<td>MLT</td>
<td>High</td>
<td>Low</td>
<td>More(+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEACHER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turns no</td>
<td>Low</td>
<td>High</td>
<td>Less(-)</td>
</tr>
<tr>
<td>Turns %</td>
<td>Low</td>
<td>High</td>
<td>More(+</td>
</tr>
<tr>
<td>Morphemes</td>
<td>Low</td>
<td>High</td>
<td>Less(-)</td>
</tr>
<tr>
<td>Morphemes %</td>
<td>Low</td>
<td>High</td>
<td>More(+)</td>
</tr>
<tr>
<td>MLT</td>
<td>High</td>
<td>Low</td>
<td>More(+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>Mins/Secs</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Est. MLU</td>
<td>Children</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 6.21 Summary Performance and Progress Between Test and Control Groups
As the above summary table, it should be noted that:

a. High refers to "high average number of turns, morphemes, participation rate, MLT attained by the Group as compared to the other Group".

b. Low refers to "low average number of turns, morphemes, participation rate, MLT attained by the Group as compared to the other Group".

c. More refers to "more rate of increase (+) or decrease (-) in the average number of turns, morphemes, participation rate, MLU attained by the Group as compared to the other group".

d. Less refer to "less rate of increase (+) or decrease (-) in the average number of turns, morphemes, participation rate and MLU attained by the Group as compared to the other group".

Generally, it can be concluded:

1. The children in the Test Group have a higher average number of turns, and morphemes; a higher proportion of turns and morphemes; and also a higher Mean Length of Turn (MLT) and Mean Length of Utterance (MLU) than the children in the Control Groups, who attain less in the corresponding numbers/scores. The difference between the performances is also statistically significant at 5% level of confidence (that is the number of morphemes, proportion of turns and morphemes, Mean length of Turn and estimated value of Mean Length of Utterance. It is only in the average number of turns that the Test Group children when calculated separately as Child 1 and Child 2 are not significant, but when they are combined, it is significant. The progress made by the children in the Test Group showed a high rate of decrease of average number of turns, but a high rate of increase in the number of morphemes; a high rate of increase of their participation rate (%) for the turns and
morphemes; and a high rate of increase of the Mean Length of (MLT) as compared to the children in the Control Group, who attained lower rates in the corresponding scores. The difference between the performance is also statistically significant at the 5% level of confidence.

ii. Overall the teacher in the Test Group has a lower average number of turns than the teacher in the Control Group and a lower average number of morphemes. The difference is statistically significant at 5% level of confidence. The progress made by the teacher in the Test Group showed a higher rate of decrease/reduction of average number of turns, and a higher rate of participation (%) for the turns and morphemes. The teacher in the Control Group still maintains a high number of turns but a slight decrease in average number of morphemes. The difference between the performance is also statistically significant at the 5% level of confidence.

iii. The average time taken to complete the given task by the teacher and a pair of children in the Test Group is faster than the time taken in the Control Group. The progress made by the children in the Test Group showed a higher reduction in time taken for successful task completion.

6.4.2 Implications on Quantitative Analysis
Generally, the quantitative analysis shows that the children and teachers in the Test Group, who were using the Enhanced Classroom Interaction (ECI) approach, have attained a better level of performance as compared to the children and teachers in the Control Group who practised the normal classroom teaching. The differences in the performance indicators can be attributed to two aspects, namely, the difference in the characteristics of the approach and the results of the approach.

The difference in the characteristics of the two approaches can be explained quantitatively as follows. In the Test Group, the average number of turns and the rate
of participation by the teacher, as compared to the children, is lower than the Control Group. On the other hand, the participation rate by the pairs of children is higher than the teacher's. This is in keeping with the characteristic feature of the ECI where the teacher will encourage and provide more opportunities for the children to interact and express themselves, both to the teacher and each other. This is contrasted with the normal classroom teaching that is characterised by high participation rates by the teacher, who gives fewer chances to the children to interact and talk among themselves. On the other hand, the number of morphemes and the Mean Length of Turn of the teacher in the Test Group is still higher than that of the Control Group. This is consonant with the characteristics of the Test Group teachers' approach that used meaningful participation with meaningful intervention and explanation during their sparing participation. This is in contrast to the Control Group teachers' approach: they tend to intervene continuously, using short sentences and morphemes, without giving many opportunities to the children to interact. Therefore, these two aspects of the Enhanced Classroom Interaction approach can be identified as distinctly different from the normal classroom teaching from their quantitative aspects. This will rebut any allegations that there is no difference in the method of teaching between the two approaches.

The second level of analysis will identify the different results of the two approaches. This can be readily seen in the performance of the children themselves. The children in the Test Group are more active in their turns, morphemes (on their own) and the participation rate (in relation to the teacher) as compared to the children in the Control Group. What is more significant is that the number of morphemes and the Mean Length of Turn of the Test Group children is more than that attained by the children in the Control Group. It should also be noted that the Test Group could complete the tasks much faster than the Control Group. Therefore, the application of the ECI approach showed better results in interaction among the children and task completion time as compared to children following normal classroom teaching. The
results on the progress tests show that the Test Group children have a higher rate of increase in the Mean Length of Turn (MLT) as compared to the Control Group. The rate of decrease of the average number of morphemes is lower in the Test Group as compared to the Control Group. This shows not only the gain in the MLT but also the ability to retain the higher average number of morphemes.

It is very interesting to note that while the researcher expected that the Control Group Teachers would maintain a high number of turns and morphemes in Progress Test two, these teachers in fact reduced them in the sense of letting the children do the task on their own. But the results showed that the Control Group children's turns and morphemes were also reduced, the children generally using more non-verbal language by pointing and directing activity with gestures to their partners. Arguably, and not surprisingly, the Control group children had not learnt to interact and verbalise in tasks as the Test Group children had. Since the purpose of the ECI is to develop both interaction and verbalisation between teacher and child, and between children, the quantitative results are clear evidence that the ECI was successful in these aims with these children.

This quantitative analysis will be followed next by a qualitative analysis that will examine the qualitative aspects of the various performances of the children and teachers in the Test and Control Groups respectively. It will show qualitative differences in the characteristics of the ECI approach and the results of using the approach.
7. CHAPTER SEVEN: QUALITATIVE ANALYSIS

7.1 Introduction
   7.1.1 Methodology
   7.1.2 Focus

7.2 Management of the Task
   7.2.1 Initiation: Instruction versus Checking Questions
   7.2.2 Outer Structure: Application versus Ignored
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   7.2.4 Joint Activity versus Ignored
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7.7 Summary and Conclusions
7. CHAPTER SEVEN: QUALITATIVE ANALYSIS

7.1 Introduction

A qualitative analysis was deemed necessary in this study to complement the quantitative analysis given in chapter six. This chapter explains the methods of this qualitative analysis, discusses each aspect which compares the Test and Control Group interaction qualitatively, and finally draws conclusions from the analysis. The data for the quantitative analysis deal explicitly with the form and patterns of language use employed by teachers and children in carrying out the tasks used in the tests. This chapter therefore also complements chapter five, which examined the general quality of the 'normal teaching in the two Groups as shown in the video recordings.

The objective of the qualitative analysis is to analyse and highlight the differences in the approaches to the organisation of turns by the teachers in the Test Group compared to that given by the Control Group teachers. It also describes the kind and level of interaction between the Test Group children as compared to the Control Group children.

All the teachers were given identical instructions by the researcher about the instruments which would be used to test the children's interaction (see Appendix V). The method and style of teaching and managing the task were matters of choice for the teachers. The agreed aim was that the pair of children should use verbal language and complete the transactions of the Car task and the Rod task in Progress Test One and Progress Test Two (see Chapter 4.6 on Implementation of the Test).

7.1.1 Methodology

The analysis of the qualitative data is based on 420 transcribed sub-transactions, from each of the Test and Control Groups (see Chapter 4 for definitions of terms). The data were analysed by using a 'Conversation Analysis Model' which is widely used for discourse analysis of spoken English language in classrooms and elsewhere (Coulthard, 1975; Willis 1992; Stubbs 1981; Stenstrom 1994, Tsui, 1994, see Chapter 4.8). There
are 15 pairs of children and a teacher involved in each group. All the sub-transactions (of
the Car task and the Rod task) in Progress Test One and Progress Test Two are
systematically analysed and compared. The examples given are based on these two
tasks.

7.1.2 Focus

The main area that will be examined is how both groups organised the interaction in
approaching the task. The discussion is organised in terms of the following topics:

i. Management of the Task
ii. The Structure of Exchanges
iii. Utterance Complexity
iv. Explicit Behaviour
v. The Real Situation

7.2 Management of Tasks

The management of the task is how the teacher organises the classroom talk for the pairs
of children engaged in the tasks of the Progress Tests. In most classrooms the teacher
normally tells pupils when to talk, what to talk and how well they talked (Wood, 1992;
Edwards & Westgate 1994). In this aspect the researcher compared differences in the
language used in the interaction by the Test and Control Group teachers, focusing on
how sub-transactions are opened during the tasks with the children, and also the
techniques used during the teachers' intervention. All the headings were adopted from
classroom interaction studies and terms used by Willis, Bruner, and others, which will be
explained later. The management of turns will be discussed with the following headings.

i. Initiation: Instruction versus checking questions
ii. Outer Structure: application versus ignored
iii. Handing over versus Teacher Dominance
iv. Joint Activity versus Ignored
v. Intervention: Prompting versus Directing

vi. Non-verbal Interaction.

The transcribed data of the sub-transactions between the two groups were analysed systematically and compared. Exchanges in three sub transactions were found to be initiated by the teachers when the tests were given to both groups. However, it was discovered that the Test Group teachers managed the test differently from their counterparts in the Control Groups. Below are examples from the transcriptions (translated into English) demonstrating differences commonly found between the groups (examples 7.1-7.11 from the Car task and the Rod task). All the examples quoted can be seen in the original version in Appendix IX where there are further examples in Bahasa Malaysia. The later discussion on the management of tasks is based on these extracts. The same code is used throughout the chapter (Child 1, the Instructor child = CH1, Child 2, the Performer child = CH2, Teacher = T).

a. Test Group Teachers (examples 7.1-7.5)

The examples given below show how the teachers from the Test Group initiated the initial opening of the transactions, i.e. how they introduced the task to the children.

Example 7.1: the Car task

Teacher initiated transactions

T: Zaki (CH2) will arrange the model of the cars and Amir (CH1) will explain to Zaki according to the photographs. Amir shouldn’t point but use words to explain. Now, let us begin.

CH1: Take a red car, put it on the right of the road.

CH2: Here..here..is this the right place?

CH1: You’re right..then take the fire engine.

CH2: Where shall I put it?
Example 7.2: the Car task

Teacher initiated transactions

T: Ain (CH1) you hold the pictures and look at them, then Sharifah (CH2) hold the cars, Sharifah arrange them and describe the location of the cars. Ain shouldn't show the picture to Sharifah, and Sharifah can ask if you are not clear. OK now we can begin.

CH1: Take a fire engine and put it on the right.

T: Is that correct Ain?

CH2: Is it here?

CH1: It's wrong...a bit backward. Correct. The red car is at the feeder road.

CH2: Is it right? I put it here.

CH1: Correct.

T: Good, photograph no. 2.

Example 7.3: the Car task

Teacher initiated transactions

T: I have toy cars. One of you has to look at the pictures and describe them and your partner is going to arrange the position of the cars according to the description. The one who arranges can't look at the picture but can only ask. We can begin and who is going to start?

CH1: The red car is on your left.

CH2: Which road?

CH1: At the feeder road, Correct, then the take the fire engine.

CH2: Where shall I put it?

CH1: At the main road.
CH2: Is it here?
CH1: Yes you are right.
T: Good girl, now go to the next picture.

Example 7.4: the Rod task

Teacher initiated transactions

T: Asraf (CH1) will describe how to set up the model from the rods as in the photo and Hafiz (CH2) will arrange according to the description. Hafiz can pick up the rods from the box. Let’s begin.

CH1: Take two greens.
CH2: Two greens, short or long ones?
CH1: Long. a long green and you need one.
T: mm., carry on.
CH2: Take yellow, two.

Example 7.5: the Rod task

Teacher initiated transactions

T: This is a rod game. I will give this photo to Fikri (CH1) Fikri describe to Aman (CH2) how to arrange the rods. You tell him how many he needs and the colour and so on. Can we begin now?

CH1: Take yellow and make a letter ’V’.
CH2: Long or short?
CH1: Short.
CH2: Short, make a letter ’V’.
T: Is it enough rods to make letter ’V’?
CH1: You need two rods.
b. Control Group Teachers (examples 7.6 - 7.11)

The examples given below show how teacher from the Control Group initiated the initial opening of the transactions.

Example 7.6: the Car task

**Teacher initiated transactions**

T: OK Jamil (CH2), how many cars are there?
CH1: Four.
T: What colour is this?
CH2: Red.
T: What type of car is this?
CH1: Fire engine.

T: OK Fire engine. Now Safiah (CH1) hold the card, look at the card but you can't show Jamil (CH2) that photograph. You must tell Jamil what is shown in the photograph. What type of car do you see in the photograph Safiah?

CH1: Fire engine.

Example 7.7: the Car task

**Teacher initiated transactions**

T: OK photo one what are the cars?
CH1: Fire engine.
T: Fire engine, take fire engine Aina (CH2).
CH2: Finish.
T: Where to put the fire engine, on which side of the road?
CH1: On the right.
T: On the right, the fire engine is on the right, on the right, which road?
Example 7.8: the Car task

Teacher initiated transactions

T: What is this car?

CH1 & CH2: Yellow car, a jeep, red car and a fire engine (answer in chorus).

T: This is what road? This road you can label A, B, C, and D and the grass. Start with Khalid (CH1)

CH1: Take a red car.

T: Where to put it on, road C or D? D, where is road D?

CH1: D....red car.

T: No, it's not a red car.

Example 7.9: the Car task

Teacher initiated transactions

T: Now we are going to play road signs, what is this Nana(CH1)?

CH1: A main road.

T: What line is this child Hasni (CH2)?

CH2: Road.

T: What is this?

CH1: A jeep.

T: What colour is it?

CH1: White.

T: This a road line, what is this?

Chorus: A main road.

Example 7.10: the Rod task

Teacher initiated transactions

T: This is what colour Azim (CH1)? What colour is it?

CH1: Blue.
T: This?
CH1: Green.

T: This is a long green rod, a short green one, dark green, light green, this is long, this is short, what colour is this?
CH1: Yellow.

T: This is a rod, Hidayah (CH2), what colour are these?
CH2: Red, orange, yellow and blue.

Example 7.11: the Rod task

Teacher initiated transactions

T: You tell me, what colour are these?
CH1: Yellow, orange, green, red.

T: What shape is this Amir?
CH2: A man.

T: A man shape, okay, start.

CH2: Red colour.

T: Where to put it?

7.2.1 Initiation: Instruction versus Checking Questions

The five examples 7.1 - 7.5 (pp. 244 to 246) show that Test Group teachers initiate the task by giving very clear instructions for the task but only at the beginning of the transactions, not at the beginning of each exchange throughout the sub-transaction nor at the beginning of subsequent sub-transactions. Rather, once the teacher has set up the situation, managerially, the task is taken over by the children. This is shown by the fact that those initiations following the teacher's setting-up are enacted by the children alone. This is done differently by the Control Group teachers.

The later examples 7.6 - 7.11 (from pp. 247 onwards) show that the Control Group teachers initiate the task by trying to check the children's knowledge, by asking labelling
and naming questions. As a result, the first child (CH 1) is trying to answer the teacher's question and not communicate with the other child (CH 2). The teacher seemed not to introduce the game to the children; only after more than five instructional and preliminary 'checking' exchanges does she do so. In example 7.8 the teacher, instead of encouraging the children to describe the location of the car, simplified for the children by labelling the roads as road A, B, C, and D. In later sub-transactions the Control Group Teacher was still using the same unvarying technique of asking preliminary checking questions during the changeover of the role of the second child to Instructor.

The Control Group Teachers continued to apply much the same technique throughout from sequence one to three and also during the changing of roles by the children throughout the whole series of sub-transactions.

Example 7.12 from the Control Group Teacher to Child 1 when moving to another picture.

T: In photo 2, what do you have?
CH1: Car
T: What type of car?
CH1: A red car.

Example 7.13 from the Control Group teacher to Child 2 during the changing over of role from performer to Instructor.

T: Now your turn to tell him which car to take and arrange at the right place. OK, which car is he supposed to take?
CH1: Fire engine.

Another Control Group example 7.14 during the changing of roles at the beginning of another sub-transaction.
T: Enough, OK now change place, you (Child 2) sit here and you (Child 1) sit there.
Your turn (Child 2) to tell him what cars are there in the photo and at which road. OK,
firstly what cars are those?

7.2.2. 'Outer Structure': Application versus Ignored

It can be seen that these Test Group teachers were using an 'Outer structure' (Willis 1992) to stimulate the children's utterance in the task given (see Chapter 4.8) These outer structures could be seen from the instructions at the beginning of the test and the final feedback, or 'rounding off' comment or the end of each sub-transaction either directly or implicitly by giving instructions to move to the next sub-transaction. This is evident in examples 7.1 to 7.5, at the beginning of each task and at the end of the sub-transaction of example 7.1 and 7.2 (see p. 244 and 245).

T: Zaki (CH2) will arrange the model of the cars and Amir (CH1) will explain to Zaki according to the photographs. Amir shouldn't point but use words to explain. Now, begin. (Outer structure and other examples given above).

CH1: ....

CH2: ....and others

T: Next photo (Outer structure).

The teacher reiterated the instructions when changing the photographs to encourage the child to extend the description to the partner. More examples can be seen in Progress Test Two when the Test Group children are actually quite independent of the teacher but the task is still carried out as a joint activity and the teacher's contribution is only that of framing the whole task smoothly. The teachers were not-code switching between languages (as Willis, 1992 showed in her 'outer structures' in foreign language communicative classrooms of the 1990s) since Bahasa Malaysia is used by all participants throughout. The teachers in the Control Group do not apply any outer
structures but they generally get into the task with direct questions rather than instructions or explanations.

For example (refer to the example from 7.6 p. 247).

T: OK Jamil, how many cars are there? (Inner structure).

another example (refer to the example from 7.7 p. 247).

T: In photo 2, what car can you see? (Inner structure, and other examples given above in 7.8-7.11 p. 248-249).

7.2.3. Handover versus Teacher Dominance

The evidence from examples 7.1-7.3 above (when the teachers said 'now begin', 'OK, now we can begin' and 'we can begin and who is going to start it?') shows that all the Test Group teachers managed the task in such a way that the activities are swiftly handed over to the children: the teacher talks, but only with the minimum amount of speech to get the children talking and managing the task for themselves. The examples from 7.1 and 7.5, show how immediately after the teachers' 'outer structure' (initiation) the Child 1 responds and initiates, to Child 2 as heard from the tape and seen by the researcher's observation during the test.

Example from 7.1 above (p. 244):

CH1: Take a red car, put it on the right of the road.

CH2: Take the fire engine and put it on the right.

Example from 7.2 above (p. 245):

CH1: The red car is on your left.

CH2: Which road?

CH2: At the feeder road.

This can readily be described in terms of Bruner, Wood and Ross's (1976) metaphor of 'scaffolding' in which the competent adult or peer helps the less expert person in learning how to deal with a problem, initially providing great support (as shown in the case
studies in Chapter 5) but 'handing over' the initiative when the children are able to do it independently. Here, the children were able to interact with their partners, initiating, and directing and giving feedback as shown in the extracts 7.1-7.5. This is not the case in the Control Group exchanges which generally represent a 'well-ordered' classroom, in which teachers normally controlled the talk and asked questions to which the teacher knew the answer (Edwards & Furlong 1978; Mehan 1979; Edwards & Westgate 1994, amongst others).

The six examples, 7.6-7.11, show that the Control Group teachers are exercising strong dominance in the sense that they control the situation and monopolise the I's and F's of IRF exchanges. Especially in 7.6, the teacher used a lot of checking questions, for example 'Do you know what is this?' and in examples 7.8 and 7.10 the teachers used labelling questions such as 'What shape is this, Hidayah?'. The teacher does give non-verbal feedback even though in the transcriptions this is not heard; the children always looked at the Control Group teacher for approval. It is very important to note here that in a Malaysian culture when an answer is right the teacher normally shows facial expressions of approval or nodding, and verbal feedback in the form of praising is not habitually used. Wrong answers will be repeated; in the case of this study the teachers used a strong corrective approach as a feedback.

7.2.4 Joint Activity versus Ignored

The teachers in the Test Group during the opening of the transactions label the task as a joint activity by the use of the word 'we' and 'us'. According to Mercer (1995) and Wells and Chang-Wells, (1992) it is very important that children can share the work together and not feel restricted and controlled. There are some of the examples commonly used by the Test Group teachers in the transactions: 'Now let us begin', 'Can we begin', 'We can begin it now', 'We are going to play'.

The Control Teachers did not seem to be aware of any such joint or sharing activity, as their counterparts from the Test Group who practised the ECI were. There were very
few examples of the inclusive pronouns typically used by Test Group Teachers (a rare example occurs in (7.9): "Now we are going to play road signs").

7.2.5 Teacher's Intervention: Prompting versus Directing

Teachers from the Test Groups used a lot of prompting when a child made a mistake in the instructions or during the performance (rather than explicit correction). Sometimes this led to repair (see Definition of Terms in Chapter 4.8.2) from the other child, shown the example given below from the transcribed sub-transactions in the Car and Rod tasks:

Example 7.15:

CH1: Take a red car and put it on the right (wrong instruction given).
T: Look carefully, where to put the red car? (teacher's prompting to CH1 to be more precise).
CH2: Is it here? (checking: eliciting feedback from CH1, not from the teacher).

Another example 7.16 from the Car task:

CH1: The fire engine is on the right (wrong instruction given)
Teacher: Are you sure you are telling the correct position? (teacher's prompting)
CH1: No..no.. it's on the left (gives correction to CH2, not to the teacher).

Example 7.17 from the Rod task:

CH1: The yellow rod, put it slanting, take another yellow rod and do the same thing.
T: Is it right, that yellow? (teacher prompting CH1 because she saw that CH2 was doing it wrongly.

CH1: The yellow rod move it a bit further, further. Then you take the small, white rod and put it beneath the green rod (responds to teacher prompt but directs the modified instructions to CH2).

CH2: Is it here? (elicit feedback from CH1, not from the teacher)

Another example 7.18 from the Rod task:
CH1: Take two long rods which are orange in colour, lay them horizontally, a bit nearer.

CH2: Like this? (elicits feedback from CH1, not from the teacher).

CH1: Yeh.. take two short yellows in colour, put them above the orange rod, then another one.

T: Are you sure you said the right thing to do? (teacher's prompting to CH1 when the instruction was not clear).

CH2: A bit nearer, the yellow one's a bit nearer (modifies instructions directly to CH2 not through the teacher)

CH1: Then, like this (acknowledges modifications from CH1, teacher remains silent).

The teachers from the Control Group used a more direct and explicitly corrective approach when a child made a mistake in giving the instructions or during the performance (rather than the less direct prompting used by Test Group teachers), for example 7.19:

CH1: The red car is on the left.

T: Jamil not the left but it's on the right. (Direct correction of CH1, not a prompt)

another example 7.20:

CH1: That car is in front of that car.

T: Wrong (direct correction of CH 1).

example 7.21: a child repeating the teacher's words

T: What happened?

CH1: Accident.

T: The red car knocked the fire engine, (explicit direct correction and cue for repetition from CH1)

CH1: The red car knocked the fire engine (repeated teacher's utterance back to the teacher, not to CH2).

T: The fire engine knocked the yellow car
CH1: The fire engine knocked the yellow car (repeated teacher's utterance as before).
T: And the white car knocked the yellow car
CH1: And the white car knocked the yellow car (repeated teachers utterance).

This is almost like a language drill with repeated cues and sequences of repetitions.

Example 7.22 from the Rod task:

CH1: Black colour, one.
T: It is not black, it's dark blue (explicit correction to CH1, not a prompt).
another example 7.23:
CH2: At the back
T: At the back, move to the front a bit (referred to Child 2, explicit correction).

Another example 7.24, is a rare instance of a Control Group teacher prompting with a closed question:

CH1: Red colour.
T: The long or the short one? (prompt to CH1 by using closed question).

As seen in the examples given above, there are differences in the patterns of intervention between the Test Group teachers and those of the Control Group. In response to prompts the Test Group children are able to reflect and check for themselves before moving on to speak directly to their partner child. Thus the children could apparently stretch the language used and the interaction is sustained among the children. In the Control Group some children were greatly controlled by the teachers' heavier style of correction. They responded back to the teacher, not to their partner child. This gives certain Control Group exchanges a strong feeling of artificial communication, which is not evident in the Task Groups. The Control Group teachers tend to mediate each child's utterance, while Test Group teachers tend to hold off from such intervention, or (when they do speak) they tend to give prompts (as support on the way to a handover) rather than the explicit corrections used by Control Group teachers.
7.2.6 Non-verbal Interaction

From the observations made, the children of the Test Group, when doing the test, faced each other directly. In contrast, even though children faced each other in the Control Group, most of the time the child speaking referred non-verbally to the teacher for approval or for security, not to the partner. In terms of eye contact, the Control Group children directed their utterances to the teacher. This was rarely seen with the Test Group children, who looked at each other face to face and seemed aware that although the teacher was part of their activity she would only intervene (as a responsive contingency) when necessary.

7.3 The Structure of Exchanges

The quantitative analysis showed that there was a difference in percentage of total turns by the children and teacher between the Test and Control Groups (see Chapter 6). The percentage of the total turns among the children in the Test Group was higher than the teacher and vice versa in the Control Group. It is now necessary to describe the regular pattern of exchanges in the Test Group and then compare them with Control Group exchanges. There is no doubt that the analysis of discourse structures can highlight interesting features of educational communication in secondary classrooms, as analysed by Sinclair and Coulthard (1975) and also emerging in the infant classroom (Willes, 1983). Based on Sinclair and Coulthard's IRF model (See chapter 4.8) the researcher tried to identify and compare the regular patterns of exchange structure used between the teachers and the pairs of children of the Test and Control Groups.

The structure of the exchanges will be discussed under the following headings:

i. Pattern of exchange: Multi-lateral versus Uni-lateral

ii. Interaction: Child-child versus Teacher-child

iii. Repair: Child versus Teacher

iv. Feedback: Inter child versus Teacher Dependence

7.3.1 Pattern of Exchanges: Multi-lateral versus Unit-lateral.

The seminal idea of the typical exchange in the classroom as expounded by Sinclair and Coulthard (1975) was undeniable and most of the studies which followed were based on a conversation between the adjacent pairs in informal conversation (Tsui, 1994, Stenstrom, 1994). However, this study focuses on the spoken language between teacher and pairs of children with a structured task. In the Test Groups, feedback either comes from the teacher or the other child. Often the teachers' feedback did not occur immediately after the second child's response but was deferred until a sub-transaction of the exchange was completed. This demonstrates how the Test Group teachers were able to hold back and let the children get on with the task with a measure of independence within each sub-transaction. The teachers' first initiation and final comment—a follow up—thus frame the children's exchange. This is at an intermediate or late stage in the Scaffolding process: the children show that they can engage in protracted task focused exchanges, yet (at this point) they still apparently need the teachers' help to start off and round off each sub-transaction. For the children to move to full independence with this task will be only a short, relatively easy development, see Figure 7.1:

![Figure 7.1. Framing the exchange: Test Group Teachers](image-url)
It is shown here that the pattern of exchange in the Test Groups is different from the standard descriptions of classroom interaction because this is the interaction of a pair of children as a result of 'handover principle'- the child who was a spectator is now a participant (Bruner 1983, p. 60). Further unusual qualities of the transcripts then become evident in the frequency of the teacher's turns, and in the frequency with which pupils take initiatives. On occasions the children from the Test Groups took over the teacher's role by giving feedback and asking questions and the other child answered directly as shown below. These can be observed in examples 7.1-7.5 (p.244 to 246) and in other transcriptions.

example 7.25:
CH1: You're right. take the fire engine (gives feedback and further instructions).
CH2: Where shall I put it? (query to elicit further clarification).
CH1: At the side of the building (provides clarification).

example 7.26:
CH1: Take the blue rod and put it at the top of the yellow (initiation).
CH2: Lay it straight or horizontally? (query to elicit clarification).
CH1: Lay it straight, yes you are right (provide clarification and giving feedback).

example 7.27:
CH2: Where shall I lay it? (query to elicit clarification).
CH1: I told you to lay it straight like number one, correct (provide clarification and giving feedback).

The evidence of the six extracts (examples 7.6 -7.11 p. 247-249) supports the notion that the Control Group teachers assumed that the children are receivers of knowledge and the teacher controls it. The children themselves may also assume this. The teacher explicitly directs the children what to do. The teachers tried to teach each child individually and did not encourage the first child to interact with the other child, instead teaching Child One how to speak out. The teachers seemed impatient to make the children talk and did not
give them time and opportunity to stop and think. These transcripts illustrate the general principle that the more the teacher talks the less the children talk and the children are not 'self-running' (Cashdan and Meadows 1988).

The pattern of exchanges in the Control Group is more uni-lateral than that of the Test Group. The pattern is that the teacher initiates and there is a response from Child 1, then teacher initiates again and there is a response from Child Two. The general patterns are (Initiation, Response, Feedback (IRF), (Initiation, Response, Feedback (IRF), (Initiation, Response (IR), (repair, repair(rr) and (feedback). Following the goal of ECI (in so far as Control teachers are aware of it for children to complete the Progress Test Task) the teacher tries to persuade the Instructor child to communicate with Performer child (T-CH1, T-CH2, T-CH1, CH1-T-CH1 and T), but every step is mediated and controlled by the teacher, as happens in 'normal' class teaching. It is uni-lateral in that the teacher tends to communicate with one child at a time. The Control Group children's utterances are sandwiched between teacher's utterances. In contrast, the Test Group teachers adopt a much more multi-lateral approach, effectively getting the pair of children to communicate with each other. In the Test Group the 'sandwich' effect is rare.

From the examples (7.6-7.11), the Control Group teacher was in control of the turns and most of the interaction was monopolised by the teacher. The children were not able to interact with their partner, which Bruner (1983) believes is one of the important aspects of language and cognition used in 'formats' or in familiar structured social interactions, such as peekaboo games and looking at books. As a result, these children were not doing the task independently, instead they tried to respond to the questions that were initiated by the teacher. The children were not given the opportunity to make sense of their learning through verbalisation and working collaboratively (Wells, 1981; 1986; 1992) with the teachers or the peers because of the class practice. As a result, the children tended to become very dependent on the teacher and carried out class activities through the teacher's mediation. Turns are managed by the teacher and the children wait for initiation from the teacher. When children respond, they expect a follow-up from the
Before another child may speak. There is an element of passivity from the Control Group children, shown in the strong tendency to only respond to teacher initiations.

The major pattern of interest in the Test Group is an extended IRF pattern, that the teacher initiates the turn and then the instructor child responds and at the same time initiates to the performer child (Initiate, Respond and Initiate, Respond, Repair, Repair, Feedback \( IR+ I, R-r-r-F \), \( T-CH1-CH2, CH1-CH2, CH1-CH2-CH1 \) and so on) (see Figure 7.1). This means that the first child speaker's utterance has a janus-like function: it faces back to the teacher's initiation to comply with her instructions which sets up the task, but it also (mainly) faces forward to the child partner by giving direct instructions. The first child's utterance prompts the second child's response which is completed when the second child, rather than the teacher, responds. The purpose of the teacher's Initiation is, of course, to get the first child to do this. Hence, the teacher's initiation sets up a series of utterances from two children and is qualitatively different from the Control Group teacher's initiations which do not invoke child to child interaction. The latter only set up an immediate response by a single child, usually as a single brief utterance, which has no particular link forward to Child 2. This would lead to a modification of the Figure 7.1 of how Test Group Teachers frame the exchange, as shown in figure 7.2 below.

![Figure 7.2 Extended Exchanges: Test Group Children](image)
7.3.2 Interaction: Child-child versus Teacher-child

In this study, these Test Group teachers were practising the ECI (Chapter 3). The children demonstrate that they have internalised the idea of pair work and as proposed by Vygotsky (1981, p.164) seem to be moving towards the condition in which 'all higher mental functions are internalised in social relationships'. The idea of the task is that it needs both children to cooperate as partners in each conversation. There is evidence that turn taking (Stenstrom, 1994) was understood by the children. For example, when the Instructor child initiates, the Performer child will respond either verbalising, while enacting the partner's instruction, or by asking a question (repair) for confirmation of the action. This is shown in the evidence below between CH1 and CH2 from example 7.1 and example 7.3 exchange between CH1 and CH2.

Example 7.1 (p. 244) exchanges between CH1 and CH2
CH1: You're right...then take the fire engine. (Feedback plus instruction)
CH2: Where shall I put it? (Query for clarification).

another example from 7.3 (p. 245):
CH1: The red car is on your left.
CH2: Which road? (Query for clarification)

It is apparent that the children in the Test Group can respond to their partner's initiation because Child 2 automatically responds after the initiation of Child 1 without any pause, or if there is a pause it is generally short, lasting about one second. The examples are shown below.

Example 7.28:
CH1: Take a red car and put it on the right.
CH2: O.K a red car and is n't it here? Correct? (Response and clarification and request for confirmation).
Another example 7.29:

CH1: Move the fire engine to the white line.
CH2: Like this, here? (Query for clarification)

Another example 7.30 from the Rod task:

CH1: Put the yellow rod below.
CH2: Yellow rod below, yellow rod below, then? (Repetition for acknowledgement and request for confirmation).

Another example 7.31:

CH1: After that take the red rod.
CH2: Long or short? (Elicitation for further information, prompt).

The examples of the Test Group exchanges in the sub-transactions above show that the children could initiate the exchanges, and initiate repairs within exchanges, and their partners could respond appropriately. This is a notable achievement in the classroom context, especially for five year old Malaysian children from 'poorer' socio-economic backgrounds, particularly since in the culture of a Malay society, children are not generally trained in turn-taking, especially with adults at home. But this does not happen with the Control Groups; they do not generally initiate exchanges unless the teachers initiate as the examples below indicate (in which case, the children are in fact only responding, to the teacher).

Example 7.32:

T: Sofia (CH1), tell Jamil (CH2) what can you see in the photos? (Initiation).
CH1: Firstly, take the yellow car (Response to teacher, eye contact to teacher).
T: Where to place the yellow car? (Initiation).
CH1: There, at the end. (Response to teacher, plus eye contact).
T: That's right, but exactly where to put it? (follow-up, evaluation and further initiation).

Another example 7.33:
T: This is right, this is left.
CH1: Right.

T: Ask her (referring to CH2)
CH1: (nodding) as commented by the teacher in the tape

T: Say it don't nod.

The children of the Control Group tended not to be able to respond to the partner's initiation, instead they waited for the teacher to initiate, and the intervening silence is generally longer, often lasting as much as 5 to 6 seconds after the teacher's initiation, even if the partner tries to initiate, as in the examples 7.34 below:

Teacher: OK a fire engine, take the fire engine Jamil (talking to CH2). Where must you put the fire engine? On which road Sofia (talking to CH1)?
CH1: On the line.
CH2: ...........Silence (about 5 seconds).

T: Jamil do you know?

Another example from 7.35:
Teacher: Where is the yellow car? Tell Safiah, don't tell me.

CH1: Behind the line (Still using eye contact to teacher hence addressing the teacher, not CH2).

The evidence in the extracts above shows that both children in the Control Groups depend on the teacher to initiate. The teacher seems to be conscious of exerting an over-dominant role, or at least is aware that children are not talking to each other: 'Tell Safiah, don't tell me'.

It is very important to note that the Control Group Teacher acts as a mediator between child One and Child Two, see example below.

Example 7.36:
Red car?

CHI: Red car.

T: Red car (referring to Child 2), where to put it? (referring to Child 1).

CHI: Near the line.

T: Near the line (referring to Child 2).

Example 7.37:

T: Ok you can start now, look at your picture (referring to CHI)

CHI: Take a rod (looking at the teacher, not at CH2).

T: Which one?, what colour?, tell her, not to me.

The evidence above once again showed that the Control Group children were over dependent on the teacher and the teacher is the dominating the exchanges.

7.3.3 Repair: Child versus Teacher

From the transcripts it was noted that the children from the Test Group were able to correct other children's answers when such answers withheld the development of conversation. This is known as a 'repair' (Sinclair & Coulthard, 1975; Strenstrom, 1994, See Chapter 4.8.3 definition of terms). The repairs of some exchanges are made by the children themselves, as shown in the extract from the examples 7.1 and 7.3 which are typical in the Test Group transcriptions.

Example taken from 7.1 (p. 244 above):

CHI: Take a red car, put it on the right of the road (Initiation)

CH 2: Here..here.. is this the right place? (elicits repair)

Another example from 7.3 (p. 245):

CH 1: Then take the fire engine (Initiation)

CH 2: Where shall I put it? (elicits repair)

CH 1: At the main road (provides repair)
CH 2: Is it here? (elicits further repair)

CH2: A bit backward, yes you get it (provide repair and feedback).

This was different from the Control Group, as is evident from the extracts in which the teacher repairs the exchanges before any feedback from the other child was given. The examples 7.7 and 7.8 are also typical in the exchanges in the Control Group transcriptions.

Example 7.7 (p. 247 above)

T: OK photo one, what are the cars? (initiation)

C1: Fire engine (response to teacher, not CH2)

T: Fire engine, take the fire engine (talking to Child 2) (repair)

C2: Finish (response to teacher, not child 1).

T: Where to put the fire engine, on which side of the road? (talking to child 2) (elicit repair).

Another example from 7.8 (pp. 248)

C1: Take a red car (initiation)

T: Where to put it, on road C or D? Where is road D? (elicit repair)

C1: D...red car (response to teacher, giving repair and repeat)

T: No, it's not a red car (giving feedback)

Again, this demonstrates that there was no 'handing over' in the Control Groups but there was in the Test Groups. The Control Group teachers seem over preoccupied with correction and repair; in contrast, the Test Group teachers encourage the children to express themselves and in the course of such expression the Test Group children elicit their own repairs and corrections from their partners in the effort to communicate meaning. It can therefore be argued that the ECI handover includes, whenever possible, the handing over of repairs and elicitation of repairs (a point not apparently considered in the literature on scaffolding and handover). This might be considered a social handover (see Chapter 3).
7.3.4 Feedback: Inter Child versus Teacher Dependence

During the observations, the researcher noticed that the Test Group children did not seem to depend on the feedback from the teacher. The children got such feedback from each other throughout the interaction by the non-verbal cues and sometimes they corrected each other's mistakes. In the Progress Test One the Test Group teachers used feedback at the end of a sub-transaction when the children had given a good description to the performer child and when the performer child had placed the model correctly. In the Progress Test Two the teacher withdrew the explicit feedback and left the interaction to the children but was still involved with backchannels. Even though the teachers' voices when giving feedback were very soft, they could still be heard in the recordings. The feedback was noticeably in a lower tone, such as the use of agreeing 'em' or 'bagus' (translated as 'good') which did not interrupt the children's interaction. Such low tone monosyllables are typical of backchannels. These could be considered as backchannels, rather than as turns as such, because they do not contribute to the interaction but simply show understanding that the interaction was proceeding in an appropriate manner. On the other hand, such backchannels from a teacher in the role of organiser do more than signal that the hearer follows what the speaker is saying (which is the classic definition of a backchannel, (see Tsui, 1994; Strenstrom, 1994), since 'good' is evaluative and signals approval. This raises the interesting possibility of such utterances having intermediate status between a backchannel and a turn, a kind of act not hitherto reported in the literature. It has the characteristics of a backchannel but could not be called a backchannel or turn. It may be characteristic of social handover. Figure 7.3 shows contrasting Characteristics of Backchannels and Turns.
It is perhaps significant that although there is plenty of evidence of a handover, still the teachers give reinforcement, as above, rather than remain quiet. Perhaps they felt the need to do this because of the children's young age, the relative novelty of the situation, or because it helped them to feel that they were 'teaching' (though in a different role). Even if these lower tone comments are interpreted as 'feedback' it seemed that the children did not depend very much on them because feedback would come automatically from the partner (if the performer child performed correctly both verbally and visually when the instructor could see the completed model) and the children seemed to know this. Therefore, at least, this type of 'sub-move' or 'feedback' has a different role in the interaction: as indicated above, it can be interpreted, functionally, as a signal accompanying social handover (rather than cognitive handover).

Another form of feedback from the teacher was the use of non-verbal cues. The teachers used a lot of eye contact, as seen in the video. At times when the children made a mistake, in a split second the teacher showed disagreement by looking at the child and the child either asked a question of his partner or corrected the arranged cars or rods. Again, this is a lower profile feedback, or perhaps feedback of a different kind. It is important to note that this eye-contact feedback occurred in the general context of the

<table>
<thead>
<tr>
<th>Characteristic of Backchannels</th>
<th>Characteristic of Turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief</td>
<td>Brief and long</td>
</tr>
<tr>
<td>Soft voice</td>
<td>Soft and loud</td>
</tr>
<tr>
<td>Falling intonation</td>
<td>Falling and rising intonation</td>
</tr>
<tr>
<td>Not part of interaction</td>
<td>Part of interaction</td>
</tr>
</tbody>
</table>
Test Group children looking at each other, rather than at the teacher. The fact that the children did respond to this kind of feedback shows that they retained a peripheral awareness of the teachers' presence and of her role after handover.

The children from the Control Group depended much more heavily on the teacher's feedback during the test. As mentioned earlier, they constantly looked at the teachers for instruction, correction or feedback. This made the teachers' total percentage of participation, in terms of teachers' turns, very high in these groups (refer to Chapter 6). The teachers generally seem to believe that the children are empty jars which need to be filled with knowledge and did not start from where the children are but tended to 'spoon feed' the children. As a result, each child is not free to talk and always refers to the teacher for feedback, visually and verbally and not to the partner. Even when the child performed physically with the car tasks or the rod tasks, he or she always looked at the teacher for reassurance rather than to the Instructor Child whom he was facing. The children of the Control Group depended very much on the teachers' feedback before they started to talk or re-enact sub-transactions (i.e. the second or later sub-transaction in a series). As a consequence, there is no handover; the children are not independent of the teacher in terms of getting feedback about their own activities, nor do the Control Group Teachers encourage such independence.

7.3.5 Question and Clarification: children versus teacher

As the Test Group children were seen to be interacting competently (7.1-7.3), it was not surprising that the children were able to ask questions. In the Test Group the questions were mostly from the children (about 90%) during interactions (rather than from the teacher) and most of the time both children were communicating and trying to negotiate meaning and do the right thing. For example, the Performer children often asked the Instructor child 'macam ni ke?' (Translated as 'is it like this?'). The Instructor child confidently answered this question in a long descriptive form to meet the partner's need which contributed to the higher number of morphemes used in the utterance (see some
This supports the notion that children learn better with peers because they challenge each other and they are not being threatened by constant exposure to external evaluation (Edward and Mercer 1987, Rogoff, 1990). As Cashdan and Meadows put it (1988), the children are ‘self-running’.

This was different from the Control Group where most of the questions were from the teacher (about ninety percent). Many questions were imposed on the children to check whether the performer child was carrying out the activity correctly. For example, ‘Hazim betul ke awak letak kereta itu?’ (translated as ‘Hazim, are you putting it in the right place? other examples: ‘right or left?’ ‘long or short?’ and others). The question can be answered with a simple ‘yes’ or ‘no’ (i.e. it is a closed question). This is surely one reason why the children gave short answers in their utterances. This is in line with the notion that the more the teacher talks the less the pupils will talk or ask questions (Sinclair and Brazil 1981).

7.4 Complexity of Utterance

The quantitative analysis showed that the mean length of turn of the children in the Test Group was higher compared to the Control Group children. In this study the researcher is not concerned with detailed analysis for complexity of structure of utterances but only focuses on the differences of utterance between the Test and Control Group children. The researcher also tried to see the general development of the utterances between the Progress Test One and Progress Test Two.

7.4.1 Utterances: Long versus Short.

The children from Test Group generally used longer strings of morphemes and mean lengths of turns than the Control Group children (See Chapter 6.2.1). Below are examples of the minimal utterances from the Test Group commonly found in the transcribed data of transactions.

Examples 7.38 from the Test Group children (minimum length) in the Progress Test One.
1. CH1: The fire engine, put it on the right.
2. CH1: Move the fire engine till it reaches the white line.
3. CH1: Wrong, a bit backward, right. Then put the red car at the feeder road.
4. CH2: Put the red coloured rod first. Then take the green one.
5. CH2: What colour, the dark green or blue?

Examples 7.39 from the Control Group children (minimum length) in the Progress Test One.
1. CH1: Fire engine.
2. CH1: There.
3. CH2: Red.
4. CH2: Green.
5. CH2: This?

Even though in Progress Test One the children from the Test Group, used shorter utterances, there were vast developments later, (shown in Progress Test Two) which are not found in the Control Group children. One reason for this is that the children in the Test Groups were relatively free to express themselves since they were independent of the teacher. (The example extracts have been taken from the exchanges of the sub-transactions of Progress Test One and Progress Test Two).

In the final sub-transaction of a task it was noticed that there was a development in the use of a higher number of morphemes in first sentences when the Test Group child initiated the exchanges. Example 7.40, shows longer utterances spoken by the Test Group Children in Progress Test One.

1. CH1: Take the fire engine and put it on the right, on your right.

and also another example in Progress Test Two:
2. CHI: Take the fire engine and put it at the side of the building on the main road, then take the red car and put it at the side of the feeder road.

It was very clear from the tape that the child speaking here was very confident and knew what words to use in Progress Test Two. The example above, number 2, contains two complex instructions with two propositions in each one ('take...,' 'put it...'). When the first child describes the task (during Progress Test One e.g. number 1) he uses shorter sentences for a single instruction with two propositions. As a result, fewer turns were used. This development was also noticed from the partner in the exchanges when he responded by asking questions.

Progress Test Two, Child two: Which rod, is it the short or long one?

Progress Test Two, Child two: Which one, is it on the right or on the left?

Where example above is a double query with three propositions ('which...', 'is it...', 'or...?')

Below are some examples taken from Progress Test Two from the sub-transactions when an Instructor child was able to describe to the Performer child, and both were able to complete the task in a sub-transaction by using only a few turns compared to Progress Test Two. Partly, during the Progress Test Two, children were familiar with the activity so they had fewer problems in receiving instructions and were able to perform the task with less interaction. This is partly the reason for the number of turns of the children becoming lower in the Test Group (see Chapter 6) This is illustrated in the example below.

Example 7.41 from the Test Group.

CHI: Take a fire engine and put it on the right side of the road.

CH2: The fire engine at the right side of the road (repetition of the partner's word indicating understanding).

CHI: After that take the jeep which is white in colour, then put it at the main road, near to the building.
CH2: Building (repetition of last word, showing understanding or to allow thinking).

CH1: Then take the car which is yellow in colour and put it on the main road on the left of the road, not there, more to the back.

CH2: Okay, I have done it

CH1: After that, take the car which is red in colour and put at the back of the road, put it on the left. More to the end...end, then take the fire engine move it, move...move it, some more...more and stop. At the back a bit move it sideways, enough. After that take the jeep move on...on and stop it. Move it backward a little bit. Enough (giving feedback to the Child 2 so that he was able to follow the instruction).

The general level of complexity shown in the above example is clear. These are such instances as: 'Then take the car which is yellow in colour....(a first instruction, containing a relative clause)...and put it on the main road....(a second instruction)...on the left of the road (further specification, with modifying complex prepositional phrase)...not there..(correction)...move to the back (repair with further instruction).

One of the examples of maximum length of utterances in the Progress Test Two by the Test Group children is given as Example 7.42:

CH2: The fire engine is on the main road which is beside the building, the white car is on the feeder road on the other side of the road...move it a bit backward. Enough, now take the yellow car put it in front of the white car, correct, and take the red car and place it in front of the yellow car, yes, you are right. The fire engine move forward, a bit only. The red car move forward, move, move and stop. Move the yellow car and move the white car too. The white car move till it touches the yellow car. Move the red car forward, more...more stop. The fire engine knocked the yellow car and go up a bit on the top of the yellow car, and move the red car forward.. correct.

The decrease in turn among the morphemes in the Control Group seems to be because of a different reason. As judged from the observation and the transcription during Progress
Test Two, the Control Group teachers were quite bored because the children were still very dependent on them, and the children in the test were under pressure. Child One sometimes showed Child Two how to do it by visual agreement. Evidence can be heard from the audio tape. This was followed by the teacher's voice trying to rush the children into completing the task as in the example below:

Example 7.43 Control Group Teacher:

T: Have you finished?
T: Okay faster.
T: That's enough.

One of the examples of the maximum utterances in Progress Test Two by the Control Group Children is given below. It can hardly compare with the complexity and fluency of the long example (7.39) from the Test Group quoted earlier:

Example 7.44 Control Group:

CH2: After that the red car knocked the fire engine, yellow car move forward, the red car move forward.

The description of the child in such situations is very brief, not like those of children interacting with the Test Group Teachers who prompted the children so that they would give a detailed account of a particular event, as in the example given below.

Example 7.45 Test Group:

T: Describe to him (refer to the Child Two) how does the accident happen (prompting the child to extend his language knowing that he could talk more about it).

CH1: Move the red car forward to the white line, a bit backward, more...more and stop. After that take the fire engine and move it forward, and the yellow car, too, wants to go forward. Enough... (the partner was arranging the model correctly). Then move the
yellow car, it knocked at the tyre. Then the red car knocked at the tyre, the back tyre. Take the fire engine and move it a bit, more...more, stop. Then move the jeep and it knocked the fire engine, nearer, nearer, at the centre of the fire engine.

This is different from the Control Group, in which (as repeatedly seen in examples quoted earlier) the utterances remained very short and incomplete, apparently because the child had to respond to the teacher's continual initiation or correction. The Control Group Teacher in Progress Test Two is still intervening strongly but with shorter utterances to check the children and not allow them to play on their own. As a result, the Control group children told each other how to do the task by pointing to the performer as can be understood from the transcription as in the example below.

Example 7.46:

T: After that what is there in photo 2? (to CH1)

CH1: Car? (to teacher)

T: Fire engine (instead of prompting or encouraging the child to extend the language, the teacher tells the right answer).

CH1: Fire engine (Child repeated the teacher's word, talks to the teacher not to CH2).

From the above example, the Control Group did not show much progress from Progress Test One (examples of the exchanges in Bahasa Malaysia could be referred to in the appendix VIII)

7.4.2 Complex Sentence: Presence versus None

According to Bowerman's (1979) definition 'complex sentences are structures that are built up of simpler sentences through the recursive operations of co-ordination and embedding' (1979, p. 285). There are few studies detailing the development of complex sentences in spontaneous speech but most research on the acquisition of complex sentences has consisted of experimental studies of comprehension in children of 3 years
or older. In this study the researcher is not focusing in detail on the acquisition of complex sentences but is ascertaining, from the transcription, whether the Malaysian pre-school children were able to use complex sentences, and whether there might be differences between Test and Control Groups in this respect.

Some of the children in the Test Group used complex sentences in Progress Test Two but none were found in Progress Test One transcripts. Examples follow:

Example 7.47:

C2: Ambil kereta yang warna merah dan letak dekat jalan kecil (in Bahasa Malaysia)

C2: Take a car which is white in colour and put it on the feeder road (modifying with a relative clause describing appearance).

Another example 7.48:

C1: Jalankan kereta bomba yang dekat dengan bangunan dan gerakkan kereta merah ke hadapan (in Bahasa Malaysia).

C1: Move the fire engine that was near the building, forward and move the red car forward too (modifying with a relative clause describing location).

Another example 7.49:

C1: Ambil satu Rod yang warna kuning, yang panjang dan kemudian letak dia melintang (in Bahasa Malaysia).

CH1: Take a rod which is yellow in colour, which is long one and lay it flat (modifying with two consecutive relative clauses).

The above examples of complex sentences are all from the Test Group transactions. A thorough check was conducted of the Control Group transcripts but no examples of Complex sentences were found.
This study does not focus on the development of language as such, but further examples of complex sentences from the Test Group in Bahasa Malaysia can be referred to in the appendix IX. The researcher wishes to highlight that the Test Group children had developed in their language, in terms of a greater number of morphemes and longer sentences, because they knew exactly what they were talking about and moreover they had become very specific in use of language, appropriately matching the demands of the tasks.

7.5 Explicit Behaviour of the Children during the Test

From the observations made, the children in the Test Group showed considerable interest and enjoyment during the test. It can be seen from the transcribed data how the Performer children made sounds of the movements of cars and fire engines. The children were really excited. This only happened during the second Progress Test, most probably because they had become self-confident.

Example 7.50:

C1: Move the red car
C2: Broom.....broom, where shall I stop then?

Example 7.51:

C1: Take the fire engine and put on the main road
C2: Ning nong, ning nong....
C1: OK. stop..stop there

The children from the Control Groups were excited about playing the games when they saw the toys and cars but they were upset when the teacher constantly asked them questions. The children preferred to play, without using any language, by showing their partner how to arrange the model cars.

Example 7.52:
Children: Teacher, I want to play.

Teacher: OK, tell your friend what is in the photo.

C1: (silence)... Don't know.

Another example 7.53:

CH1: Here, put it here. (pointing)

T: You mustn't show him what to do but tell him, and you too must ask her, okay?

Apparently, the teacher's questions and demonstrations caused the children's enthusiasm to evaporate. Some of the children were able to initiate but sometimes either one of the pair did not give good instructions or they did not want to speak out unless the teacher said something, in which case the teacher's words were repeated by the children. The Control Group children therefore seemed to rely heavily on teacher directions and modelling. They lost the desire to play. Because they had not been exposed to tasks in the classroom that required them to interact, they felt awkward and strange and much less certain about what to do, how to do it and what kind of language to use. In fact, while the children were obviously paired during the activities reported here, it needs to be borne in mind that in the Control Group classroom children normally worked individually and the usual classroom tasks did not encourage any interaction between children (as seen in the video, see Chapter 5).

7.6 The Real Situation

Arguably, the standard of research is reduced if some of the problems met are not reported. This discussion focuses on the feedback from teachers and observations of the children to discuss problems which arose.

This research took place in a real teaching situation in which 'normal' curriculum teaching was maintained as far as possible, with several consequences. All the teachers who took part in the study were very busy with other school activities, especially the Test Group Teachers who had to prepare numerous task-based activities after receiving the new exposure of ideas in the workshop. During the test, the children not participating in tests
were supposed to be engaged in normal learning activities, however these children needed supervision and management. The Test Group Teachers usually prepared the task and the helpers (who were not trained to teach the children) had to supervise. Problems arose when the helper was absent, so the researcher, instead of observing the test as envisaged, had to manage the children to make the test successful. This happened to all classes that participated in the test, so at least the tests were consistent between Test and Control Groups in this respect.

7.6.1 Feedback from the Test Group and Control Group Teachers

1. Test Group Teachers

These are the feedback comments given by the three test group teachers after the eleventh week of the implementation of the ECI model. They complained that they could not devote more time to preparing the task-based activities even though they firmly believed that the new ideas were very useful and they were willing to practise them. The effectiveness of the model could be very successful if they were not ‘disturbed’, as they expressed it, with other extra-curricular activities during the project. The basic problem here was that these teachers, like other teachers in Malaysia and elsewhere, were under enormous pressure to deliver a new curriculum besides being committed to extra-curricular activities. The innovation of making task-based materials to develop the ECI model meant yet another activity on top of many others. The fact that the teachers were involved at all, over the entire project, testifies to their commitment to the ECI model and its associated ideas.

In fact, all the three Test Group teachers agreed with the basic idea that the ECI development of the child, being peer-assisted ultimately, made things easier for the teacher. The teachers found it less hectic to deal with more children at a time. The idea of pairing the children for peer-learning, even at that early age, was very useful in their opinion and experience in the project. According to the teachers, the children were very interactive during the activities and the class looked lively and the children seemed busy.
focusing on the tasks. When the children were busy, the teacher could have more time
assisting those children who needed more time and space. The ECI thus apparently met
the linguistic, cognitive, and interactive needs of the children while allowing the teacher
the time to meet any specific needs of the lessons.

ii. Feedback from Control Group Teachers

The three Control Group Teachers were also interviewed at the end of the eleventh
week. They complained that they had a very hard time with the children during the
Progress Tests because the children in their classes were not willing to interact with their
partners. In fact, all the teachers blamed the children for not being able to interact. Two
of the teachers agreed that the children could interact if they were given enough practice
with similar tasks in their everyday classroom activity. Their comments clearly point up
the need for practice for paired interaction to be successful, or, more precisely, the need
for learner training in pair or group tasks. Such training is, of course, a component of the
ECI model and teachers (at least in Malaysia) need to be trained to carry it through.

All of them liked the idea of the 'game like' activities that were given during the test. The
researcher had to explain the principles behind it (at the end of the project). The Control
Group Teachers then wanted to adopt the same ideas of preparing the task based
activities in their classroom. This showed an immediate positive reaction, even though
these teachers had not of course, received information or instruction about the ECI
approach beforehand or during the project.

The time taken for all the teachers to spend on the tests was very long, especially since
all the children in class were taking part, even though they were not all selected for the
research. All the teachers looked exhausted towards the end of the day especially after
the test had been done. They were very co-operative to take part in the study. This is
particularly true of the Control Group teachers who, after all, had not benefited from the
in-service workshop and did not know the purpose of the project until the end.
7.6.2 Children

From the observations, generally all the children in both groups were very enthusiastic with the games especially when they saw the toy cars and the fire engine. All the children were keen to get hold of the cars and were eager to have a go with the test.

1. Differences in attitude between the children

The researcher noticed that there was a slight difference in attitude between the Test group and Control Group children after the test was started. The Control Group children were more withdrawn when the teacher asked them to interact during the game. Some were annoyed when their partner was not giving the instructions well or when the Performer child was not responding verbally. The children were unhappy when the teachers interrupted them, pointing out the position or the locations of the cars or the rods.

The Test Group children were more excited and looked more prepared with the test activity because of their relative familiarity with similar activities which the teachers had used in their classes. They accepted the test, even though they were simply given the instructions. They seemed to understand their role. This was interpreted as being because they had internalised the format of playing with the game and they seemed to be at the intra mental stage (Vygotsky, 1978). The relevant language had become an appropriate tool for them and they were interacting consistently till the end of the transaction.

Other children in the class who were not being tested disturbed the test at times because in all the classes the test had to be done at the back or in one corner of the classroom. Inspite of all the noise and the disturbance from other children coming forward to talk to the teachers the tests were recorded efficiently.
7.7. Summary Findings and Conclusions of Qualitative Analysis

The differences in the findings of the qualitative analysis between Test and Control Group can be summarised in the following Table 7.1 below.

Table 7.1 Summary Findings: Test and Control Group

<table>
<thead>
<tr>
<th>ASPECTS</th>
<th>TEST GROUP</th>
<th>CONTROL GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of turns</td>
<td>i. Teacher initiated by giving clear instructions</td>
<td>i. Teacher initiated by checking questions.</td>
</tr>
<tr>
<td></td>
<td>ii. Applied <em>Outer structure</em></td>
<td>ii. Applied <em>Inner structure</em></td>
</tr>
<tr>
<td></td>
<td>iii. Handover to children</td>
<td>iii. Continual teacher dominance</td>
</tr>
<tr>
<td></td>
<td>vi. Referred to joint-activity</td>
<td>vi. No reference to joint activity</td>
</tr>
<tr>
<td></td>
<td>v. Intervention: prompting</td>
<td>v. Intervention: directing and correcting</td>
</tr>
<tr>
<td></td>
<td>iv. Non-verbal feedback</td>
<td>iv. Verbal feedback</td>
</tr>
<tr>
<td>The Structure of exchanges</td>
<td>i. Pattern: multi-lateral</td>
<td>i. Pattern: Uni-lateral</td>
</tr>
<tr>
<td></td>
<td>ii. Predominant</td>
<td>ii. Predominant</td>
</tr>
<tr>
<td></td>
<td>Interaction: child-child</td>
<td>Interaction: teacher-child</td>
</tr>
<tr>
<td></td>
<td>iii. Child's <em>repair</em></td>
<td>iii. Teacher's <em>repair</em></td>
</tr>
<tr>
<td>Complexity of Utterances</td>
<td>i. Utterances: often long</td>
<td>i. Utterances: always short</td>
</tr>
<tr>
<td></td>
<td>ii. Some complex sentences</td>
<td>ii. No complex sentences</td>
</tr>
</tbody>
</table>

The summary table above shows that there were significant differences in approaching the task, namely in: the management of the task, the structure of exchanges and the
complexity of utterances. There were differences in the management of task between the Test Group and Control Group Teachers which led to differences in initiative taken by the children. The pattern of the exchanges was also different between the groups. Generally, the ECI children had apparently made some improvement in language development. They were able to use complex sentences towards the end of the project, whereas the Control Group Children used none.

In conclusion, the researcher noted that the Test Group children who came from the ECI classroom had a much more productive approach to the test compared to the Control Group. A major reason was that the Test Group children were able to detach words from actions. From observations made over the period of the project, the Test Group teachers adopted the interactive teaching method regularly (not only during the Progress Tests) and evidence of this could be seen in the video recording which was taken after the tenth week of the project (reviewed in chapter 5). The children from these classes were not only independent of the teacher during the activities but seemed very engaged with the task. Every pair of children also seemed to show high expectations of themselves trying to solve the problems verbally and doing so with a sense of a fun.
3. CHAPTER EIGHT: SUMMARY FINDINGS, IMPLICATIONS
SUGGESTIONS FOR FURTHER RESEARCH

3.1 Introduction

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8. CHAPTER EIGHT: SUMMARY FINDINGS, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

8.1 Introduction

This final chapter discusses the summary findings of the study, its implications, and recommendations for further research. The first part discusses the summary findings of the quantitative and qualitative analysis and the overall conclusions. The second part discusses the implications of the study and the final section focuses on the recommendations for further research in the Malaysian pre-school context.

The objective of this empirical work is to investigate whether Malaysian teachers can put a new theory (new to the teachers) into practice in the pre-school classroom after training is given. There are many kinds of classroom interaction: this study focuses on the Enhanced Classroom Interaction approach. The study investigates some of the means of interaction by which teachers, or competent adults and peers, enable children to move a step further in language and, by implication, cognitive development.

The central questions in the study are to find out whether the teachers who were trained in the approach of 'Enhanced Classroom Interaction' could put it into practice; and to find out whether there are any significant differences in the interactions between the Test group and the Control Group children. This was shown in the discussion of the 'normal' classroom teaching (in chapter 5) and in the quantitative analysis of the data (analysed in chapter 6). As a complement to this approach, the qualitative analysis describes the differences in language use between the Test Group and the Control Group children (in chapter 7).
8.1.1 Summary findings of Quantitative Analysis

The quantitative analysis was done at two levels, firstly, by comparing the performance and secondly by comparing the progress of the Test and Control Groups. These were compared using various measures: as indicated by the average number and proportion of turns, morphemes, Mean Length of Turn (MLT), time taken to complete the tasks, and estimated value of Mean Length of Utterance (MLU) for the teachers and children of the Test and Control Groups.

The study shows that the children from the ECI class (the Test Group) have a higher number and proportion of turns and morphemes, a longer Mean Length of Turn and mean length of utterance (MLT/MLU) than those in the Control Group. They took less time to complete the tasks successfully than the children in the Control Group. The differences between the performance of the Test and Control Group are statistically significant (p<0.05) for all of these measures, with the exception of the average number of turns of Child 1s and Child 2s. This shows that the children from the Test Groups performed much better in the overall task. The children from the Test Group were able to express themselves more effectively during the task. The children not only employed many turns but the number of morphemes is also high. This is in contrast with the children from the Control Group; they were not able to communicate freely with their partner because the type of activity was less familiar to them. The teachers in the Control Group dominated the talk and the teachers decided who spoke and this resulted in a question and answer session which led to a high average number of turns with a low number of morphemes. Concerning progress, the children in the Test Group showed a better rate of progress in the number and proportion of turns, morphemes, MLT and MLU compared to the Control Group and these differences were statistically significant (p<0.05).
The overall performance results also show that the teachers in the Test Group have a low number and proportion of turns compared to the teachers in the Control Group. On the other hand, the teachers in the Test Group have a higher number and proportion of morphemes compared to the teachers in the Control Group. The difference is statistically significant (p<0.05). This shows that the teachers from the Test Group conform to the ECI approach by giving more opportunity to the children to interact. Even though the proportion of turns were relatively low compared to the Control Group teachers, the Test Group Teachers' interventions encouraged and extended the children's language used. The teachers in the Test Group showed a better rate of progress in the number and proportion of turns, morphemes and MLT. The difference between the performances is also statistically significant (p<0.05).

The average time taken to complete the given task by the children in the Test Group is faster than the time taken by the Control Group children. The former were able to communicate through the use of more complex language within shorter times. This showed that they were more efficient in completing the task successfully than the Control Group children, who waited for the teacher to initiate or to mediate the task. The progress made by the children in the Test Group showed a greater reduction in time taken to complete the task and a lower number of turns but they maintained a very high number of morphemes.

It is not only in the comparison of the overall performance that the Test Group is far better than the Control Group. The comparison of the progress of the performance (which means the comparison between the scores obtained from the first task compared to the second task) for the number and proportion of turns, morphemes, MLT and MLU as well as the time taken, also show that the Test Group children progress better than those in the Control Group. The results on the progress of the test shows that the Test Group children have a higher rate of increase of Mean
Length of Turn (MLT) compared to the Control Group. The rate of decrease of the average number of morphemes is lower in the Test Group compared to the Control Group. This shows not only the gain in the MLT but also the ability to retain the average number of morphemes. Thus, the Test Group have not only attained a relatively higher level of performance at the post-initial level but also were able to progress at a much better rate than the Control Group.

In the final analysis, these results show that the children and teachers who are using the Enhanced Classroom Interaction Approach (ECI) have attained a better level of performance and progress in performance compared to the children and teachers in the Control Group who are using the normal classroom teaching. The number and proportion of turns and morphemes used by the Test Group teacher is lower than the number and proportion of turns and morphemes used by the children. The Test Group teacher only participated when she deemed it necessary to encourage and provide more opportunities to the children to interact and express themselves. This is contrasted with the normal classroom teaching in the Control Group which is characterised by the high participation rate by the teacher, giving less opportunity to the children to interact and express themselves. On the other hand, the number of morphemes and the mean length of turns and utterances of the Test Group teachers is still high since they use quality participation during their intervention. This is in contrast to the Control teachers' approach: they continually intervene, to the extent of interruption, thus limiting the chances of the children to interact.

The results on the progress of the test shows that the Test Group children have a higher rate of increase of the Mean Length of Turn (MLT) compared to the Control Group. The rate of decrease of the average number of morphemes is lower in the Test Group compared to the Control Group. This shows not only the gain in the MLT but also the ability to retain the average number of morphemes.
It is significant that these detailed statistical results of the analysis of the Progress Tests confirm the general points made in the discussion of the 'normal' classroom teaching as observed in the video recordings (chapter 5). This strongly indicates that for the Test Group teachers and children, the ECI approach had become integrated into their 'normal' classroom activity. In contrast, the Control Group teachers and children showed remarkably little change in their basic approach. Thus, by the end of the project what was 'normal' activity in the two groups of classes had taken on a different meaning.

These findings of the quantitative analysis will be followed next by a summary of the findings of the qualitative analysis of various aspects of the performance of the children and teachers in the Test and Control Groups respectively. This will show qualitative differences in the characteristics of the ECI approach and the results of using it.

8.1.2 Summary findings of the Qualitative Analysis

The qualitative analysis subjectively highlights the difference in the interaction between the teacher and the pairs of children in both groups. It also analyses the levels of interaction between the Test Group children compared to those in the Control Groups. The main idea examined is how both groups approach the tasks in relation to these aspects: the management of the task, the structure of exchanges, the complexity of utterances and the explicit behaviour of the children. There are also considerations of the real situation during the test.

Qualitatively, there were differences in the approach in the management of the task. The Test Group teachers initiated the process by giving instructions and applying the outer structure. The teacher regarded the task as a joint activity. The children then undertook the task 'actively' among themselves and there was a deliberate 'handover' from the
teacher to the children. The teacher only prompted the children when necessary to extend and encourage the children's use of language. This means that the Test Group children showed higher levels of initiations in classroom interaction. This is in contrast to the Control Group in which the teacher initiated the interaction by using checking questions to ascertain the children's knowledge. As a result, the Control Group children were not able to interact among themselves but the teacher continued to be the focal point during the tasks (i.e. there was frequent reference to the teacher by the children). Therefore the management of the task was done largely by the children in the Test Group whereas the Control Group waited for the teacher to initiate the task and referred to the teacher for feedback. The active role of the Test Group children through the ECI makes the management of the task (i.e. the focused teaching and learning) much more participatory and it can be argued that this, in turn, will accelerate the process in which the children internalise relevant concepts and associated language items. The structure of the exchange IRF patterns is modified by the ECI children and there is noticeably more of a group effort to complete the task. The Control Group children remained dependent on the teacher and the I & F were essentially controlled by the teacher. These results bear out the general comments made on the video recordings of 'normal' teaching in the two groups. It seems that the use of the ECI in the Control Group led to a more multi-lateral interaction (see below) which, it can be argued from the interactionist or constructivist perspective, gives better access to the learning environment. It is also argued that the ECI is conducive to the learning/acquisition of language by the children. The linguistic expression by the children in terms of participation (number and proportion of turns and morphemes) and the ability to express themselves verbally (in mean length of turn and in mean length of utterance) is stimulated during the process. By implication, this can be taken to have enhanced their cognitive development or, at least, to have enhanced the possibility of such development. The
children's classroom behaviour was observed to be more 'involved' and motivated in a 'good' learning climate.

The findings suggested that the Test Group teachers and children who used the ECI had a much more focused, co-operative and efficient approach to the task compared to the Control Group. A major reason was that the teachers from both groups managed the task differently. The teachers in the Test Group generally began the test by introducing it with a clear instruction about the management of the task but this was not done by the Control Group teachers. The idea of working collaboratively and distributing turn taking was accepted by the children from the Test Groups because of the way the teachers used language and how they set up the task. The teachers from the Control Groups introduced the task by asking questions to check the children's knowledge typical of a 'transmission' approach. This contributed to different patterns of exchanges between the two groups: the Test Group produced a multi-lateral pattern of exchanges but the Control Group conformed to the traditional 'IRF' exchange structure.

Generally, the children in the Test Groups were able to initiate the task. The tasks were handed over to them by the teachers. The children from this group (Child 1 and Child 2) were interacting with each other even though they knew that the teacher was at their side. The children from these classes were not only relatively independent of the teacher during the activities but seemed very engaged with the task. The children knew how to respond when the meaning of instructions was not clear by asking questions and even by repairing the exchanges during the task, but in the Control Groups if a repair was present it was almost always done by the teacher. Thus, the ECI exchange pattern was multi-lateral: children took on new roles in the IRF structure- they initiated, repaired and used follow-ups to evaluate. The number of morphemes increased during the second Progress Test (the Car task 2 and the Rod task 2) among the Test Group children. This is an indication that the children use complex sentences and, indeed, examples of such
sentences were found, but only in the Test Group. Every pair of Test Group children also seemed to show high expectations of themselves trying to solve the problem verbally and doing so with a sense of a fun.

This is different from the Control Group children. The children are not independent of the teacher. The children depended very much on the teacher to initiate and to give feedback. They use very short sentences when responding to initiations from either the teacher or their partner. The high rate of dependency on the teacher led to the high percentage of teacher participation rate as shown in the quantitative analysis.

8.1.3 General Conclusions of Findings

The findings of the quantitative analysis show that the Test Groups out-performed the Control Groups in most of the variables tested. The findings also showed progress made by the Test Group children from the second task in the number of turns and higher morphemes and Mean Length of Turn of the children from the Test Group. This evidence of better performance and progress is further strengthened by the qualitative analysis and the video evidence which both show that the performance of the Test Groups is better than that of the Control Groups. The general conclusion is that the Enhanced Classroom Interaction Approach, as enacted by the Test Group teachers and children, is much more effective in terms of language use for task achievement than the normal classroom approach as carried out by the Control Group teachers and children.

The better performance of the Test Groups that represents the ECI approach to some extent can be held to support claims propounded by Vygotsky and others that the ZPD improves the child performance when assistance is given by a 'competent adult and peers'. There is an increasing number of observational studies showing that adults do indeed often engage in this sort of interaction with children (see Ellis and
Rogoff, 1982; Lieven, 1978; Rogoff and Gardner, 1984; Wells, 1986; Wertsch 1985a; Wood, 1988). Vygotsky (1978) stated that language development as verbalised by the child is reflective of the cognitive development of the child (Wertsch, 1979, 1985, 1995; Britton, 1987; Rogoff, 1990, 1995). Therefore, besides linguistic and social development, one implication of these findings may well be that there is a related cognitive development, among the Test Group children. The nature of the cognitive development and the precise relationship to language, task or interaction however is not the focus here.

It is very difficult to measure how much the Test Group children learnt compared to the Control Group children, but the input that the Test Group children received from the ECI classroom did make a difference in the children's interaction and behaviour in the learning activities embodied in the learning tasks. The participatory tasks prepared and the pair work organised by the ECI teachers have resulted in progress in language and interaction, measured both quantitatively and qualitatively, and there is a strong argument (see chapter 6 and 7) for suggesting that this leads to a higher quality of learning experience for the children.

By implication, it can be deduced that there is a greater likelihood of enhanced cognitive development among the children who came from the ECI classes. In the 1980s and 1990s, social learning theory that contributes to our understanding of cognitive development has stressed the importance of the ways in which knowledge is shared (see chapter 2). In Britain since the 1960s there has been an emphasis on individual activity and direct experience as a stimulating to cognitive development. This is complemented by the work of analysts who focus on the linguistic properties of discourse (e.g. Sinclair and Coulthard, 1975; Stubbs, 1981). In this study the interaction during the test was analysed by using conversation analysis but it can be
argued that by implication there is a strong likelihood of cognitive development through interaction by the use of talk or language.

Mercer (1994, p. 93) suggested that 'education is best understood as a communicative process that consists largely of growth in shared mental contexts and terms of reference through which the various discourses of education (the various 'subjects' and their associated academic abilities) come to be intelligible to those who use them'. In this study, the results from the quantitative and qualitative analysis show that there is likely to be an element of cognitive development which is enriched by ECI activities. There is also a strong indication of social development among the ECI group of children because their conversation was conducted on the basis of co-operative turn taking.

8.2 Implications of the Study

The implications of this study can be discussed at five levels namely: The classroom teaching approach, the school level, teacher training, the Curriculum Development Centre, and the national education policy of Malaysia. These various aspects will be discussed below; particular attention will be paid to teacher training.

8.2.1 The Classroom Teaching Approach

The study was undertaken in the classroom in what was nearly the normal classroom situation, therefore the study has direct implications for classroom interaction. It involves the main components of the approach: the teacher, children and the subject matter that is being taught.

i. The ECI Approach

The awareness of this ECI approach is one of a number ways of accelerating the teaching and learning process in the classroom. The observation of the positive
responses by the Test Group teachers and children not only shows that the approach is more productive linguistically but it is also stimulating and interesting. Such participation in classroom interaction, where the teacher acts as a facilitator, could be attempted more widely. The problem to be faced is how to maintain the interest of the parties concerned. More than one or two approaches should be employed. The ECI is a clear departure from the traditional one-way transmission (teacher to children: mass teaching) or from the way of simply asking only the curious and active children to respond (seen in Video I and Control Group Videos II and III). This multi-directional approach with enhanced interaction will not only encourage the children to participate but also perhaps excite the minds of the children to learn.

In the ECI, emphasis is given to the importance of the role of adults in the child's learning. The idea of working collaboratively, in partnership, as a joint venture with the child is the main concept rather than that of thinking of pre-school children as passive recipients of knowledge. The child is considered as an active learner so that the joint enterprise of teaching and learning is operable. The concept of ZPD will give new information and insights to Malaysian pre-school teachers. Generally, most of the pre-school teachers only help the child at their actual level and they are not aware of the potential level of the child which can be maximised. Vygotsky's ZPD concept gives an interesting and positive view of assessment and teaching. The child's ability, in Vygotsky's terms, is measured by the speed at which the child can move through the ZPD. Related concepts, such as scaffolding, that are new to the pre-school teachers are seen as very useful ideas to apply the teaching and learning process. The concept of ZPD should not be overlooked because recent developments have shown that it is one of the effective ways of teaching and learning (Bliss et. al. 1996). The ZPD is widely known in the West. It was introduced almost twenty years ago by Wood, Bruner and Ross (Wood et. al. 1976). The ZPD can also be applied to the provision of tutorial support of pre-school age children through to adult learners in a
number of domains' (Wood and Wood, 1996). This is quite new to Malaysian pre-
school teachers.

ii. Teacher

The pre-school teachers in Malaysia (as seen in the video recordings of this research) usually follow the traditional method of mass teaching, simply following the lesson plan or teaching with close direct reference to the textbook or worksheet. The task or object here is the worksheet itself. The teachers ask the children to interact with the worksheet leaving little time or space to interact among themselves. The book or worksheet is rarely used in an interactive fashion. It tends to be used as one way transmission from the teacher to the child, or from book or worksheet to the child. The attitude of the teacher in initiating, generating and assessing the interactions, and responding to the children will to some extent play an important role in the classroom teaching and learning process. The ECI approach offers teachers a new way to handle these, and this study demonstrates that the Malaysian pre-school teachers can put the model into practice.

The role of the competent adult is crucial in the child's learning. The interactionists, or the constructivists, believe that knowledge is not acquired individually but with the help of others in social contexts. The development of higher mental levels depends on social factors. Such current thinking shows that the teacher's role needs to include using techniques of pair and group work to promote social interaction among learners. Developing such skills will help the teachers to upgrade their professional development.

iii. Children

The children in the classroom are generally assumed to be passive participants by most, if not all, Malaysian pre-school teachers. The teachers approach children in a
didactic manner. Knowing the advantages of enhanced interaction and having appropriate tasks and techniques, they could be vigorously encouraged to help children to participate as active participants. Children cannot only interact with the teacher but among their peers, which has been shown to be beneficial. Cullingford (1991) discovered that most primary children enjoy activities with peers and games. Teachers in Malaysia should be aware of these possibilities and capitalise on them, ensuring that suitable materials are available, that children can see a relevant purpose in what they are doing and understand their own strategies for approaching learning. This study shows that besides being genuinely interested in the task, the children also could be able to maintain their interest and achieve high levels of co-operation, interaction and use of language. Such positive interactions among the children could be deliberately designed to be a component in most lessons. Once the children are able to accept their positive and beneficial role in the class the proceedings in the classroom will be smoother.

iv. Teaching Materials and Subject Matter

The normal curriculum subjects to be taught to the children may be taught, at least in part, through tasks designed to elicit maximum interaction and which are more game-like in nature than the current teacher transmission activities in Malaysia. In fact, some of the available teaching materials for the three R's have the potential to be further developed to incorporate and reflect the components and elements of Enhanced Interaction. At the initial stage, perhaps a simple transformation can be done by the teacher, but finally it should be formulated into a more formal and standardised lesson plan by the teacher.
8.2.2 The School Level

This study on the ECI was implemented at the pre-school level and demonstrates the practical benefits at this level. This will have implications for the set up and curriculum of the pre-school education system and the approach to teaching young children in Malaysia. Even though this approach has not yet been tested in Malaysia at the lower or upper primary school level, this study is indicative of the potential of the ECI for such levels. The designing of the teaching materials and the training of the teachers will need to be carried out for longer and at a more sophisticated level than was possible in this research.

8.2.3 Teacher Training

To implement the ECI on a wider scale will require attention to teacher training. The training of the teachers for ECI, particularly at the pre-school level, would need to be oriented towards a more activity based, participatory view of learning which de-emphasises transmission and stresses children's active use of language to accomplish tasks and solve problems. Such an orientation will include an ECI approach, or one which is similar. What is important is to lay a strong foundation basic understanding of such elements as: the role of talk in learning; task-based interaction; organisation of pair and group work; scaffolding and handover; and the use of materials for learning tasks. Besides the reorientation of the syllabus, ways of changing the attitude and aptitude of the teacher trainees should be also considered. The initial test of the capability of the trainee teachers is at the practical training stage where the actual application can be monitored and corrected if the approach is inadequate.

The results of this research are potentially useful to the Teacher Training Division of the Ministry of Education in formulating an appropriate approach for new trainees in Malaysia. It could enrich the methods of conducting in-service and pre-service
courses. Generally, it is expected to contribute to further upgrade the competency of the pre-school teachers.

In the 20th century, major aspects of socialisation and the upbringing of children are institutionalised. The classroom is a major setting for this, since learning goes on in the interaction with the teachers and children. So it is necessary for the teachers or other competent adults, especially in the Malaysian context, to have some knowledge of how and when to intervene in children's activities. Such intervention is not only worth considering when the child is interacting with peers during play, but also when the child is interacting during classroom tasks, and during more conventional learning.

The ECI approach is based on recent socio-cultural theory which in turn derives from Vygotsky's theory. This theory provides a framework for teaching and learning which has stimulated a considerable amount of useful work in the last two decades on how teachers help learners. The Teacher Training Division should revise the Education curriculum so that this theory will be introduced to teachers at both pre-service and in-service levels. The introduction of the theory would be carried out at two levels. The first introduction should be given to the teacher trainers to update their knowledge of the learning theory and of its practical applications. Then, at the second level, the approach would be introduced in the in-service training of teachers and also to pre-service teachers. It is anticipated that introducing some of the changes in pre-school education, which would need to be carried through to develop the ECI, will not be without problems. One example of likely difficulties is that few teacher trainers are aware of this kind of approach or familiar with its theoretical background and practical applications. Thus there is a shortage of human (and material) resources. A more difficult issue is that the ECI in effect challenges traditional assumptions and cultural practices in pre-school classrooms and hence it
may meet with resistance from teachers. Yet, as this study has shown, some teachers, (at least), can adopt the ECI (the Test Group teachers) while others show serious interest after minimal exposure (the Control teachers).

Another component in the ECI approach is the interaction through verbal language. Talk is an important element in the ECI approach. The importance of knowledge about classroom talk is now undeniable. The growth in knowledge and the increased importance accorded to talk have been interrelated (Wells and Chang-Wells, 1992; Edward and Westgate, 1994; Mercer, 1992, 1994; Wilson, 1995).

IRF (Initiation, Response and Feedback) has become a common pattern of the ground rules of classroom talk (Edwards and Mercer, 1987) which can be changed. It is not necessary for I and F to be monopolised by the teacher. In this study, the practice of the ECI approach has shown new developments in IRF. Through the pair work and collaboration with the teacher the children were able to initiate, respond and give feedback among themselves. This is due to the opportunity given by the ECI teacher to the children with the idea of constructing knowledge together. The teachers who were trained in the ECI thus did not conform to the traditional IRF and extended it to include multi-lateral dimensions. The regularities of IRF could have a multi-lateral pattern if the teacher does not unvaryingly decide who should be talking. This is a new way of learning and managing classroom organisation which needs to be considered in training Malaysian teachers for pre-school or primary school.

8.2.4 Curriculum Development Centre

This division of the Ministry of Education of Malaysia is responsible for producing the curriculum packages for the pre-school annexes. Generally the formulation of the curriculum is based on the objectives of the national education policy. The examples
of the activities provided in the curriculum packages do not, at present, give consideration as to how the children will learn in ways other than assuming the teacher is a transmitter of knowledge. The present activities are not task based, and do not encourage much interaction between the teacher and children, or between children. The results of this study have shown that children who are exposed to interactive tasks can challenge this. This study has presented evidence that the use of the ECI with children can help them to develop their language in interaction and, by implication, facilitate their cognitive development.

The Curriculum Development Centre in Malaysia could provide some knowledge of the principles embodied in ECI approach. They can design more challenging examples of activities in the pre-school packages for guiding the pre-school teachers in Malaysia. Only through the kind of approach exemplified by the ECI can the objectives of the curriculum for the pre-school be fully achieved, since these objectives include the development of children's language, cognitive development, hand and motor co-ordination, social development and creativity. The ECI meets such objectives.

8.2.5 National Education Policy

Malaysian national education policy at present places much emphasis on pre-school education. It is seen as a means of redressing the poor start of those children in the lower socio-economic strata in the urban areas. The pre-school annexes are expected to spread throughout the country, as part of the co-ordination of the various systems of pre-school education undertaken by different government agencies. The private sector is left to develop their pre-school education on their own since it is more accessible to those with higher socio-economic positions. The results of this research can be used to support arguments that, a more comprehensive pre-school education policy should take into consideration the ECI and its associated background theories.
as a major thrust in the approach to improving pre-school classroom interaction and language development.

This research assessing the 'Enhanced Classroom Interaction' approach has provided some initial evaluation that can guide further improvement of the teaching approaches so that national objectives are met more effectively. If pre-school annexes adopted the new approach in teaching the young learners (as one strategy among a range of strategies) they would be better models of an effective learning environment for the whole pre-school and school system in Malaysia.

8.2.6 Methodology

The baseline data were obtained by the using the Raven Progress Matrices (RPM) test for cognitive development and the Malaysian Standard Language Skills score for language competency. These measures were used to gauge the ability of the Malaysian children in quantifiable terms. Since the RPM is a relatively old instrument it can be considered somewhat limited. Nevertheless, Jenson (1980) has commented that it is a culture reduced test and has been applied in many developing countries. The test has positive features of feasibility and ease of use: it does not involve too much explanation and uses graphic forms that are easily differentiated by these 5 year old children. As such, it yields quantifiable results that were used to compare the Test and Control groups to ensure that they were on the same level. Although it is a relatively unsophisticated single measure it was a reasonably practical tool for this project. More appropriate tests should perhaps have been used to test the level of cognitive development of the children. In any future research a more recent and standardised instrument should be used, such as the British Ability Scales (Elliot 1983).
The Standard Language Skills Scores from the Division of Education in Malaysia is the only language measure that was available for these children. No other language testing is normally conducted. Scores were given after long observation of the children by the class teachers. It would, of course, be a methodological improvement if other tests had been applied to obtain scores for the initial (and later) language ability of the children, although any immediate test of the language ability may not provide a complete picture of competency and it is better to rely on the long term interaction and observations by the teacher while recognising the limitations of possible subjectivity and inconsistency of such observation. More generally, there are strong reservations about using systematic formal tests of any kind with children of this age and many teachers would regard interpretations of test results as provisional or tentative.

The baseline data were not confined to the above-mentioned measures. Other data included a general consideration of the teachers approach as summarised from the video recordings. This was done by the researcher through general observation but no quantitative index was used. Clearly, the establishment of clear statements about the initial teaching styles could have been greatly improved by the use of systematic observation using checklists or by validating the observations with other independent observers and by cross-checking the researcher's account by eliciting the teachers' own account of their teaching. Generally, these quantitative indicators and observations are used to establish initial parity between the Test and Control groups for the cognitive and language level of the children, for the competency of the teachers and teaching methods.

The main research measures are the turns, morphemes and mean length of turns of the children and the teachers. As yet there is no tradition for such techniques being
developed to measure such items in Bahasa Malaysia. Analysing conversation in the classroom is also a new application in Malaysia and hence the researcher is not following an established research procedure for this particular language. Ideally, there should have been comparable data to index turns, morphemes and MLT.

The use of the Car and Rod tasks as tests followed the fairly well established procedures of communicative language tests, but these have rarely been used with young children. It is possible that these were practice effects or that feelings of confidence were engendered among the Test group children and these were not monitored in the project.

The main implication of these limitations is that future research projects should refine their methods taking these considerations into account.

8.3. Suggestions for Further Research:

The discussion will be based on two issues, similar research and research on other related aspects.

8.3.1 Similar Research

It is proposed that if similar research is undertaken in Malaysia, a larger sample should be taken. The sample should cover: the pre-school annexes in other towns and in rural areas; representative groups of children from the main ethnic communities (Malay, Chinese, Tamil and others); a balance of male and female children; a broader representation of children from different social backgrounds including those from higher socio-economic classes. Future research would thus be more representative of the national situation. It would be preferable to carry out a longitudinal study that stretched over a much longer period. This would enable the examination of the long
term effects and the expected changes where teachers could repeatedly apply the methods and continuously evaluate and improve the approach and the children might be seen to be by progressing over perhaps one or two years. Furthermore, where this study focused on linguistic abilities, aspects of cognitive development should also be tested.

This study was confined to the government sponsored formal schooling system where the method of teaching is still at a very early stage of implementation. Teachers who are more academically oriented to a more formal schooling system could usefully be involved. Therefore, the approach should also be tested in other pre-school systems.

The training of pre-school teachers requires more time so that the teachers can acquire greater theoretical knowledge and the practical skills necessary to understand and apply such approaches as the ECI approach and the theoretical premises it embodies so that they can convert their routine, daily lesson plans into more participatory and interactive schemes of work. This will involve more useful, practical, and varied activities rather than using a ready made task as a single instance. The level of competence of the teacher will determine the success of the approach, especially when there is no tailor made teaching package available.

### 8.3.2 Other Related Aspects

The Enhanced Classroom Interaction is based on the skills, initiative and creativeness of the teacher. This is seen in the management of scaffolding and handover, besides the use of material and tasks, in managing IRF patterns in ways which involve children as active participants in the construction of knowledge. Therefore, detailed observation of the process should be recorded to find the prominent social and linguistic patterns of the Enhanced Interaction. From such observations, it can be expected that a more refined method of Enhanced Teaching
can be developed, formalised and institutionalised. The general concept of the ECI can be crystallised to a more definite paradigm and developed further as a new approach in teaching. These suggestions for further research have been related to Malaysia. However, it is clear that the broad thrust of the present research and its implications could be applied elsewhere in South East Asia and in developing countries in other regions.

8.4 Concluding Remarks

The outcome of the research indicates positive results using 'Enhanced Classroom Interaction' and this approach may be adopted alongside existing practices. The research offered an appropriate theory, approach and examples of practical tasks which are entirely new to Malaysian teachers. These are considered to be useful in developing a child-centred, activity-based strategies for linguistic, cognitive and social development of pre-school children. The ECI could be further developed using technology. For example promoting interactive learning with computers when they become available (where the objects and teaching materials are able to evoke responses besides the guidance and assistance by the teacher and the interactions with the peers) will add more components and elements to the approach that will help in further enhancing and invigorating the interaction among teachers and pupils. This study may be expected to lead to a new approach for the pre-school teachers in Malaysia. It could help teachers to understand how their role is crucial as a competent adult in the learning and teaching process among pre-school children and how language is crucial to learning. This is a preliminary attempt to see whether an alternative approach that focuses on enhancing the classroom interaction initiated by the teacher will be appropriate in making the teaching and learning process more effective. The theoretical basis is taken from Vygotsky's ideas and neo-Vygotskian developments that have not apparently been tried or tested in developing countries in
general, and certainly not in Malaysia. This is not to deny that the present teaching approaches do not have any elements of a more interactive approach but not much emphasis is placed on interaction at present. In fact, the present approach can be used as the basis upon which to integrate some elements and components which are already present. It is the interaction among the components of the teaching model that constitutes the process that facilitates teaching and learning. What is needed is the intensification of such interaction, initiated and guided by the teacher. The children also might be allowed to intensify their interactions to the optimal level, i.e. that they are helped to raise their own awareness of language and interaction in the process of becoming increasingly independent. The teachers too must know when, how and what to assist. Their concepts of helping children to learn should be systematised and based on some sound theoretical premise such as that provided by Vygotsky and neo-Vygotskian developments.

However, the ECI approach can be regarded as a model because it fulfils the criteria summarised by Baynham, (1989, p. 3):

- Models must be general, applicable to any language, not just languages of certain types.
- Models must be specific, i.e. able to account for the features of given languages
- A model must be inclusive, that is able to account for data already observed and yet to be observed.
- A model must be productive, i.e. must allow for the production of indefinite numbers of new utterances.
- A model must be efficient, i.e. must achieve its ends with the minimum effort.
It has been shown that the ECI is applicable not only to pre-school children, but also to primary-school children and to children with different ethnic, social, and economic backgrounds (in the UK pilot test and in Malaysia). And that it can be monitored using specific measures for turn-taking, such as morphemes, mean length of turn, and time taken to complete tasks. Moreover, the ECI proved valid as an explanatory framework for quantitative and qualitative data. As such, it can be applied reliably to similar future research. The ECI is also productive, as it generates as many tasks as needed for the research and for curriculum development. Finally, the fact that the ECI could achieve its end is an additional reason why it can be considered as a model.

The study of Enhanced Classroom Interaction is currently only at a rudimentary stage. It incorporates some basic ideas and techniques that can be further developed into a more systematic approach. It can take any other form but the principal idea is to enhance interaction during the learning process with a carefully designed method of doing so. However, the research done already demonstrates change among the teachers who are trained in the ECI, even within a fairly short period. It is hoped that the change at the macro level can be implemented if the ECI is introduced more widely in the training of teachers. This includes change in the classroom organisation and teachers' attitudes, which will also benefit the learners. At the micro level the process of learning can be changed from the teacher controlling and organising turn taking, to children having more active participation in turn taking which contributes to a higher mean length of turns. The unvarying IRF exchange structure which predominates in the traditional classroom can be reformulated so that children propose initiations, repair each others' misunderstandings and evaluate each other's responses as shown in the Test Group classes in the study. Thus the combined change at the macro level and the micro level will converge in the spirit of Vision 2020
promulgated by the Prime Minister to develop productive human resources in education to industrialise Malaysia.
Progress Test One

The Car Task

CHILD 1

P1

P2

P3

CHILD 2

P1

P2

P3

CHILD 1

P1

P2

P3

CHILD 2

P1

P2

P3
Progress Test One

The Rod Task

CHILD 1

CHILD 2
Progress Test Two

The Car Task

CHILD 1
P1
P2
P3

CHILD 2
P1
P2
P3

CHILD 1
P1
P2
P3

CHILD 2
P1
P2
P3
Progress Test Two

The Rod Task

CHILD 1

CHILD 2
## APPENDIX IV

### SCORE OF INDIVIDUAL CHILD IN BASELINE DATA

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### Mean and Standard Deviation

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Key: Raven=Raven’s Matrices Score; Lang=Language Skill score
APPENDIX V

Garis Panduan Menjalankan Ujian Interaksi:

PERMAINAN KERETA DAN PERMAINAN ROD.

PERINGATAN:
Tiap-tiap pasangan kanak-kanak yang mengambil bahagian mesti menamatkan hingga akhir ujian. Ujian pertama (Progress Test One) dan Kedua (Progress Test Two).

I. PERMAINAN KERETA (Berpasangan)

ALATAN:

PROSEDUR:

Kanak-kanak kedua:
Beliau perlu menyusun gambar mengikut penerangan kanak-kanak pertama. Kanak-kanak ini mesti menggunakan bahasa jika arahan kanak-kanak kedua tidak jelas.

II. PERMAINAN ROD (Berpasangan).

ALATAN:
Cuisenaire Rod disediakan. 2 keping gambar untuk menyusun model.

PROSEDUR:
Kanak-kanak pertama: Beliau perlu menerangkan kedudukan Rod supaya kanak-kanak kedua boleh membina model.


PERANAN GURU:
Membantu kanak-kanak dari mula permainan hingga akhir.
APPENDIX VI

THIS IS THE ORIGINAL EXTRACTS TAKEN FROM BAHASA MALAYSIA TRANSCRIPTS AND TRANSLATED INTO ENGLISH FOR THE EXAMPLES USED IN CHAPTER 5.

Child 1(CH1), Child 2(CH2), Class (P1, B1 and S1 represented Test Group classes) and Class (P2, B2 and S2 represented Control Group classes) is a code used in both Bahasa Malaysia and English translation throughout the study.

Contoh 5.1 dari P1V2


Translated

T: We are going to play describe and arrange. I have two cards, the white card with a number is for Zarina and Arrifin has a blue with the grid lines, and some beads. Zarina will tell how many beads that Arrifin needs and arrifin will arrange them on the card with the grid. Zarina cannot show Arrifin the card. Now (tell the children) observe how those two interact with each other.

Contoh 5.2 dari S1V2

T: Di sini saya kad dengan barisan symbols nombor dan kawan dia kena ambil nombor yang sama dari dalam kotak dan kemudian kira bilangan dia sama dengan nombor. Siapa yang pegang kad beritahu kawan dia sama ada dia ambil nombor betul atau salah. Sekarang saya hendak dua orang datang sini dan cuba. Nanti lepas tu boleh buat aktiviti dengan kawan masing-masing.
T: Here I have a card with a row of numbers on and the other person has to take the correct number from the box and then by using that block count according to the number. The one with the card with the number is supposed to tell the friend whether he is doing the right thing. I need two children and lets see how they interact okay. Later the others can do it with your own partner.

Contoh 5.3 dari B1V3


Translated

T: Now I will give everyone 5 photos and both of you can play question games about the animals like quiz. Never show you photos to you partner.

Contoh 5.4 dari S1V3

T: Tiap-tiap kumpulan berdua boleh ambil bunga-bunga ini dan kamu boleh menerangkan tentang bunga itu.

T: Every group can take some of the flowers here and then both of you can talk about the flower (talking to the whole class before the children were given their pair work).

Contoh 5.5 dari P1V2

CH1: Ambil tiga biji manik, lepas tu ambil 4 biji manik
CH2: Letak dekat mana?
CH1: Sebelah atas, salah..salah
CH2: Salah? Lepas tu nak letak dekat mana?
T: Dalam pitak mana yang kamu suruh dia letak?
CH 1: Kiri

Translated
CH1: Take three beads, then take four beads (initiation)
CH2: Where to put? (Repair)
CH1: On the top, wrong...wrong (Response & Feedback)
CH2: Wrong? Then where shall I put it? (Repair & Initiation)
T: Which part of the column you are referring? (Prompting to CH1).

Contoh dari kelas sama 5.6 dari kelas sama P1V2

CH1: Mula-mula ambil 6 biji manik, letak dekat bawah.
CH2: Atas ke bawah?
CH1: Tengah
CH2: Sini ka?
CH1: Saya kata tengah, dekat sebelah bawah

Example 5.6 from the same class P1V2 translated,

CH1: First you have to take 6 beads, put them at the bottom
CH2: Up or down?
CH1: In the middle...middle.
CH2: Is it here?
CH1: I said in the middle, at the bottom.
CH2: Here.
CH1: Correct, mm...then take 8 beads and put it at the bottom.

Another example 5.7 from the same class, P1V2

CH1: No. 2 letak dekat sebelah kiri
CH2: Dekat mana?
CH1: Dekat tengah.
CH2: Dekat ke?
CH1: Dia dekat tengah, tengah.
CH2: Dekat sini?
Ch1: Betul, mm, lepas tu ambil nombor 8 dan letak dia dekat bawah.

Translated
CH1: No 2 is on the left
CH2: Where shall I put it?
CH1: In the middle
CH2: Is it here?
CH1: It's in the middle.

Another example 5.8 from class B1V3

CH1: Badan dia warna choklat
    Ekor dia panjang
    Dia ada kaki empat
CH2: Binatang tu besar tak?
CH1: Tidak, dia tak besar

Translated

CH1: The body is brown in colour
    It has a long tail
    It has four leg
CH2: Is the animal big?
CH2: No, its not too big.

Contoh 5.9 dari kelas P1V3

CH1: Satu hari arnab sedang berjalan. Tengah jalan dia berjumpa dengan kura-kura.
    Arnab tanya kura-kura, 'kura-kura, awak hendak lumba tak?'
    (mengunakan suara binatang).

Translated

CH1: One day the rabbit was walking. On the way she met a tortoise. The rabbit asked the tortoise, tortoise, tortoise, do you want to have a race?
    (imitating the animal voice)

Contoh 5.10 dari kelas B1V3

T: Berapa awak sepatut ambil?
CH2: 6 (ambil 6 blok)
T: Baik, cuba bilang berapa ada (tunjuk kearah blok)
CH2: 1...hingga 7
T: Berapa semua?
CH2: 7
T: Berapa banyak kita perlukan(memujukan soalan pada CH1)
CH1: 6 sahaja.
CH2: Oh ya, saya perlu 6 sahaja
T: Sekarang teruskan lagi
CH2: Apa saya nak ambil sekarang?
CH1: Awak kena ambil 8 blok

Translated

T: What is this symbol?
CH2: Six.
T: Try and take six blocks from there (pointing to the blocks).
CH2: (child counting the blocks) 1...2...3...4...5...6...7
T: How many you suppose to pick up?
T: How many?
CH2: 7
T: How many do we need?(refered to CH1)
CH1: 6 only.
CH2: Oh yes, I need only 6 of these.
CH1: That's right, only six.
CH2: So what should I take next?
CH1: You have to take 8 blocks.

Contoh 5.11 dari kelas S1V3

T: Boleh sesiapa nak terangkan apa ada di dalam poster ini?
CH1: Ada pokok kelapa.
T: Lagi ada apa?
C2: Pokok, pokok bunga kertas.
T: Apa ada Lagi?
CH3: Bunga Raya (Bunga kebangsaan Malaysia- the focus of the lesson)
T: Terangkan pada kita semua.
CH3: Bunga dia warna merah. Dia ada lima kelopak..dan daun dia warna hijau cair.

Translated
T: Can anyone describe what you can see in the poster?
CH1: There is a coconut tree
T: What else?
CH2: A plant, paper plant
T: Some more?
CH3: Bunga Raya (national Flower of Malaysia - the focus of the lesson)
T: Describe for us
CH3: The colour is red. It has five petals and the leaves are light green in colour.

Another example 5.12
Child: Cikgu, saya nampak Bunga Raya warna merah jambu
T: Betul ke?
Child: Betul dekat rumah saya ada, boleh saya bawa hari esok?

Translated
CH: Teacher, I saw pink Bunga Raya.
T: Is it?
CH: Yes, it was planted near my house, can I bring tomorrow?

Contoh dari kumpulan Control (examples from the Control Group).

Contoh 5.13 dari M2V3
Kanak-kanak: Buku benang.
T: (mengganguk, memberi maklum balas melalui isyarat).
Kanak-kanak: Lampu
T: (Mengganguk, memberi maklum balas isyarat). Ini sudu.
Children: Sudu
T: (mengganguk). Ini zip
Children: Zip

Translated,

T: Now look down here and say these words. This is a tread.
Children: Tread (in chorus).
T: (nodding, showing non-verbal feedback). This is a spoon.
Children: Spoon (in chorus).
T: (Nodding). *This is a zip.*
Children: Zip (*in chorus*).

Contoh 5.14 dari kelas B2V2
T: Tengok sini dan ikau saya (guru menunjuk pada nombor yang digantung di hadapan kelas)
Kanak-kanak: (mengira) 1, 2, 3, ... 7
T: Ini ada berapa?
CH1: (menyebut) 3, 8, (dan sebagai nya).
T: Pandai.

Translated
*T: Look here and speak* (teaching pointing the number that was hanged on the line).
*Say these symbols.*
Children: (Counting) 1, 2, 3, 7
Children: (Citing) 3, 8, (and so on).
T: Very good.

Contoh 5.15 dari kelas P2V2
T: Ini sebiji oren dan ini satu lagi, 1+1=berapa semua sekali?
Kanak-kanak: 2
T: Betul tak kelas?
Kanak-kanak: Betul
T: Pandai

Translated,
*T: This is an orange and this is another orange, 1+1=how many all together?*
Children: 2
T: Is that right class
T: Good.

Contoh 5.16
T: Kenapa awak tak buat kerja?
Kanak-kanak: Cikgu saya tak tahu buat.
T: OK. awak boleh buat macam ni (guru buatkan kanak-kanak).

Translated
T: Why aren’t you doing your work?
Child: Teacher, I don’t know how to do it.
T: Okay, you do it like this, take it here (the teacher does for the child).

Contoh 5.17
T: Buat macam ni tunjuk dekat gambar ni (membuat untuk kanak-kanak).

Translated
T: Draw the arrow towards this picture (doing it for the child).

Contoh 5.18
Kanak-kanak: Cikgu, dulu saya nampal accident.
Translated,
Child: Teacher, I saw an accident

Contoh 5.19
Kanak-kanak: Cikgu, macam mana nombor 8?
T: Macam mana nombor 8? Kamu boleh ambil dalam kotak tu.

Translated
Child: Teacher, how does number 8 look like?
T: How does number 8 look like? You can pick it up from there.
## APPENDIX VII(a)

### PERFORMANCE OF THE TEST GROUP

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**NOTES OF ABBREVIATIONS**

- C1-Car 1
- C2-Car 2
- R1-Rod 1
- R2-Rod 2
- Morpho-Morpheme
- CH1-Child 1
- CH2-Child 2
- CH1-2-Both Children
- All-Children+Teacher
- CH1ALL-Child1All
- CH2ALL-Child2All
- CHT-Children+Teacher
- TCH-Teacher+Children
- MLTCH1-Mean Length Child1
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## APPENDIX VIII (b)

### RAJA MUDA

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### MEAN NUMBERS

- **CH-1**: 32.27, 32.34, 45.38, 82.00, 98.0, 378.2
- **CH-2**: 30.93, 22.93, 103.9, 22.93, 50.2, 82.00, 98.0, 327.7
- **CH+ALL**: 32.27, 32.34, 45.38, 82.00, 98.0, 378.2
- **Teacher**: 14.28, 14.28, 14.28, 14.28, 14.28, 14.28, 14.28, 14.28
- **All**: 117.8, 559.6, 459.3, 519.7, 519.7

### MEAN PROPORTIONS

- **CHALL**: 27%, 27%, 27%, 27%, 27%, 27%, 27%, 27%
- **CH2ALL**: 27%, 27%, 27%, 27%, 27%, 27%, 27%, 27%
- **CH+T**: 54%, 54%, 54%, 54%, 54%, 54%, 54%, 54%
- **MCH**: 46%, 46%, 46%, 46%, 46%, 46%, 46%, 46%

### MEAN LENGTH OF TURN (MLT)

- **CH**: 3.77, 4.75, 3.09, 3.09, 15.50, 3.04
- **CH2**: 3.82, 4.53, 2.58, 3.76, 14.60, 3.07
- **CH+T**: 3.79, 4.64, 2.98, 3.83, 15.12, 3.72
- **MLT**: 6.50, 5.25, 5.91, 5.91, 22.48, 3.79

### Time

- **Total**: 322.3, 246.6, 117.4, 120.5, 890.91, 281.5
- **Average**: 21.48, 16.37, 7.83, 8.04, 53.73, 13.63
- **ML Utterance**: 27.91, 25.60, 41.00, 28.04, 122.65, 23.12
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**NOTES OF ABBREVIATIONS**
- Cl- Car 1
- C2- Car 2
- R1- Rod 1
- R2- Rod 2
- Morp- Morpheme
- CH1-Child 1
- CH2- Child 2
- CH1+2-Both Children
- Alt.-Children+Teacher
- CH1ALL- Child1All
- CH2ALL- Child2All
- CH1T-Children+Teacher
- T1CH-Teacher/Children
- ML1CH- Mean Length Child1
- ML1CH2- Mean Length Child2
- ML1TCH- Mean Length Children
- ML1TT- Mean Length of Turn Teacher
- ML1LU- Mean Length of Utterance
Appendix IX

This is the original extracts taken from Bahasa Malaysia transcripts and translated into English for the examples given in Chapter 7 (qualitative analysis).

Child 1 (CH1), Child 2 (CH2) and Teacher (T) is a code used both in Bahasa Malaysia and English translation throughout the study.

Note: Examples 7.1 to 7.14 (translated version) can be referred in Chapter 7 and the other are additional examples in Bahasa Malaysia.

Contoh 7.1- Permainan Kereta


CH1: Ambil kereta merah, letak di sebelah kanan.

CH2: Sini...sini...betul tak?

CH1: Betul....ambil kereta bomba

CH2: Di mana nak letak?

CH1: Di sebelah bangunan

T: Bagus, gambar lain pula.

Translated

Example 7.1- The Car task

Teacher: Z (CH1) will arrange the model of the cars and A (CH2) will explain to Z according to the photographs. A shouldn't point but use words to explain. Now begin.

CH1: Take a red car, put it on the right of the road.

CH2: Here..here...is this the right place?

CH1: You're right... then take the fire engine

CH2: Where shall I put it?
**CH1**: At the road near the building

**T**: Good, next photo.

Contoh 7.2- Permainan Kereta

Guru: Ain (CH1) pegang gambar ini, tengok dalam gambar, Sharifah(CH2) pula pegang kereta-kereta ini, Sharifah susun kereta dan Ain terangkan dekat mana nak letak kereta-kereta tu. Ain tak boleh tunjuk pada Sharifah, dan Sharifah hanya boleh bertanya kalau dia tidak faham. Ok kita boleh mula sekarang.

**CH1**: Ambil kereta bomba dan letak dekat sebelah kanan

**T**: Is that correct Ain?

**CH1**: Bukan..sebalah kanan, sebelah Idri.

**CH2**: Betul ke Ain macam tu?

**CH1**: Salah.. belakang sikit, Betul. Kereta merah dekat jalan kecil

**CH2**: Betul ke? Saya letak sini.

**CH1**: Betul

**T**: Bagus, gambar nombor 2.

Translated

Example 7.2- the Car task

**Teacher**: Ain (CH1) you hold the pictures and look at them, then Sharifah (CH2) hold the cars, Sharifah arrange them and Ain describe the location of the cars. Ain shouldn’t show the picture to Sh, and Sharifah can ask if you are not clear. OK now we can begin.

**CH1**: Take a fire engine and put it on the right

**T**: Is that correct Ain?

**CH1**: No.. its not on the right, its on the left

**CH2**: Is it here?

**CH1**: It’s wrong... a bit backward, correct. The red car is at the feeder road.

**CH2**: Is it right? I put it here.
Example 7.3- The Car task

T: I have toy cars. One of you has to look at the pictures and describe them and your partner is going to arrange the position of three cars according to the description. The one who arranges can’t look at the picture but can only ask. We can begin and who is going to start it?

CH: The red car is on your left

CH2: Which road?

CH1: At the feed road, correct, then take the fire engine

CH2: Where shall I put it?

CH1: At the main road

CH2: Is it here?

CH1: Yes you are right

T: Good girl, now go to the next picture.
Contoh 7.4- Permainan Bongkah

T: Araf (CH1) akan menerangkan bagaimana hendak menyusun bongkah seperti mana yang di tunjuk di dalam gambar dan Hafiz (CH2) akan menyusun mengikut apa yang di terangkan oleh Araf. Hafiz akan memilih bongkah dari dalam kotak tu.
Sekarang mulakan.

CH1: Ambil dua warna hijau

CH2: Dua warna hijau, yang pendek ke panjang?

CH1: Panjang, hijau panjang dan awak ambil satu

T: mm.. teruskan

CH1: Ambil warna kuning, dua

Translated

Example 7.4

T: Asraf (CH1) will describe how to set the model from the rods as in the photo and Hafiz (CH2) will arrange according to the description. Hafiz can pick up the rods from the box. Let's begin.

CH1: Take two greens

CH2: Two greens, short or long ones?

CH1: Long, a long green and you need one

T: mm..., carry on

CH1: take yellow, two.

Contoh 7.5- Permainan bongkah (the Rods task)

T: Ini adalah permainan bongkah. Saya akan gambar ini pada Fikri (CH1). Fikri kena terangkan pada Aman (CH2) bagaimana nak susun bongkah ini. Awak kena beritahu dia berapa bongkah dia perlu dan warna apa dan seterus nya, boleh kita mula sekarang.

CH1: Ambil warna kuning dan buat huruf 'V'

CH2: Panjang ke pendek?
Example 7.5: The Rod Task

T: This is a rod game. I will give this photo to Fikri (CH1). Fikri describe to Amir (CH2) how to arrange the rods. You tell him how many he needs and the colour and so on, can we begin now?

CH1: Take yellow and make a letter 'V'

CH2: Long or short?

CH1: Short.

CH2: Short, make a letter 'V'.

T: Is it enough rods to make letter 'V'.

Contoh Kumpulan Control (Examples from Control Group)

Contoh 7.6- Permainan Kereta.

T: O.k Jamil (CH2) ada berapa kereta?

CH1: Empat.

T: Warna apa?

CH2: Merah.

T: Apa jenis kereta ni?

CH1: Kereta bomba.

T: OK kereta bomba. Sekarang Safiah (CH1) pegang gambar, tengok gambar dan jangan tunjuk Jamil (CH2). Awak mesti beritahu Jamil apa yang ada dalam gambar tu. Kereta apa yang awak nampak dalam gambar, Safiah?

Ch1: Kereta bomba.

Translated
Example 7.6- The Car Task.

T: Ok Jamil (CH2) how many cars are there?

CH1: Four.

T: What colour is this?

CH2: Red.

T: What type of car is this?

CH1: Fire engine.

T: Ok fire engine. Now Safiah (CH1) hold the photos, look at the photo but you cant show Jamil (CH2) that photos. You must tell Jamil what is shown in the photograph. What type of car do you see in the photographs Safiah?

CH1: Fire engine.

Example 7.7- The Car Task

T: Ok photo one, what are the cars?(directed to CH1)

CH1: Fire engine.

T: Fire engine, take the fire engine(directed to CH2)

CH2: Finish.
T: Where to put the fire engine, on which side of the road?

CH1: On the right.

T: On the right which road?

CH2: Here?

Contoh 7.7- Permainan kereta
Guru: In kereta apa?
Kanak-Kanak: Kereta kuning, jip, kereta merah, kereta bomba.

CH1: Ambil kereta merah
T: Dekat mana nak letak, jalan C atau jalan D?

CH1: D
T: D, mana jalan D?

CH1: D, kereta merah.
T: Bukan, situ bukan kereta merah.

Translated

Example 7.8
T: What is this car?

Both children: Yellow car, jeep, red car and a fire engine (in chorus answer)

T: This is what road? This road you can call A, B, C and D and the grass. Start with Khalid (CH1)

CH1: Take a red car.

T: Where to put it on, road C or D? D, where is road D (Talking to CH1)

CH1: D....red car.
T: No, it's not a red car.
Example 7.9

T: Now we are going to play a road sign, what is this Nana? (directed to CH1)

CH1: A main road

T: What line is this Hasni? (directed to CH 2)

CH2: Road

T: What is this?

CH1: A jeep

T: What colour is this?

CH1: White

T: This is a road line, what is this?

Chorus: A main road

Example 7.10- The Rod task
T: Ini warna apa Azim (CH1)? Warna apa?
CH1: Biru
T: Ini?
CH1: Hijau.
T: Ini bongkah hijau, hijau pendek, hijau pekat, hijau cair, ini panjang, ini pendek, ini warna apa?
CH1: Kuning.
T: Ini adalah bongkah Hidayah (CH2) ini warna apa?
CH2: Merah, oren, kuning, biru.

Translated

Example 7.10

T: This is what colour Azim (CH1)? What colour is it?
CH1: Blue
T: This?
CH1: Green.
T: This ia a long rod, a short green one, dark green, light green, this is long, this is short, what colour is this?
CH1: yellow.
T: This is a rod. Hidayah (CH2), what colour are these?
CH2: Red, orange, yellow and blue.

Contoh 7.11- Permainan Bongkah
T: Beri tahu saya, ini warna apa? (tujukan pada CH2)
CH2: Kuning, oren, hijau, merah.
T: Ini betuk apa Amir ?(CH1)
CH1: Orang.
T: Orang, okay nula.
CH1: Warna merah sebelah kanan.
T: Sebelah kanan?

Translated

Example 7.11- The Rod task

T: You tell me, what colour are these? (talking to CH1)
CH1: Yellow, orange, green, red
T: what shape is this Amir?
CH2: A man
T: A shape of a man, okay start (talking to CH2)
C2: Red colour on the right.
T: On the right.

Contoh 7.12 (Kumpulan Control)

T: Dalam gambar 2, ada apa?
CH1: Kereta.
T: Kereta jenis apa?
CH1: Kereta merah.

Translated

Example 7.12

T: In photo 2, what do you have?
CH1: Car.
T: What type of car?
CH1: A red car.

Contoh 7.13 (tukar peranan)
T: Sekarang giliran kamu untuk tanya dia kereta mana nak ambil dan susun dekat tempat yang betul.

CH1: Fire engine

translated
Example 7.13 (changing role from performer to Instructor)
T: Now your turn to tell him which car to take and arrange at the right place. OK, which car is he supposed to take?

CH1: Fire engine.

Contoh 7.14

T: Cukup, Ok sekarang tukar tempat, Anis (CH2) duduk sana. Sekarang kamu duduk di sebelah sini Ayu(CH1) dan awak duduk disebelah sana. Anis kena beri tahu dia kerat apa yang ada dalam gambar dan nak letak dekat jalan mana. Ok mula-mula nak ambil kereta apa?

Translated
Example 7.14
T: Enough, OK now change place, you (CH2) sit here and you sit there(CH1). Your turn (CH2) to tell him what cars are there in the photo and at which road. OK, firstly what car are those?

Contoh 'Struktur Luar' (dari 7.1 dan 7.2)

T: Zaki (CH1) akan menyusun model kereta dan Amir (CH2) akan menerangkan pada Zaki macam mana hendak menyusun kereta mengikut gambar. A tidak boleh menunjuk gambar pada Amir tetapi hanya boleh terangkan pada Zaki. Baik sekarang boleh mulakan. (Struktur Luar)

CH1:....

CH2:.... dan steretusnya

T: Next photo (Outer structure).

Translated example 7.1-7.2

T: Zaki (CH1) will arrange the model of the cars and Amir (CH2) will explain to Zaki according to to photographs. Amir shouldn't point but use words to explain. Now,
lets us begin. (Outer structure)

CH:...

CH2......and others

T: Next photo (Outer structure)

More examples in the Management of task in Bahasa Malaysia for the Test Group

Contoh 1.


Ch1: Ambil bongkah warna oren satu, warna hijau

Ch2: Ni ke?

Ch1: Bukan, bongkah oren yang panjang, lepas tu warna hijau yang pekat

Ch2: O.k sekarang nak buat apa?

T: Oren nak letak macam mana?

Ch1: Melitangkan, lepas tu bongkah hijau pekat.

Ch2: Bogkah hijau pekat ni?

Contoh 2.

T: Macam dahulu juga seorang daripada kamu akan memegang gambar dan beritahu kawan kamu macam mana nak susun model ini. Boleh kita mulakan sekarang.

Ch1: Mula-mula ambil kereta merah, letak di jalan besar.

Ch2: Bomba ke kereta merah? Letak dekat mana?

Ch1: Di depan saya, di jalan kecil, sebelah kiri.

T: (em...em..)

CH1: Kereta bomba di sebelah bangunan, kereta kuning hampir di garisan,.....lagi...lagi...Kereta merah langgar kereta kuning. Kereta bomba jalankan sedikit...sudah...emmm... Kereta warna merah langgar kereta bomba....langgar kereta bomba. Langgar depan dia, sudah, kereta kuning pula langgar kereta bomba.

Contoh 3 (dari sub-transactions kumpulan Test)

T: Gambar no.2

CH2: Ambil kereta warna merah.
Contoh 4 (dari kumpulan Control)

T: Sekarang Amira (CHI) cakap ada kereta apa di jalan?
CHI: Kereta kuning.
T: Itu kereta merah, mana kereta kuning? dekat mana?
CHI: Situ.
T: Lagi.
CHI: Kereta merah. 
T: Kereta merah, dekat mana?
CHI: Tengah-tengah.

Contoh 5

T: Sekarang Nisak (CHI) gambar ini ada kereta apa?
CHI: Kereta merah.
T: Dekat mana?
CHI: Dekat bawah.
T: Lagi.
CHI: Dekat atas.

Examples of Complex Sentences

i. Ambil kereta yang berwarna merah dan letak jalan kecil.

i. Take a car which is white in colour and put it on the feeder road (modifying with a relative clause describing appearance).

ii. Jalankan kereta bomba yang dekat dengan bangunan dan gerakkan kereta merah ke hadapan.

ii. Move the fire engine that was near the building, forward and move the red car forward too (modifying with a relative clause describing location).

iii. Ambil satu rod yang warna kuning, yang panjang dan kemudian letak dia melintang.
iii. *Take a rod which is yellow in colour, which is long one and lay it flat* (modifying with two consecutive relative clause.

Contoh-contoh lain.


v. Lepas tu jalankan kereta *yang warna putih* and letak belakang kereta kuning.
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