PRAGMATIC DEVELOPMENT OF MANDARIN-SPEAKING CHILDREN FROM 14 MONTHS T0 32 MONTHS

By

ZHOU JING

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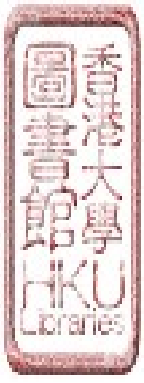

Declaration

I declare that this thesis represents my own work， except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation or report submitted to this university or to any other institution for a degree, diploma, or other qualification.

Signed ----------

Zhou Jing

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Abstract of thesis entitled

Pragmatic Development of Mandarin-speaking Children From 14 Months to 32 Months

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The development of communicative acts is a significant component of early pragmatic language acquisition. Recent research distinguishes communicative acts at two levels: children's ability to make purposeful interchanges with others in a social context and their ability to express communicative meaning through utterances. Learning to master communicative acts involves the development of children's linguistic expression, as well as their social and cognitive abilities for intentional interaction. Although increasing attention has been devoted to communicative act acquisition, as well as to pragmatic development, we know relatively little about how these develop in Chinese children.

This study aims to explore the development of communicative acts in Mandarin-speaking children aged from 14 to 32 months, as they interact with their mothers. The study looks particularly at the developmental process and the influence of Chinese linguistic and social factors. The study is both longitudinal and cross-sectional. Information was collected both from the audiotapes of a long-term observation of the spontaneous interaction between one child and her mother and from the videotapes of semi-structured mother-child interactions between groups of children and their mothers at different age groups. The procedure for the groups of children followed the design of a recent Harvard study. This study has both descriptive and predictive goals, so a combination of quantitative and qualitative

methods has been used to test theoretical hypotheses and to examine the actual variation in the patterns of communicative acts and relevant syntactic development in young Chinese young children.

This thesis delivers three sets of findings. The first reveals a growing repertoire of communicative acts in Mandarin-speaking young children. Children's acquisition of communicative acts can be indicated quantitatively with the increasing number of types and frequency of use and qualitatively by means of the degree of interpretability, the emergence of new types and the level of joint attention. In comparison to American children, Chinese children show a similar rate but a different pattern in their development of communicative acts. The second set of findings shows the complexities of the relationship between pragmatic and syntactic development. The evidence of the emergence of communicative acts shows that two language domains support and limit each other, suggesting that these two aspects of language work together in the performance of communicative acts. Thirdly, the findings show that Chinese mothers have their own characteristic ways of communicating and transmitting cultural information in their interactions with their children. Information exchange is the central task for a Chinese mother, which may be understood as a cultural focus in the mother-child communication. This cultural emphasis brings special characteristics to children's development of communicative acts and helps to fashion Chinese children into Chinese communicators. Therefore, the findings in this study propose that when Chinese children are compared with American children, similar rates of pragmatic progress suggest a universal ability. However, differences in the pattern of communicative intentions suggest specific contributions of Chinese social and linguistic factors.

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Chapter 1

Introduction

The question of pragmatic development is not a new one for the study of child language. It has received increasing attention in the last thirty years and has established its place in the field. Communicative acts have been widely accepted as significant components of early pragmatic development within language acquisition. Learning to master communicative acts involves the development of children's linguistic expression, as well as the social and cognitive abilities necessary for intentional interaction. Recently, researchers have noted that young children acquire communicative acts gradually, based on increasing interpretability and frequency, during their daily interaction with their caregivers. However, we know relatively little about pragmatic development in Chinese children, and even less about their development of communicative acts.

The development of communicative acts may depend on and facilitate advances in other language domains. For example, some researchers believe that syntax development may support aspects of communicative development. Other researchers place an emphasis on ways in which children's communicative acts, rooted in social contexts, support their linguistic abilities. Evidence regarding these proposed relationships is still incomplete.

It is also important to understand which factors affect children's learning of communicative acts. Research has demonstrated how mother-child interactions

convey socio-cultural information that has great influence on young children's development. New studies have also revealed that features of mother-child interactions are culturally specific. Research on young Mandarin-speaking children indicates that the communicative behaviors of these children display unique characteristics (Chen et al. 1997, 2000; Le et al. 1997). In general, investigation into child-mother interaction from the communicative point of view may reveal how children learn to be cultural communicators.

The aim of this study is to explore the development of communicative acts in Mandarin-speaking children aged from 14 to 32 months, as they interact with their mothers, looking particularly at the relationship between pragmatic and syntactic development. This study is both longitudinal and cross-sectional: we collected information from a long-term observation of a single child and from groups of children at different ages. As our study has both descriptive and predictive goals, we used a combination of quantitative and qualitative methods to test theoretical hypotheses and to examine the actual variation in the patterns of communicative acts and syntactic development in young Chinese young children.

Chapter 2 reviews the literature on the development of communicative acts and on relevant research methods. It reviews research concerned with the acquisition of communicative intentions, the definition of communicative acts, the study of pragmatic development, the measurement of communicative intentions, and theoretical issues related to communicative acts. The review also examines different perspectives on how children learn language and how they learn to use language. It looks at the theoretical debate, which has centered on the relationship between

language subsystems. It summarizes both the theoretical arguments about the relationship between language subsystems and the methodological issues relevant to the study of communicative acts in relation to other language subsystems. The chapter also reviews some recent research that brings a fresh perspective to the culturally specific influence of mother-child interaction on child development, focusing on Chinese mother-child relationships. This chapter draws attention to what research into the development of communicative acts in Chinese children is still required. It ends with three questions relating to this study:

- What is the nature of the development of communicative acts in Chinese children?
- What is the relationship between pragmatic and syntactic development in the communicative acts of Chinese children?
- How does Chinese mother-child interaction represent and transmit Chinese values and behavior patterns and how do these socio-cultural characteristics influence children's learning of communicative acts?

Chapter 3 sets out to develop a methodology for investigating the developmental process of Chinese communicative acts. The first section shows how we framed the overall hypotheses derived from the literature review into research questions that we would answer empirically. Then, we present the rationale for collecting two kinds of data, the procedures for data collection and transcription, and the framework for analyzing social contexts. In the next section, we describe our methods for analyzing the quantitative data. We discuss the information on the design and coding of the results and the reliability of the coding process. The last section in this chapter describes the qualitative analyses and why they are integral to the inquiry.

Chapters 4 and 5 present the main findings of the study. Chapter 4 presents the results from the quantitative measures used in relation to the groups of children studied at 14, 20, 26 and 32 months. Using the INCA-A measuring technique, we tracked the expansion of the children's communicative repertoire over the period of the study. There was an increase in the types of communicative acts at all three time points, together with a decreasing proportion of uninterpretable communicative attempts. The most significant development was in the frequency and intelligibility of communicative acts during the period under study. A comparison of the repertoire and proportions of communicative acts indicates both similarities and differences between Chinese children and the American children who participated in the Harvard study (Snow et al.1996). This finding suggests that we have to consider cultural and linguistic differences when we look for determinants of human development.

Chapter 4 also analyzes syntactic development in these children quantitatively. Over the study period, the children showed an increase in both their mean length of utterance (MLU) and in the mean length of their longest five utterances (MLU 5). From an examination of the relationship between children's communicative acts and these syntactic measures, we found that MLU and MLU 5 correlated with Speech Act and Pragmatic Flexibility in a positively stable way at 14 months, 20 months and 26 months, but not at 32 months. Both MLU and MLU 5 were associated with the number of Interchange types at age 14 months, 26 months and 32 months, but not at 20 months. This suggests a complicated, cross-domain relationship between aspects of pragmatic ability and syntactic knowledge at particular periods of development. A further examination of MLU 5 found that the most frequent syntactic examples are declaratives and that there were very few negatives at any age. Questions emerge with

a low frequency at the later two ages. Pragmatically, the children mostly use the social interchanges of: directing a hearer's attention, negotiating an immediate activity, and discussing a joint focus. That is, there is a marked interaction between a higher level of syntax and a familiar communicative context.

Chinese mothers used a simple format for talking with their prelinguistic children of 14 months and they sustained this simple format in their interactional efforts, even as the children's communicative skills increased. In comparison to the American mothers in the Harvard study, Chinese mothers had a smaller repertoire of communicative acts, but they demonstrated their intentions by their frequent use of these limited types. A few types of communicative acts that are popular among American mothers do not appear in the list for Chinese mothers and these types are rare in the Chinese children's communicative behavior. Analyses show strong correlations between the communicative acts of mothers and children, especially between speech acts and pragmatic flexibility at the later three stages. These findings suggest that Chinese mothers have their own characteristic ways of communicating and transmitting cultural information in interaction with their children.

The findings from the quantitative analyses point to the need for longitudinal research data and qualitative observation, in order to confirm the trends demonstrated in this chapter. Therefore, we conducted qualitative analysis to explore further the developmental process of communicative acts for Chinese children.

Chapter 5 presents the results from the longitudinal of a monolingual Mandarin girl called Haohao. The observations of Haohao's emerging speech reveal

some qualitative developments in her communicative acts, suggesting that children learn to express communicative intentions in a developmental sequence that moves from focusing on a physically present, concrete situation, to a non-present, abstract context. The emergence of various Speech Act types shows the child's acquisition process going from a response to an active initiation, from talking from her own point of view to perceiving others' perspectives. Haohao also increasingly combined various Social Interchange types with different Speech Acts so that her pragmatic use of language became more flexible. This observation matched a similar pattern of development in the cross-sectional data. Certain types of communicative acts found in American children were not popular among the Chinese children.

Chapter 5 describes how the observation of the relationship between two language domains provides a complicated model of the way in which pragmatics and syntax combine in the development of children's communicative acts. It was true that Haohao started to communicate successfully without mature language abilities. However, the observation of Social Interchange levels showed that she became skilled at each Social Interchange type only after practice and with enough support from appropriate syntactical expressions. This indicates an interaction between increased control of syntax and variation in communicative expression. At the Speech Act level, the observation also revealed within-type syntactic changes. For example, Haohao's use of a familiar speech type used different syntactic devices within familiar social interchange types. Meanwhile, some new types of Speech Act and syntactic changes were emerging together, suggesting that these speech acts emerge when the children's syntactic development is ready. Haohao used some Speech Act types that required only short, simply syntactic structures. These speech acts show how children learn

pragmatic awareness at the same time as they pick up appropriate utterances to serve their conversational needs. Further, the observation of a few Speech Act types provided evidence to explain why Chinese children used these types late in comparison to American children.

The observation of the interaction between Haohao and her mother supported the results of the quantitative analysis of the cross-sectional data. At all stages, the Chinese mother's focus in her interactions with her child was on discussion. She used several strategies to get her child to exchange more information and she asked many questions to get her child to discuss different topics. We found that the mothers were successful because, during the study period as a whole, the children gradually became very fluent discussants. The analysis of the mothers' communicative acts indicates that information exchange is the central task for Chinese mothers, which one may view as a cultural emphasis in mother-child communication. This cultural emphasis brings special characteristics to children's development of communicative acts.

The final chapter summarizes the results of the study described in this thesis. It concludes that children's communicative acts develop both quantitatively, as indicated by the increasing number of types and frequency of use, and qualitatively, as indicated by increasing interpretability, the emergence of new types, and improvements in the level of joint attention. The chapter also discusses the complexities of the relationship between pragmatic and syntactic development and suggests a process of integration, in which these two aspects of language work together to form communicative acts. When we compare Chinese children with each other or with American children, similar rates of pragmatic progress confirm

universal ability. However, differences in the pattern of communicative intentions suggest specific contributions of Chinese social and linguistic factors. Embedded in the Chinese mothers' communicative acts is a cultural focus on the delivery of information. This helps to fashion Chinese children into Chinese communicators. Finally, the chapter considers the need for further research with children from different background and various age groups.

Chapter 2

Acquiring Communicative Acts

2.1 Introduction

This chapter reviews research on three topics: the nature of acquisition of communicative acts, relationships between pragmatics and syntax in the acquisition of communicative acts, and cultural and linguistic factors affecting the acquisition of communicative acts in Mandarin-speaking young children.

First, we summarize the research on the acquisition of communicative acts during early childhood. Second, we review theoretical perspectives and methodological issues that throw light on relationships across communicative acts and other language subsystems. Third, we review the literature on cross-cultural and cross-linguistic influences on children's learning of communicative acts. The characteristics of the Chinese mother-child relationships and linguistic features of Mandarin are illustrated in order to find out how cultural and linguistic information is conveyed, and how this information influences the process of children becoming successful communicators. The chapter closes with a statement of several resear hypotheses that emerge from an overall consideration of the literature reviewed in th chapter.

2.2. Research on the acquisition of communicative acts

The purpose of this section is to review research concerned with the acquisition of the knowledge of communicative intentions, the definition of communicative acts, the study of pragmatic development, the measurement of communicative intentions using a coding system, and theoretical issues related to communicative acts.

2.2.1 The place of communicative acts in pragmatic development

The study of pragmatics, or language in context, originated from the theoretical work of the British philosopher John Austin (1962) and his student John Searle (1969). In their view, people used utterances not just to say things, but also to perform social acts such as promising, requesting or warning. Searle (1969) proposed that the speaker's intended meaning, as an illocutionary force, motivated each of their speech acts. Searle (1969) differentiated the illocutionary force of an utterance from its effect on a listener. A speech act analysis, then, describes how linguistic performances operate between speaker and listener. This limited definition of pragmatics as it related to development has been dramatically expanded in the last 30 years.

In a recent study, Ninio and Snow (1996) point out that pragmatic development is a domain of child language study in which researchers focus on how children acquire the knowledge necessary for the appropriate, effective, rule-governed employment of speech in interpersonal situations. Ninio and Snow illustrate the range

of definitions of "pragmatic development" by listing several topics that researchers are currently working on the examination. The acquisition of communicative acts is the first topic regarding to the study of pragmatic development.

The present research focuses on communicative acts. The communicative acts have been called speech acts in some work (e.g. Searle, 1969; Astington, 1988; Dore, 1975; Greenfield & Smith, 1976; Garvey, 1974; Oller & Hilers, 1989), and communicative competence by others (e.g. Dale, 1980; Golinkoff, 1983). Most researchers who have carried out studies on communicative acts agree that their research describes children's development of the sort of communicative intentions that they express in their interaction with others.

Ninio and Snow (1994, 1996) define communicative acts in a more comprehensive way. They point out that the acquisition of communicative acts includes the development of children's linguistic expression as well as the conduct of communication before the emergence of speech, by vocalization and gestures. Further, Ninio and Snow distinguish two levels of communicative acts. The first is the level of the social interchanges in which speakers encode their communicative intentions. For example, children may direct their interlocutor's attention by gesture or by verbal expression, or children may negotiate to carry out an immediate activity, etc. The second level is that of a speech act, which expresses the speaker's communicative meaning, such as a request, a statement, and so on (Ninio et al. 1994; Ninio & Snow 1996; Snow et al. 1996.) These two levels of communicative acts distinguish between pragmatic contexts and specific communicative expression within these contexts. These researchers also believe that children's developing capacity to expre

communicative intentions verbally reflects developments in their cognitive abilities and their social understandings, as well as more strictly linguistic skills (Ninio & Snow, 1996; Snow et al. 1996). The generation of verbally expressed communicative acts is a componential skill involving: (a) intentionality or having the will to affect an addressee by some purposeful behavior; and (b) control of communicative intentionality, that is the formulation of intentions concerned with achieving an understanding of a message by an addressee (Ninio & Snow, 1996). Meanwhile, skillful communicative acts involve the control of various communicative intentions, encompassing different types of social-cognitive and linguistic concepts, and the ability to express intentions conventionally, effectively and politely (Snow et al. 1996).

2.2.2 Specific issues arising from research on communicative acts

Since the mid 1970's, a considerable research effort has been devoted to investigating the acquisition of communicative acts. There is general agreement upon some points. Children are highly socially interactive, differentially responsive to social and nonsocial stimuli, and able to produce behaviors that are interpreted as explicitly communicative by adults. Before the onset of speech, children's intentional communications are likely to be expressed through gestures, vocalizations, idiosyncratic phonetic forms, or combinations of these. In the early years of life, children gradually use more utterances containing forms of meaningful expression to convey their communicative intentions (e.g. Bates et al.1975; Dore, 1974, 1975, 1978; Greenfield & Smith, 1976; Golinkoff 1983; MacShane, 1980; Morford & Goldin-

Meadow, 1992; Ninio & Snow, 1996; Snow, 1977; 1999; Snow et al. 1996; Tough, 1977).

In trying to classify research on communicative acts, Ninio and Snow (1994, 1996) found that the main problem regarding the research on child communicative acts is the lack of a generally agree-upon measure of development. Different researchers have coded children's pragmatic acquisition using different categories. For example, Halliday (1975) provides a set of categories that cover a broad developmental range: instrumental, regulatory, interactional, personal, heuristic, imaginative and informative. Greenfield & Smith (1976) propose the following categories: performatives, indicative object, volition, dative, objective, agent, action, location, animate, and modification. Tough (1977) classifies children's use of language within a framework of 37 strategies, such as directive, interpretive, projective, and relational. Dore (1978) elaborates on an earlier phase with 38 distinctions, including: requestives, assertives, responsives, regulatives, expressives, performatives, and so on. MacShane (1980) divides communicative function into 16 categories and groups them together under the headings of regulation, statement, exchange, personal, and conversation. In contrast to these relatively elaborate schemes, Bates, Camaioni & Volterra (1975) restricted their attention to just two pragmatic functions: the imperative and the declarative. Apart from these widely used categories, there were several systems concerned with a certain subset of formal structures of communicative categories. For example, Keenan (1977) looks only at repetitions in child language use. Garvey (1975, 1977) codes for requests and clarification requests.

Researchers have found that the disagreement in previous studies stems from different criteria for discriminating between distinct types of communicative acts. In other words, the variety of category systems clearly demonstrates that the identification and categorization of communicative acts differs across the investigators (Dale, 1980; Ninio & Snow, 1996). Unlike vocabulary testing or grammatical assessment, different researchers operate with dissimilar conceptions of speech usage (Snow et al., 1996). Some researchers take the speech act as the basic unit of linguistic communication and their coding system reflects something close to illocutionary force at the utterance level (Dore, 1975, 1978). Other researchers adopt a very different way of making distinctions at a cognitive level, though they still classify the production of communicative acts as a function of language (Tough, 1977). These disagreements have led the taxonomies to differ in the extent to which they are:

(a) theoretically grounded;

(b) capture communicative intentions, as distinct from lexical, syntactic or other formal aspects of language;

(c) allow for multiple levels of analysis (i.e., utterance level, social interactional level, and conversational level);

(d) detect developmental changes; and

(e) capture a full range of communicative intentions expressed from early preverbal stages through to full adult competency (Ninio, et al. 1994; Ninio and Snow 1996).

Because of this variation, the findings are not comparable across studies (Ninio & Snow, 1996). This makes a synthesized understanding of research findings extremely difficult (Rollins, 1996).

2.2.3 INCA-A and related studies

Based on theoretical literature in anthropology, sociology, and the philosophy of language (Austin, 1962; Bateson, 1955; Goffman, 1974; Halliday, 1975; Searle, 1969), Ninio and Snow propose two criteria considered for the identification of a meaningful verbal communicative act. The first criterion is the form of the language use, which can be conventional or semi-conventional in the linguistic code of the speaker's community. The second criterion is the function of the language used, here, when a speaker's utterance is amenable to interpretation by its addressee as an intentional social act (Ninio & Snow, 1996). According to Ninio and Snow, the two related criteria represent the main characteristics of meaningful speech used to convey messages of communication as a social or culturally determined behavior and thus an important contribution to how a developing child becomes a member of human society (Ninio & Snow, 1996).

With this strong theoretical justification, Ninio et al (1991) proposed the Inventory of Communicative Acts-Abridged (INCA-A), a system for coding communicative intent. (See Chapter 3 for a discussion of how to code communicative intentions within the system and Appendix A for a complete list of coding categories.) This system is an abridged version of the system developed by Ninio and Wheeler (1984). The INCA-A is designed to be used with reference to a face- to- face interaction, and to code communicative intentions both at the utterance level and at the social interchange level in which the utterance is embedded. This is developmentally sensitive coding system to the whole repertoire of children's

communicative acts, and can be used for a full range of communicative intentions from preverbal to adult (Ninio & Snow, 1996; Rollins, 1994; Snow et al. 1996).

INCA-A codes children's communicative acts at three levels. First, there is the Social Interchange level, which refers to communicative intentions, including *Negotiations*, *Markings*, *Discussions*, *Performs,* and so on. Interchange categories distinguish verbal exchanges not only by the kind of effect they have on social interaction but also by the effect they have on states and events. Second, there is the Speech Act level, which codes the communicative function of the single utterance that is classified within the relevant interchange, for example, *statement*, *request* or *refusal*. Each of these illocutionary acts has own unique communicative meaning. Third, there is the Social Interchange and Speech Act Combination level, which is also called the level of Pragmatic Flexibility. This category involves speech acts in interchanges like NIA: RP *suggest the initiation of a new activity* (e.g., Let's do a puzzle now) and NIA: AD *agrees to the proposed new activity* (e.g., OK) (See Ninio and Snow 1996; Ninio et al., 1993; Snow et al. 1996).

In a laboratory study conducted by Snow and her colleagues, INCA-A was used with a group of typically developing children and their mothers when the children were 14, 20, and 32 months. Researchers reported that measures of a number of different communicative intentions derived from INCA-A were developmentally sensitive (Snow et al., 1993, 1996). The results showed that, as a group, the children's number of communicative attempts per minute increased over the 18 month period from 4.37 to 11.2, the proportion of attempts which were interpretable from .47 to .94, and the number of Interchange types from 4 to 8.5 and Speech Act types were from

3.79 to 14.4. The Pragmatic Flexibility score, a measure of the combined Interchange and Speech Act levels, increased over the 18-month period from 5.13 to 22.7 (Snow et al., 1996). While these typically developing children expanded their communicative repertoire over time, the majority of them used three social interchange categories consistently through the period from 14 to 32 months. Thus Snow et al. (1996) announced that they had found a set of key communicative interchange types: NIA- negotiating an immediate activity, DJF- discussing a joint focus of attention and DHA- directing of hearer's attention to objects or events in the environment. As they got older, the children began to use interchange types which were cognitively more demanding, such as DNP-asking questions about non-present objects, or DRP- discussing related items or events in the immediate environment (Snow et al., 1996). Further, on average the children used more speech act types in their whole repertoire and within the three major interchanges over the period from 14 to 32 months. Some types such as SA-answer to wh-question or ST-statement occurred more frequently as the children grew older (Snow et al., 1996). Snow et al. (1996) indicated that pragmatic difficulty should be looked at in conjunction with syntactic difficulty as a way of understanding the determinants of development.

Rollins et al. (1994) used INCA-A to study the communicative skills of five children with specific language impairment (SLI) in a home-play environment, in comparison to their language age equivalent siblings. The results from this study showed that the performance of SLI children at each communicative level wa generally comparable to their sibling pair and suggested that INCA-A has importan strengths in revealing the pragmatic skills involved in language impairment. Howeve Rollins et al. (1994) found that the SLI children demonstrated a more varied repertoir

at the level of pragmatic flexibility and that they appeared to initiate a higher proportion of Discuss Non-Present (DNP), Discuss Fantasy World (DFW) and some other interchange types than their younger, normally developing siblings. The difference of age and situation may be the reasons for the variations of the children's performance.

Another longitudinal investigation, conducted by a previous researcher and analyzed by Rollins using INCA-A, focused on six children with autism aged from 4 to 24 months (Rollins, 1994; Rollins et al. 1994). In the unstructured parent-child interactions, Rollins (1995) found that children with autism showed a negative growth in pragmatics as compared to Down syndrome controls. The communicative repertoires of the children with autism were qualitatively different and the main problem the children had was a lack of joint attention and the sharing of a joint focus. This study again demonstrates that INCA-A is a coding system highly valued for revealing differences of pragmatic skills among language disordered children and for discovering developmental differences between the pragmatic subsystem and other subsystems of language (Rollins, 1994).

What is the nature of the communicative development of young Mandarin-speaking children? What will be the situation if we use the INCA-A with children from another cultural and linguistic background than those with whom it was first developed? To date, no research has been devoted to these two questions. From a review of the relevant literature two questions emerge:

- What is the developmental process of the communicative acts of Mandarin-speaking young children? Is it similar to or different from English-speaking children?
- Is the INCA-A capable or not capable of measuring children's communicative acts in other cultures and languages?

2.3 The relationship between development of communicative acts and other language domains

Language development involves the acquisition of several subsystems - phonology, semantics, syntax, and pragmatics. Discussions about how children acquire language have focused on two basic questions: how does language emerge and what facilitates this process (Snow, 1999). In this part of the literature review, we intend to summarize the arguments from (a) theoretical approaches to the relationship between language subsystems and (b) methodological issues in the study of communicative acts in relation to other language subsystems. This is important for the establishment of a strong basis for understanding what features of the environment support child's language learning.

2.3.1 Theoretical perspectives on the relationship between language subsystems

The debate here has focused on specifying what the preconditions are for language emergence, or which language domain is the most crucial for language emergence (Snow, 1999). This sometimes referred to as "bootstrapping theory." Children use what they already know to learn more, thereby achieving their own success. In idiomatic language, they pull themselves up by their bootstraps (Shatz, 1987).

One approach to the problem solution is the Semantic Bootstrapping hypothesis. Macnamara (1972) proposed this theory first and later Pinker coined the

term "semantic bootstrapping" (1984, 1995). This theory tends to identify one language domain, semantics, as the driving forces behind the child's capacity to pry open the mystery of language (Pinker, 1984,1995). The basic idea behind of semantic bootstrapping is that children have some pre-or nonlinguistic capacity, that is a cognitive capacity, from which a more complex and elaborated system of language can develop (Macnamara, 1972; Pinker, 1984, 1995).

Several major hypotheses concerning bootstrapping have been offered: (a) children are supposed to use cognitive capacities to understand something that is happening while listening to adults talk about same event; (b) children's observation of the event and their cognitive capacities together give them access to some basis for understanding the structure of the sentences used to describe particular events; (c) children must keep an updated mental model of the current situation in order to perceive objects and events, as well as the states of mind and the communicative intentions of other people. Therefore, the assumption of context-derived semantic input is a reasonable understanding (Macnamara, 1972; Pinker, 1984; 1995).

Pinker (1984; 1995) gave this example to illustrate semantic bootstrapping. The child watched a large animal spraying water on a tree and heard one of these forms: *the elephant is spraying water on the tree/ the elephant is spraying water/ the elephant is spraying the tree/ elephant is spraying the tree with water*. The holders of the bootstrapping approach hypothesize language learning in the following ways. First, the child uses semantics as evidence for the presence of grammatical entities. For instance, one may take the names of persons and things as indicating nouns, actions as indicating verbs, attributes as indicating adjectives, spatial relations or directions-

prepositions. As far as grammatical functions are concerned, the agent of actions and the causes of events may relate to subjects; sources, locations, and instruments may relate to oblique objects, patients, and themes to objects. Second, the fact that actors usually come first and patients usually come second, may ultimately lead the child to a generalization or a rule, an awareness that he or she was dealing with a language that used word order in general, and SVO order in particular, to express major syntactic relations. Through the generalization of the SVO rule, children will learn about animate-inanimate order, following the experience of a particular instance such as *the elephant sprayed the zookeeper with water* (Pinker, 1984). Moreover, if the same English-speaking child hears this particular scene described in other phrases, there may be varing word order but there will be reliable morphological marking of the subject and direct object relations. The irrelevance of word order and the reliability of suffixes could lead the child to the conclusion that he or she was meant to be learning a language that marked major syntactic relations morphologically and that his task as a learner was to figure out the morphological co-occurrences of form and meaning. Within this perspective, therefore, children's grammatical acquisition starts only after they reach some level of lexical sophistication (Macnamara, 1982; Pinker, 1984, 1995).

Other researchers have challenged the semantic bootstrapping approach. First, it has not explained how children become able to distinguish events that need to be described using the local linguistic device, those that need to be expressed using a quite different device, or intentions and negations. Second, children have to understand what is going on in the world in order to be able to use semantic

bootstrapping, but to our knowledge, children also learn about the world through learning language (Snow, 1999).

Gleitman and her colleagues (Gleitman, 1990) proposed a syntactical bootstrapping approach to reject the semantic bootstrapping theory. They use information about the structures in which verbs appear as a source of information about what the verb might mean, rather than the other way around, implying that syntax takes precedence. Gleitman and her colleagues claimed that there was limited information in scenes that could help children to choose an appropriate verb but there was quite a lot of information in the syntactic structures about what the meaning of the verb might be. Besides, they believed that the sentence constrained the meaning of verb, rather than the verb meaning illuminating the structure of the sentence, because adults were quite good at guessing what verb occurred within particular syntactic frames, although not very good at guessing what verb co-occurred with a particular scene (Gleitman, 1990).

The details of the syntactic bootstrapping approach have been partially accepted by other researchers, for children are quite good at keeping track of co-occurrences, even meaningless ones and children track the argument structure in which verbs occur as a way to learn about new ones (Snow, 1999). Aslin et al. (1999) also demonstrated an early capacity in children to keep track of co-occurrences and to learn much more complex co-occurrence systems through gender or noun declension. However, the syntactic bootstrapping theory has met with criticism from some researchers for: (a) even if children's tracking of co-occurrence could be a way to learn new words, it might not allow them access to grammar (Aslin et al., 1999; Snow,

1999). (b) Snow (1999) cited an early proposition put forward by Maratsos (1988) which predicted that the mechanism for acquiring word classes and gender might well become active later rather than earlier in children's development, therefore they believed that syntactic bootstrapping proposed an approach to children's learning that did not fit with what people know about children.

Both semantic bootstrapping and syntactic bootstrapping have been challenged by another approach, pragmatic precocity. Snow (1996; also see Snow et al. 1996) suggests that we should take a close look at what children are good at, rather than focus on those abilities they have not yet mastered. In particular, Snow (1999) believes that children have a precocious understanding of social relations and that their most advanced uses of language are grounded in this understanding. She emphasizes the role of parents in fostering language development because the happy coincidence of infant perceptual and attentional processes and adult responsive tendencies generates social activity that, in turn, is transformed into social interaction (Snow, 1999). Children's social interactive abilities and their social understanding provide the early platform from which children begin to use language (Snow, 1999). The theory of social-pragmatic precocity is supported by evidence from early language research.

1. Many studies have shown that early social interaction between young children and their parents is the source of their language learning (e.g. Bates et at. 1975; Bruner, 1983; Pan et al. 1996; Snow, 1977; Snow et al. 1996).

2. Other research has reported that children first acquire vocal language for the purposes of participating in social interaction rather than as a means for conveying information or even for achieving instrumental ends. For example, Tomasello and his colleagues (1995) carried out a study, highlighting that the infant's emerging understanding that other persons are intentional agents is as important as their lexical development. Another well-known study, conducted by Bates and her colleagues (1975), showed that infants, through gestures such as pointing or showing, ensure mutual attention with persons in their environment before their first words emerge.

3. Researchers also provide evidence that children's social-pragmatic capacities increase steadily while they are gaining other language abilities. For instance, in the longitudinal study carried out by Snow et al. (1996), the frequency of children's communicative behaviors increased during the period of 14 to 32 months, despite constant parental rates of communication (Pan et al., 1996).

4. Other studies have revealed that the communicative intentions children acquire in their interaction with others have an effect on their language learning. Goldfield (1990) and Tomasello et al. (1983; 1990; 1995) pointed out the importance of joint attentional formats as sources of language learning. Rollins (1994) studied children with autism came up with a further finding, that, during the period of the study, the six autistic children who had produced communicative acts intended to regulate attention, also made progress with grammar.

5. Snow et al. (1996) found moderate correlations between indices pragmatic development at 14 months and size of the lexicon at the same age, as w

as correlations between pragmatic and grammatical measures at 20 months. Snow (1999) reported that these findings were consisted with their initial hypothesis that communicative accomplishments constitute a source of formal language learning.

The discussion of social-pragmatic precocity has not convinced all researchers in the field of child language study. Some researchers are making further contributions to the examination of cross- domain relations in child language development. Bates and Goodman (1999) looked at a wide variety of special populations including Down syndrome children, late talkers, precocious talkers, children with brain lesions and Williams syndromes children and they carried out an examination of correlations between lexicon and grammar across the first 2 years of language acquisition. They claimed that syntactic forms emerged from lexical learning. MacDonald (1999) also examined how grammar emerged from language usage. She argued that the incremental shape of sentence processing emerges from distributional forces in the language, which included a full understanding of the role of the relationships between comprehension, production, and acquisition. MacWhinney (1999) argued that the form of comprehension, production and acquisition emerged from underlying cognitive pressures and he saw syntactic form as emerging from a process of perspective-taking in which both listener and speaker utilise an embodied representation of meaning of a sentence. He tried to link linguistic form to the activity of perspective taking across four cognitive levels, including affordances, spatial frames, causal action frames, and social frames (MacWhinney, 1999). The discussion of the relationship between language domains has a long way to go before reaching a conclusion. Cross-cultural and cross-language data are needed to inform the debate.

2.3.2 Measuring the relationship between communicative acts and other language subsystems

Measuring cross-domain relationships has been a difficult task since the beginning of research on language development. Interpreting observations or developing theoretical ideas from discussing examples is the basic method for some researchers. It is not too surprising to see that both semantic bootstrapping and syntactic bootstrapping draw on Brown's data to support their findings in very conflicting ways (see Pinker, 1985, 1995; Gleitman, 1990).

It has been quite acceptable to child language researchers to use correlations to measure inter-domain relationships. Early on, Dale (1980) tried to correlate children's pragmatic functions, their MLU, and their age. The results showed that the number of pragmatic functions that 4 children had from age 1;0 to 2;0 was highly correlated to their MLU measures and that the correlation was nonexistent (-0.07) when age was partialled out, reflecting the fact both measures were highly correlated with age (Dale, 1980). Adopting an individual growth model, Pan et al. (1993) summarized children's growth in lexical, morphosyntactic and conversational skills at 1; 2, 1; 8 and 2; 8 and found some results relevant to multiple domain measuring. It is not surprising to see that the highest positive correlation was always between measures in the same domain, such as Word Type to Word Token, or MLU to MLU5, and Turn* to MLT* (Pan et al. 1993). The cross-domain cohesion was not observed at 1; 2; but was found to be significantly positive at 1; 8. Surprisingly, at age 2; 8, the lexical measures and syntactic measures closely correlated. However, the measures of conversation skill were only partly correlated to lexical and syntactic measures such as MLT to MLU

(Pan et al., 1993). This study also suggested that the applicability of productive-based measures at very early ages might be more informative in longitudinal studies than in cross-sectional studies (Pan et al, 1993).

Snow et al. (1996) used correlation measures in their study of pragmatic development. In reporting children's increasing capacities for communicative acts at 14, 20 and 32 months, Snow et al. (1996) also found that, at all the three ages, the number of interchange types, speech act types and pragmatic flexibility showed high intercorrelations. In contrast to the high degree of association among pragmatic measures, measures of communicative ability all had positive correlations to lexical measures at the three stages, though these were low to moderate at 32 months (Snow et al., 1996). They found a sizeable correlation between communicative acts and syntactic measures of MLU but it was only moderate at 20 months (Snow, 1996). There is a need for further studies to explore whether this is a pattern of domain independence (Snow et al. 1996; Snow, 1999) or some other phenomenon.

Researchers have found that using correlations may indicate whether there are cohesive relationships across language domains but they cannot go further and demonstrate which one is the more powerful. After showing correlations between grammar and vocabulary growth at 20and 28 months, Bates and Goodman suggested that the two language domains have much in common (Bates & Goodman, 1999, p. 43). Rollins (1994) summarized the rate of progress on pragmatics, syntax, and lexicon for six autistic children, making careful comparisons to each control child with Down syndrome. She reported that only three of the six children, those who were able to establish and maintain shared attention with their parents, made developments

in syntactic skill that were of practical significance (see also Rollins & Snow, 1999). Imbens-Bailey & Pan (1998) give us a different insight into looking at pragmatics and other linguistic domains. By checking children's pragmatic usage, they found that a small set of specific communicative contexts appears to be important for their emerging use of self- and other-reference (Imbens-Bailey & Pan, 1998). This result showed that parent-child interaction provides an important context for children to work out the linguistic representation of their emerging selves. It is also a good example of a methodological approach that provides deeper information about pragmatics and other language domains.

The fundamental connection between development of communicative acts and other language subsystems is well established, yet the nature of their relationship is less clear. There are different perspectives on which language domain precedes the others. This leads us to further exploration to find where pragmatics fits into the development of child language. The issue of measuring revealing relationships among language domains also gives us a space to try better ways. As a summary to this section, we present following question as the basis for the present study:

- What is the nature of the relationship between pragmatic and syntactic development in relation to the communicative acts of Chinese children?

2.4 Factors affecting early communicative acts: cross-cultural and cross-language issues

Researchers have found that seven factors affect the order of the emergence of communicative acts. These are: (1) basic interactive goals; (2) role appropriateness; (3) learning to take another's perspective; (4) the directness of the relationship of talk to the interactive context; (5) the relative complexity of the social concepts underlying the verbal act; (6) the phonological skills necessary for the act; and (7) the syntactic or formal complexity of the language needed to express the communicative act (Ninio & Snow, 1996). Ninio & Snow (1996) organized these factors into two groups: social-cultural cognitive skills and formal linguistic skills, both of which affect children's use of communicative acts. It is easy to see that any children, who learn to master communicative acts, will never escape the influence both of their social-culture and their mother tongue. How do these influences work? What are the characteristics of Chinese culture and Mandarin linguistics that might affect children's communicative acts? With that in mind, a review of the literature on Chinese mother-child relationships and Mandarin syntactic characteristics related to child communicative acts is included here.

2.4.1 Social-cultural characteristics and Chinese mother-child relationships

Communicative acts used to be referred to by ethnographical researchers as "talking culture" because communicative interactions always carry cultural information, such as occupational careers, social indicators, dominant cultural values

and so on, representing certain populations in their social contexts (Moerman, 1988). Recently, one popular approach, called "cultural psychology," has provided a fresh perspective on child development. According to Rogoff (1990), the particular skills and orientation that children develop are rooted in the specific historical and cultural activities of the community in which children and their companions interact. Communications between children and their caregivers are everyday lessons that tailor skilled and valued cultural activities for the particular child (Rogoff, 1990). In this view, Rogoff et al. (1993) regards children's development as "guided participation"(Rogoff et al.1993, pp 1-17), occurring through their active participation in culturally structured activity with guidance, support, and challenge of companions who vary in skill and status. This guided participation contains attempts to keep individual, interpersonal, and cultural processes simultaneously in focus, representing inseparable aspects of whole events in which children and communities develop (Rogoff, 1993). So communicative acts are not seen as merely interactions between children and caregivers but take on a more important position in child development.

While people found developmental similarity across the communities in basic process of guided interactions between adults and children, increasingly researchers expect variation in the goals promoted from children's development reflecting whether children or adults are responsible for children's learning (Rogoff et al., 1993). Several previous studies support the view that cultural characteristics are embedded in parent-child interactions. For example, in the western middle-class populations that have been studied, the bridge between the adult's and their children's points of view is often constructed from the children's starting point. Building on their children's perspectives adults take a lower position in communication, to focus on the children's

direction of attention and to adjust their adult concepts to reach the children's understanding (Bruner, 1983; Ninio, 1984; Rogoff; 1986; Pan, et al. 1996). In other words, "adult lower"(Pan et al. p250, 1996) might be one of the behavioral characteristics of mother-child interaction in western middle- class families that influences their communicative acts.

Does Chinese parent-child interaction follow the western model? Specifically, do Chinese middle-class mothers and children show the same behaviors in communication? One cross-cultural study carried out by Chinese and American scholars presents us with very interesting results. Le et al. (1997) used an Internal Working Model (Bowlby, 1969; Cited from Le et al., 1997) and used a measure for the mother-child attachment (Main et al.1985; Also cited from Le et l., 1997) to study mother-child interactions in eight countries, including China, America, and other Asian and European countries. In this study, the researcher videotaped the interaction process of fourteen pairs of Chinese middle-class mothers and children, they also used subsequent interviews and questionnaires to investigate culture value influencing mothers (Le et al. 1997). It is interesting to discover that the cultural imperatives with the highest consistency for Chinese mothers were: (1) mother is like a teacher; (2) mothers should interact with their children by focusing on a task; (3) the child should be the center of his or her mother's attention (Le et al., 1997). Le et al. (1997) reported that Chinese mothers generally acted as teachers in the process of interaction, that the children were seen as their students and the center of their attention, that mothers and children were very focused on their tasks and that the mothers tried hard to teach their children both knowledge and skills. A view of the children as individuals was also found and the children seemed to be active and enjoying their

interactions. Chinese mothers showed hardly any emotion and had very little eye contact and physical contact with their children. However, they controlled the interaction process well and without any antagonism (Le et al. 1997).

In the cross-cultural comparison, the measures of the Chinese mothers' behavior all correlated to that of the mothers in the comparative study (Le et al. 1997). Not surprisingly, the three highest correlations were between participants from Asia: India, Korea, and Japan. There were higher correlations between the Chinese mothers and American working-class mothers (0.83) than between them and American middle-class mothers (0.70) (Le et al. 1997). In comparison, Chinese mothers spoke less than those mothers did in Indian, Korean, and Japanese, but Chinese mothers spoke more than mothers in America (Le et al. 1997).

While researchers exploring Chinese mother-child relationship, Chen et al. (1997, 2000) reported their finding that Chinese maternal educational levels related to their interactional attitudes toward their children. Compared with mother's who had low educational levels, mothers with high educational levels appeared to understand more the importance of inductive and rational parenting for social cognitive development in children, and they tended to use the exchange information strategy more with their children (Chen et al., 2000). This result may imply that Chinese mothers who had high educational background have changed their maternal attitudes However, authoritative and authoritarian child-rearing patterns, with differences o controlling less or more in mother's interacting strategies, were internally coheren constructs, and were relevant to mother-child interactions in Chinese culture (Chen e al., 2000). This indicates that Chinese mothers, no matter what kind of educational

levels they have, are still Chinese mothers and they are carrying Chinese cultural traditions in interaction with their children.

Though there is research on the characteristics of Chinese mother-child interaction, there is very little work on how these characteristics influence mother-child communicative acts. Thus, investigation into child-mother interaction from the communicative point of view may reveal great deal about how children learn to be cultural communicators.

2.4.2 Mandarin syntactic characteristics and children's communicative acts

Studies that target cross-linguistic children have demonstrated the cross-linguistic similarity and difference in early language development (e.g. Bates & Devescovi, 1989; Berman, 1986; Caselli et al. 1999; Slobin, 1973). Many linguists and psycholinguists have noted that Mandarin syntax does not fit western categories (e.g. Chao, 1968; Chang, 1992; Erbaugh, 1992; Li, 1995). The main characteristics of Mandarin syntax in ordinary discourse are that about half the spoken sentences are of topic-comment construction and the topic of the sentence needs not be the actor of the action verb (Chao, 1968). Chao calls these phenomena zero sentences, for many Mandarin sentences do not need a subject and subjectless sentences are the norm under certain conditions. However, many researchers reported a process of Chinese syntactic acquisition similar to that of English children: (1) an incomplete sentence stage, from single words to word combinations; (2) a simple sentence stage; (3) a compound sentence stage (Erbaugh, 1992; Li, 1995; Miao & Zhu, 1992). How do we

view this difference between Chinese linguists and child language researchers? Further study of how Chinese children express themselves in communicative contexts is necessary.

One of the main features of Mandarin syntax is the absence of flectional morphology (Chang, 1992). Chinese characters are the basic, independent units and consist of a single monosyllabic morpheme. Mandarin does not require the verb of a sentence to agree with the subject nor do verbs mark tense or voice (Chang, 1992). Some researchers have reported that there are a few Chinese words, such as "*before*" or "*later*," which are used as a tense marker and that *bei* is used as a passive marker by children acquiring syntax (Li et al. 1990; Chang, 1986). Zhou (1997) also pointed out that: *zhe, liao, guo, zai*, act as time markers in Mandarin Chinese and that children aged from 2; 5 to 3; 5 years gradually learned to use them to indicate the temporal reference of an event. These studies indicate how Chinese children learn to describe past or future events, ongoing or completed situations in ways that are different from Western children. According to Ninio & Snow (1996; also see Snow et al. 1996), in interaction with their mothers, English-speaking children first learn to discuss a joint focus in relation to the current situation. They learn to use other social interchange types later, such as DNP (discussing non-present) or DRE (discussing recent event). Are these cases more a cognitive constraint or a linguistic constraint? Do Chinese children follow this English pattern or do they have their own developmental pattern in the acquisition of communicative intentions? We should take features of Mandarin syntax into consideration.

It could be a question that the features of Chinese sentence structure in questions and negations be relevant to children's leaning of speech acts such as QN (ask a Wh-question), YQ (ask a yes/no question) or RQ (ask about hearer's wish). Mandarin does not require the verb change in questions or negation sentences to agree with the subject. However, there are some rules for changing word order when adding question or negative marks. Chinese researchers have categorized five types of Chinese question sentences and have undertaken some investigations into children's acquisition of the following forms.

1. Yes/no question: declarative sentence plus question mark *ma* or *ba*. This is the earliest type of question to emerge in children's speaking, at around the age of two (Li & Cheng, 1998).
2. Repeating question: declarative sentence plus "*yao bu yao*" or "*you mei you*". Children first understand these formats between the ages of 2;0 to 2; 6 months but learn to use them later (Li & Cheng, 1998).
3. Alternative questions: Zhen (1998, cited in Li & Cheng) reported that children understand all the alternative question sentences before the age of three and master their use by the age of four.
4. Particle response question: these questions are considered as a very special type of question in Chinese. For example, people ask " *zou ba?* (go)"instead of "shall we go now?". Li (1992) found their structure to be quite simple but that children understand them later than other types.
5. Informative questions. Researchers have found that Chinese children learn to produce *what*, *who* and *where* questions before the age of three, *when* and *how* questions at around four and *why* questions at about five (Li & Cheng, 1998; Zhu & Miao, 1992). One would like to know whether Chinese children

produce speech act types of QN and YQ depend on their use of syntactically mature of question forms.

As far as negative sentences are concerned, Chang (1992) indicates that Mandarin negation makes several distinctions that are not explicit in English. For example, rejection (*bu*), denial (*mei*), non-existence (*meiyou*) and an imperative form of prohibition (*mei* or *buyao*) are expressed by different negative particles. In the acquisition of Mandarin negation, a child must acquire the distinction as well as the appropriate application of these words and syntactically learn the proper place in a sentence for the negative particles (Chang, 1992). This characteristic of Mandarin syntax may give us a better understanding of children's acquisition of some speech act types, such as AN (negative answer to a Wh-question), RD (refuse to do something) and so on.

Among the syntactic structures peculiar to Mandarin Chinese is the " *ba*" sentence. Li et al. (1990) conducted research into the use of this construction by two to five year old children. The results of this study indicated that two-year-olds are already able to produce some basic patterns of *ba* sentences and that by the time they are four and a half, their use of these sentences is fairly close to that of adults, except for the two most difficult patterns, which are still absent from their utterances. However, the subject and object of *ba* sentences are often missing from children's speech at this age.

There are disagreements about the *ba* sentence form. Some researchers view it as a structure with Subject + *ba* + O + V (Chang, 1986) whereas others think the *ba*

sentence does not consist of this transformation of the SVO form (Li et al.1990). Ziegeler (1997) discussed the use of the *ba* particle as an example of retention, in ontogenetic and diachronic grammaticalization, of a full lexical verb, meaning to "take hold of" in ancient Chinese, which has the general grammatical function in modern Mandarin of an object marker. Thus, she concludes that the grammaticalization of items such as *ba* is inhibited in certain contexts. It will be interesting to see how children in the present research use the *ba* form to express their communicative intents.

The focus of this study is not on Chinese mother-child relationships or on Mandarin syntax, or on the syntactic development of Chinese children. However, these studies have facilitated a comprehensive exploration of work relevant to the understanding of the influence of both social-cultural and linguistic forms on the development of children's communicative acts. Therefore, this study includes testing the following two research questions:

- How do Chinese mother-child relationships bear Chinese values and behavior patterns? Will these social-cultural characteristics influence children's learning of communicative acts?
- How are the linguistic features of Mandarin syntax embedded in the process of language learning? Will these features affect children's acquisition of communicative acts?

2.5 Summary and research questions

Communicative acts are significant components of early pragmatic development and language acquisition. Learning to master communicative acts involves the development of children's linguistic expression, as well as their social and cognitive abilities for intentional interaction. It may be that young children gradually acquire the communicative acts in interaction with their caregivers. Thus, investigations into the frequency, nature, and quality of children's interpretable communicative attempts, communicative interchanges, speech acts and pragmatic flexibility may reveal a great deal about development of communicative acts. The development of communicative acts may relate to other language domains, especially to syntactic acquisition. Relevant research has indicated that one aspect of language acquisition may take precedence and that other aspects are grounded in or advanced by this earlier understanding. Research into the social-cultural and linguistic influences on Mandarin-speaking young children implies that the communicative acts of these children display particular characteristics.

In sum, research reviewed in this chapter yields several hypotheses concerning the development of the communicative acts of Mandarin-speaking young children in interaction with their mothers.

1. Children in different cultures, who speak different languages, may diverge from American patterns in specific ways, while sharing in some other aspects of these patterns.

2. The INCA-A, as a well developed coding system for measuring communicative acts, is valid for use with Chinese children.

3. The analysis of Ninio and Snow suggests that social communicative act predates syntactic development. The alternative to this hypothesis is that syntactic precocity is the driving force for pragmatic development.

4. The social-cultural characteristics transferred in Chinese mother-child interactions will affect children's learning of communicative acts.

5. Features of Mandarin syntax will affect children's use of language.

Chapters 4 and 5 analyze these hypotheses using longitudinal data and four groups of cross-sectional data.

Chapter 3

Research Design

3.1 Introduction

The goal of this study is to explore the development of communicative acts in Mandarin-speaking children aged from 14 to 32 months, as they interact with their mothers, looking particularly at the relationship between pragmatic and syntactic development. This study is both confirmatory and exploratory, in the sense that we use the data not only to test theoretical hypotheses but also to examine the actual variation in the patterns of communicative acts and syntactic development in young Chinese young children. As our study has both descriptive and predictive goals, we use the quantitative methods and the qualitative methods in combination.

In this chapter the questions guiding the research are set out and relevant methods of data collection described. The first section shows how we frame the overall hypotheses derived from the literature review (see Chapter 2) into specific research questions. Then, we present the rationale for collecting two kinds of data and the procedures for data collection and transcription. In the next section, we describe the methods for analyzing the quantitative data, discuss the coding procedure, and explain the reliability of the coding process. Finally, we describe the qualitative analysis used in this study, showing how the qualitative analyses are constructed and why each is integral to the inquiry.

3.2 Research questions addressed in the thesis

Here, we reformulate the research questions stated at the end of last chapter into three questions, each with specific subparts.

1. What is the exact developmental nature of communicative acts in Mandarin-speaking young children:
    a. What are Chinese children's early communicative capacities?
    b. How many communicative attempts are interpretable in the transition from the prelinguistic to the linguistic stages, in different age groups?
    c. How many different communicative interchange types do children express and what specific intentions are included in their early repertoire? Are any particular interchanges common across the parent-child pairs?
    d. What kinds of speech act do children express with their earliest communicative attempts and do most children begin by expressing the same set of speech acts?
    e. In the context of which interchange do children start to produce interpretable speech acts? Which interchanges permit the greatest variety of speech acts?

2. What is the relationship between pragmatic and syntactic development in relation to the communicative acts of Chinese children.
    a. How do these communicative indices relate to one another and to syntactic measures of MLU and MLU 5?
    b. What are the main syntactic changes in the context of which children learn to communicate verbally in *Discussion* with others?

c. How do the two language domains of pragmatics and syntax interact as they emerge in children's early communicative acts?

d. Is there any evidence that one drive influence the other communicative between two language domains, that is, does pragmatic development prior to syntactic development, or the other way round?

3. Does Chinese culture and the characteristics of Mandarin influence the development of children's communicative acts.

   a. What are the characteristics of Chinese mother-child interaction regard to Chinese mother-child using of communicative acts?

   b. Is there evidence that Chinese mother's communicative acts influence the children's use of communicative acts, in relating to Chinese cultural tradition?

   c. How do linguistic features of Mandarin syntax affect children's communicative acts? Specifically, how do they affect communicative interchanges, speech acts, and pragmatic flexibility?

3.3 Range of data

3.3.1 Cross-sectional data: collected from children in groups

The cross-sectional data analyzed here were collected in preschool programs in Nanjing, China, following the design of Harvard Project in the United States (Snow et al 1996). To match the age groups in the Harvard study, 30 mother-child pairs with 10 children in each group were selected at 14, 20 and 32 months. In order to balance

the pattern of language development, we added one group of 10 children aged 26 months. The difference in the age of the children in each of the groups was not more than one month. The present sample was also selected using the following criterion: that they should all be from Mandarin speaking families as parents speak Mandarin Chinese to their children in everyday life.

Parents and teachers reported no evidence of any hearing impairment or developmental delay in their children. There were equal numbers of girls and boys and, as is the case in China because of the one-child policy, all the children in the study are both the first born and only children in their families.

Another important criterion for selecting the children was the socioeconomic and educational background of families. These children come from four preschool programs located in the same area. Two of the preschool programs are at universities, one belongs to the provincial government, and one belongs to a large industrial enterprise. The families in this study deliberately represent a range of the socioeconomic status found in the middle class in China, as defined by both educational and occupational background. Most mothers in this study had graduated from university, while a few reported that they completed their education in a technical secondary school. The mothers are all white-collar workers, for example, government officers, editors, teachers, accountants, or technicians in factories.

3.3.2 Longitudinal data: collected from a single child

In this thesis, we used the data collected in a previous longitudinal study of Chinese language development, funded by the Chinese National Social Science

foundation (Zhou, 1992-1997). We chose to analyze the longitudinal data to match the cross-sectional groups at 14, 20, 26, and 32 months and thus ensure that observations of communicative acts and other developmental language trajectories can be compared. Haohao is a girl and her family background is the same socioeconomic status as the other children studied in this research. Haohao's mother has a two-year university certificate and works in the university library. Her father has a higher education background and is teaching in a university.

3.4 Data Collection and Transcription

3.4.1 Cross-sectional data collection

According to the basic principles of the Harvard study, we collected information from the groups of children using the following procedure: parent-child pairs were brought to a laboratory set up as a kindergarten classroom. For the American children in the Harvard study, this was a very unfamiliar situation. We arranged for the mother-child interactions in the present research to take place in the children's own kindergarten classrooms, first, because it was easier for parents and children to come and go and second, because it was easier for the children to warm up and participate in the interactions.

We videotaped each mother- child pair using a camera located in one corner of the room and operated by remote control. The investigator was in the room but was not involved in the conversation between mother and child. There was a warm-up period at the beginning, during which the parents and children were in the room with

a collection of toys and the mother was instructed to take a few minutes to let her child become accustomed to the setting. After the warm-up period, there was a semi-structured play period. Mother played with her child using the contents of four boxes. The four boxes contained:

(a) A ball for initiating the face-to face interaction between mother and child. A mother and her child can roll the ball to each other, throw the ball, or talk about the ball.

(b) A popular toy named Transformer to encourage the child and his or her mother talk and play together in the period. The content of this box was different from that used in the Harvard study, in which the toy was a cloth for playing peek-a-boo. The purpose of the peek-a-boo cloth was to initiate communication between mother and child. However, a pilot study for the present research found a cultural difference for Chinese mother-child communication. It seemed that Chinese mothers do not know how to use the cloth to play this game with their children. Traditionally, Chinese parents use their hands to play a similar game with their young babies. Some mothers in the pilot study used the cloth to clean their children's nose or face.

(c) A paper and crayons for the mother and her child to use to draw pictures and talk about them.

(d) A picture book with stories in Chinese, for initiating communication between mothers and children about reading, looking, talking and discussing related topics.

Parents were not instructed how long should be spent on each box but were asked to have only one box open at a time and to try to get to all four boxes in about 10 minutes. In fact, sessions were only terminated when the parent tried to engage the

child in all four activities at once. All the videotaped session lasted for about 20 minutes.

3.4.2 Longitudinal data collection

We collected the longitudinal data in the form of spontaneous, unstructured mother-child interactions. The four sessions were chosen from monthly follow-up observations of Haohao from her birth to the time she was four years old. In each session, Haohao was audio recorded for about 30 minutes, interacting with her mother in free play situation at home.

3.4.3 Data transcriptions

We transcribed both cross-sectional data in videotapes and longitudinal data in audiotapes onto computer files, and formatted in accordance with the *Codes for the Human Analysis of Transcripts* (CHAT) using the transcription conventions for analysis by the CLAN software available through the *Child Language Data Exchange System* (CHILDES; MacWhinney, 1991; MacWhinney & Snow, 1985, 1990). In the present study, we verified transcripts between the first and a second transcriber, both for content and for adherence to the transcription conventions described above. Utterance boundaries were based first on contour and secondly on pause duration.

3.5 Measures and Quantitative Data Analysis

3.5.1 Measures

The quantitative methods used in this study include measuring pragmatic development, syntactic development, and the relationship between them, for all the data both cross-sectional and longitudinal.

To capture functioning within the pragmatic subsystem, the Inventory of Communicative Acts- Abridged (INCA-A. Ninio et al. 1991, see Appendix A), a system for analyzing communicative intentions in children's and adult's speech, has been used. As we have described in the Chapter 2, INCA-A is an abridged version based on a more elaborate system developed by Ninio and Wheeler in 1984 for the categorization of social actions performed in the context of mother-child communication. This coding system has a strong theoretical basis to direct assessment of pragmatic skills.

Measure #1: INCA-A

INCA-A codes pragmatic skills at three levels: interchange, speech act, and combination.

The interchange level.

This first level describes speaker's overt framing of the immediate social situation, in other words, their communicative intention within the social context of an ongoing activity (Ninio et al. 1991. See Appendix A). Coding at the interchange level

captures what takes place between the speaker and the hearer, because speakers operate within states and events in the immediate social situation in various different ways.

Accordingly, there are several groups of interchanges identified as *Negotiations, Markings, Discussions, Performances,* and *Metacommunication.* Each group of interchanges may be further distinguished according to the states and event speakers operate on. For example, Negotiations are distinguished within several interchange types, namely*: Negotiation of co presence* (NCS); *Negotiation of mutual attention* (NMA*); Negotiation of immediate activity* (NIA); *Negotiation of future activity* (NFA); *Negotiation of activity within realm of fantasy world* (NFW). Discussions are also distinguished according to the immediacy of their topic: *Discussion of joint focus* (DJF); *Discussion of recent event* (DRE); *Discussion of non-present* (DNP*); Discussion of related to the present* (DRP); *Discussion of fantasy world* (DFW); *Discussion of speaker's or hearer's inner feelings* (DSS, DHS). INCA-A defines the unintelligible utterances as either XXX or YYY.

At this level, the measure is a frequency count of the number of *different* social interchange types found in the data for each child-mother interaction.

The speech act level.

The second level addresses the specific communicative intent expressed in the speaker's utterance. These expressions include such acts as making statements, making requests, or answering questions.

INCA-A defines different groups of speech acts in terms of their pragmatic force. Sixty-five types of speech act are included in the different groups. For example, *Agree to do* (AD); *Call attention to hearer by name* (CL); *Request/Propose action for hearer* (RP); *Repeat/imitate other's utterance* (RT); *State intent to carry out act* (SI); *Disagree with declaration* (ND); *Statement* (ST); *Answer a Wh-question by a statement* (SA); *Ask a yes/no question* (YQ); *Ask a Wh-question* (QN) and so on. At this level, we code nonvocal communicative acts (e.g., pointing, head shaking, etc...) and unintelligible utterances showing a clear intention to be communicative as YY. The frequency of the number of *different* speech act types is another measure in this study.

The communicative interchange and speech act combination level.

The measure of communicative intent used in this study combines the interchange and speech act levels of communicative intention into a single measure. The measure is a frequency count of the number of *different* social interchange-speech act types. Snow et al. (1996) defined this combination level as Pragmatic Flexibility.

The following two examples might be helpful to explain this measure and its meaning.

Example A:

*MOT: 我们 要 打开 这个 盒子 吗?
%pin: wo3men2 yao4 da3kai1 zhe4ge he2zi ma?
%int: Should we open this box?
%spa: $NIA:YQ
*CHI: 好.
%pin: hao3 .
%int: O.K.
%spa: $NIA:AD
*MOT: 你 来 做.

%pin: ni3 lai2 zuo4.
%int: You do it.
%spa: $NIA:RP

Example B:

*MOT: 盒子 里 有 什么?
%pin: he2zi3 li3 you3 shen2me?
%int: What is it in the box?
%spa: $DJF:QN
*CHI: 嗯一书.
%pin: en-shu1.
%int: En- book.
%spa: $DJF:SA
*CHI: 我 知道 这个.
%pin: wo3 zhi1dao4 zhe4ge.
%int: I know this.
%spa: $DJF:ST

From Example A, we can see that within Negotiate Immediate Activity (NIA), a speaker may use different speech act types: asking yes/no question (YQ), agree to do (AD) or request/propose (RP) and so on. Similarly, in example B, speakers are discussing a joint focus (DJF), but they may ask a Wh-question (QN), answer the Wh-question (SA) or make a declarative statement (ST). In fact, the more social interchange types and speech types speakers use in talking, the more different combination types they demonstrate. The flexibility of the combination of interchanges and speech acts enables speakers to express themselves better when they communicate with others and allows them to create fruitful interactions. Therefore, we will measure the increasing frequency of the number of combination types for each child at the different ages to find out their growing pragmatic flexibility.

Measure #2 Morphosyntactic measures: MLU

We generated two morphosyntactic measures for each child at stage. Selected on both theoretical and logistic grounds, we computed through CLAN (MacWhinney,

1991) to count Mean Length of Utterance (MLU) and the mean length of the child's five longest utterances (MLU5) from the entire transcript (Refer to Brown, 1973).

Mean length of utterance is widely used as a basis for selecting and matching subjects for research purposes and the literature on child language in English indicates that it is nearly always among the major indicators used to identify children in need of language intervention services. It is also a developmental measure. Many researchers believe that MLU is very informative because MLU is a composite measure and may reflect different process and skills across developmental stages or across individuals at the same stage. It is reported that MLU might be more sensitive than type-based measures to being assessed in an unfamiliar, laboratory situation (Pan et al., 1993). Some researchers suggested that MLU at 18 months primarily measures the use of rote or unanalyzed strings, rather than a truly productive use of grammatical morphemes (Bates et al. 1988. cited from Pan et al., p28, 1993). It has also been noted that the increasing of utterance length in English may reflect different elaboration processes for different children, either the addition of inflectional elements such as articled or plural markers (dog>a dog), or the addition of modifiers such as adjectives and adverbs (bear>big brown bear) (Pan et al. 1993). For these reasons MLU5 was also used as a measure in this study in order to be able to make additional analyses of productive syntax in both the cross-sectional and longitudinal data.

Surprisingly, MLU is the only measure of children's syntactic development that is well recognized and actually used in Chinese. Several researchers reported positive results from the use of MLU to measure language growth in Chinese children (Cheng, 1988; Cheung, 1998; Erbaugh, 1982; Zhu, 1986). Cheung (1998) reported a study of the application of MLU in Chinese with some interesting results: (1) MLU is

a valid measurement for assessing preschool children's language ability as it has a positive correlation coefficient to a Chinese Oral Ability Test (Cheng, 1994, Cited from Cheung, 1998). (2) The most effective counting unit of MLU in Chinese is a Chinese word, because of the characteristics of Chinese syntax (Miao & Zhu, 1996; Cheng, 1994). (3) As table 3.2 showed, there are predicted MLU scores and ranges for Chinese children aged from 1; 6 to 4;0. However, those Chinese schalors suggested an upper limit of MLU 3.5 for measureing (Cheung, 1998; Miao & Zhu, 1996).

In addition to the validation of the use of MLU, There was a similarity from a study carried by Harvard scholars. Although there was no direct comparison of MLU or MLU 5 between English and Chinese data, from the results in the Harvard study and in Cheung's Chinese study, it does seem as though there is a similarity of results cross different languages in somewhat different age groups. Hence, we used MLU and MLU 5 measures in this study. Further, this study took Cheung's MLU unit counting principle as guidance to manage the data computing input (refer to Appendix B).

3.5.2 Reliability

Inter-rater reliability was estimated separately for the pragmatic measurement of social interchange and speech act codes and for computing MLU counts. Two university research students and one teacher were trained with INCA-A coding system and MLU computing input and coded the data as the first rater. The main researcher in the present study as the second rater independently coded the total

corpus from which each measure was calculated. Inter-rater reliability estimates 90 % for interchange codes; 85 % for speech act codes; and 95 % the MLU count units.

3.5.3 Quantitative data analysis

We analyzed the cross-sectional data mainly with quantitative measures in this study. The first we used an exploratory technique to describe each child during the observation. In particular, the following measures were used: (1) the proportion of interpretable communicative attempts; (2) the frequency of the number of *different* interchange types, *different* speech act types and *different* combination types; (3) the proportion of higher types of communicative acts engaged in; (4) mean length of utterance; (5) mean length of 5 longest utterances. We examined the communicative repertoire measures and morphosyntactic measures for each cross-sectional age group as a whole. Meanwhile, we checked the developmental relevance between the two kinds of data, as well as their validity, by generating a language profile for the longitudinal child at each of the different stages.

The second method used in this study, is to explore a possible relation between the development of children's communicative acts and syntax. We applied the correlation technique with measures of the cross-sectional data, to investigate associations between the variations in the pragmatic and syntactic measures. We noted and compared the inter-domain correlations among communicative variations and the cross-domain correlations between the two kinds of measures.

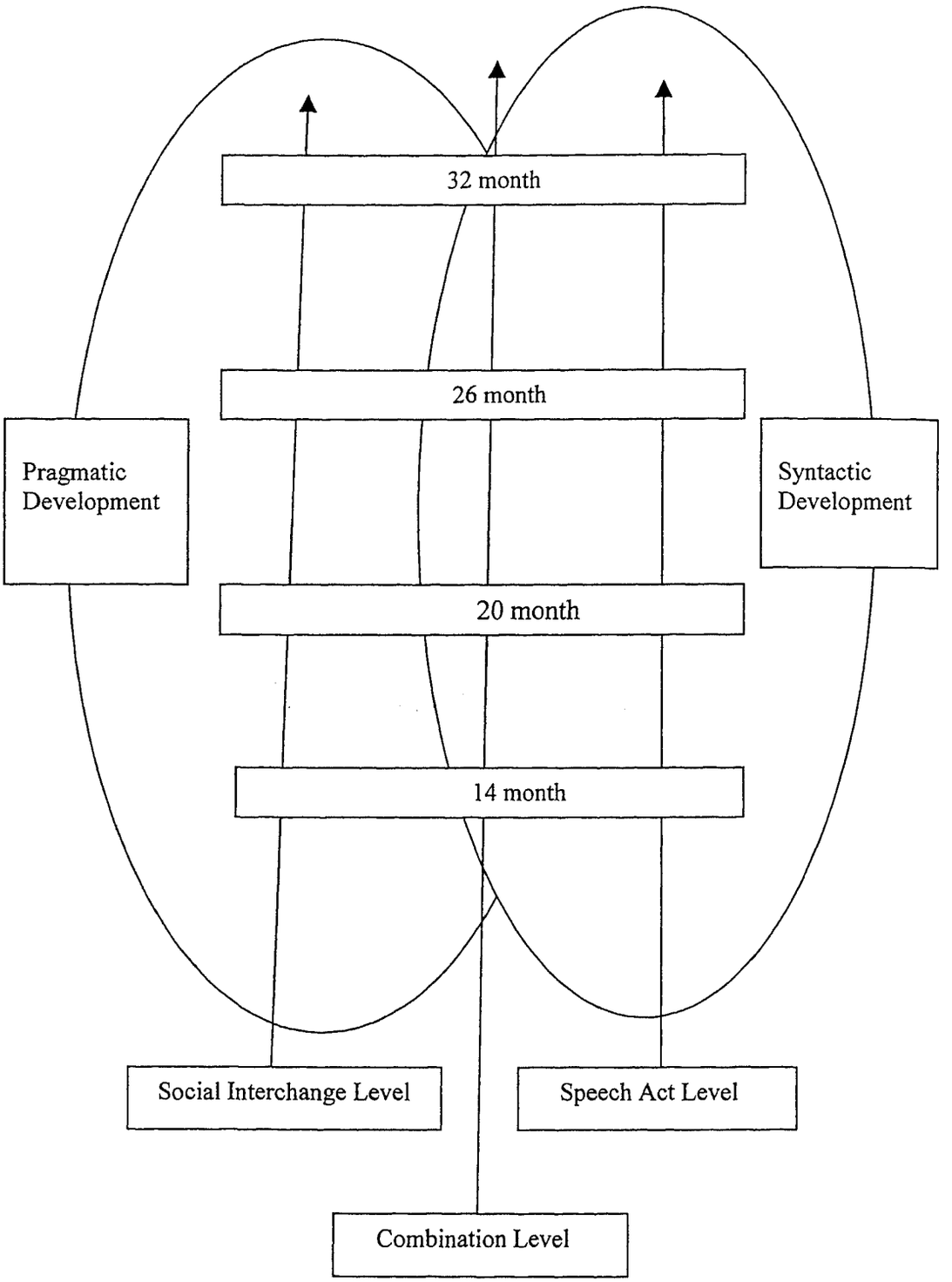
3.6 Qualitative Data Analysis

We used both quantitative and qualitative exploratory methods in the analysis of the longitudinal data. For the quantitative part, the measures that were designed for use with the cross-sectional data were also used to classify information from the longitudinal data, based on the same rationale as for the cross-section data analysis.

For the qualitative analysis, we applied a CLAN program called KWAL (key word and line, MacWhinney, 1991) to identify the emergence of the children's communicative acts in all instances of communicative acts at the different stages. Using INCA-A list for the child-mother interactions, the program KWAL allowed a search for each type of communicative acts, showing the relative contexts in which the communicative behaviors occurred. The computerized KWAL analysis resulted in acceptable observations but was incomplete in some cases. Therefore, we further analyzed the obtained results according to the following framework (see Figure 3.1).

The research hypotheses led us to a focus on the "micro-processes." We tried to explorate the emergence of children's pragmatic capacity as well as the emergence of their syntactic forms. Pragmatic and syntactic aspects of the development of communicative acts were each examined at two further levels:

Figure 3.1 Framework of qualitative data analysis



(a) The social interchange level. At this level, *what* types of Communicative Intention emerges, *when* these types emerge in children's interaction with their mothers and *how* they are expressed together indicate the connection between pragmatic meaning and syntactic form.

(b) The speech act level. At this level, *what* types of speech utterance emerge, *when* they emerge in children's interaction with their mothers and *how* they are specifically expressed links pragmatic function and syntactic form.

The main objectives of attending to the "micro-processes" of communicative acts were to observe the process of learning to use language to communicate with others and to uncover those features that influenced development, using particular clues. Consider the specific examples given below and the explanations of the interaction between the mother and her child:

Example (1): at 14 months

*MOT: 还有 一个谁 呀?
%pin: hai2you3(yi1ge sui2 ya?
%int: What about the another one?
%spa: $DJF:QN
*CHI: 妈.
%pin: ma1.
%int: Ma (should be Mother cat).
%spa: $DJF:SA
*MOT: 这是呢蝴蝶.
%pin: zhe4 shi4 ne.
%int: This is a butterfly .
%spa: $DJF:CT
*CHI: 花 .
%pin: hua1.
%int: Flower.
%act: Pointing to flower in the picture .
%spa: $DJF:ST

Example (2): at 20 months

*CHI: 这个是 什么?
%pin: zhe4ge shi4 shen2me?
%int: What is this?
%spa: $DJF:QN
*MOT: 这个是插 耳机的.
%pin: zhe4ge shi4 cha1 er3ji1 de.
%int: This is for putting ear phone into .
%spa: $DJF:SA
*MOT: 讲个故事 吧.
%pin: jiang3 ge gu4shi4 ba.
%int: Tell me a story .
%spa: $NIA:RP
*CHI: 从前一有个小贝贝.
%pin: cong2qian2- you3 ge xiao3bei1bei.
%int: Long time ago- there was a little baby.
%spa: $DFW:ST

Pragmatic cue refers to information about how children learn to master communicative acts developmentally. Through this cue, we found changes in the child's interaction with her mother at the different stages. For instance, we observed the emergence of social interchange types and speech act types at 14 and 20 months. In the first example, at 14 months, the DJF-discussion of joint focus emerged for the first time in the child's conversation. In addition, she started to use speech act types SA (answer to Wh-question) and ST (statement). In the second example, at 20 months, a new type of DFW (discussion of fantasy world) emerged in her conversation, while the DJF type continued. As far as speech acts are concerned, she tried a new one, QN (asking Wh-question), when talking with her mother.

Syntactic cue refers to information about the linguistic expression of communicative acts, such as grammatical relations and the functions of sentence constituents and especially about patterns of sentences that aid in the identification of communicative acts. In the above examples, the child used one type of speech act ST

(statement). However, the linguistic meaning was different at 14 and 20 months. For the first ST, the child expressed it in a single word "flower," whereas at 20 months she started to use a form very close to a simple sentence. This cue might help us to understand the relationship between pragmatic and syntactic development.

Mother input cue refers to how the mother provides information and directs her child in interaction, for example by directing her child's attention, asking her to do something, questioning her child or reinforcing her child's learning. One might consider that the mother's use of communicative acts carried information about cultural attitudes and approaches. Thus, we could capture this information in the analyzing process.

Moving on from the discussion of methods of data collection and analysis, Chapters 4 and 5 present the quantitative and qualitative findings, which may provide answers to the research questions posed in this thesis.

Chapter 4

Analysis of Results on Cross-sectional Data

4.1 Introduction

This chapter describes aspects of the pragmatic and linguistic development of the cross-sectional group of Chinese children as they interacted with their mothers at 14, 20, 26, and 32 months. We begin with an overview of pragmatic measures of the children's communicative acts, social interchange repertoire, and speech acts repertoire and pragmatic flexibility. We then follow this with an account of the syntactic development of their communicative acts at each of the four stages. The numerical indices include Mean Length of Utterance (MLU) and a measure of Mean Length of 5 Longest Utterance (MLU 5). We examine cross-domain correlations in order to explore the relationship between the development of syntax and communicative acts.

The remainder of the chapter explores possible influences of the mothers on their children during their interactions. Analyses of maternal communicative acts, correlations, and the interactional linkage between speakers will explore the cultural factors that shape the interactions between Chinese mothers and their children.

4.2 The development of communicative acts

The first two research questions addressed in this study relate to the development of communicative acts in Mandarin-speaking young children. Does the development of communicative acts in Chinese young children show the same pattern as that found in American children? Is the INCA-A coding system for measuring communicative acts developed in America appropriate for Chinese children? We use two measures to calculate the results. The first examines the frequency with which numbers of types of speech acts at different levels of communication used by the children, as a whole group at each stage. The second examines the relative frequency with which the children used the possible core types of communicative acts.

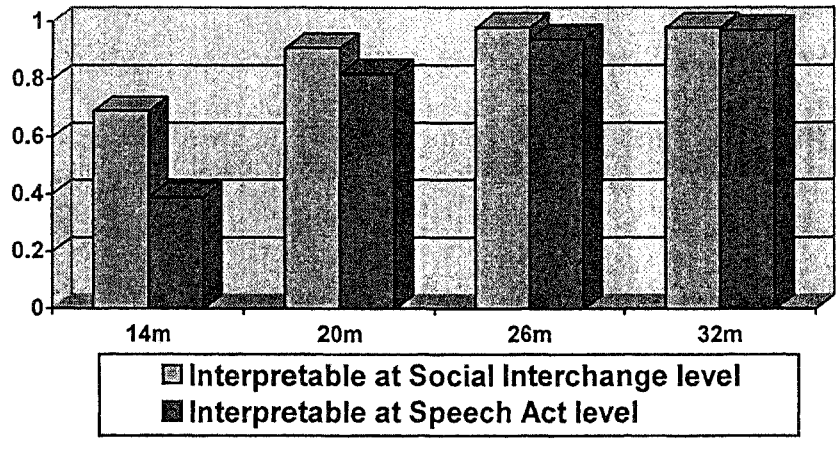
4.2.1 An overview of pragmatic measures on children's communicative ability

Beginning with the exploration of communicative act development, we looked to see whether the communicative behaviors of Chinese children changed with their age. An analysis of the mean proportion of interpretable communicative attempts and mean number of types of communicative acts, showed an upward trend from 14 months to 32 months. As Table 4.1 shows, based on the total number of vocalized communicative behaviors at each stage, the group of Chinese children as a whole showed an increased in the proportion of communicative attempts, interpretable at a Social Interchange level, from 68% to 98% and at a Speech Act level from 39% to 97%. There was also an increase in the mean number of Social Interchange types from 3.9 to 6.7, of Speech Act types from 4.0 to 13.4, and of Pragmatic Flexibility from 5.5 to 18.5 for these children over the whole study period.

Table 4.1 Means and standard deviations for summary measures at four ages

	Age			
	14 months	20 months	26 months	32 months
Proportion of attempts interpretable at Social Interchange Level	0.67 (0.16)	0.90 (3.20)	0.98 (1.66)	0.98 (2.82)
Proportion of attempts interpretable at Speech Act Level	0.41 (0.26)	0.80 (0.14)	0.94 (3.8)	0.97 (2.54)
Number of Interchange types	3.9 (0.56)	5.2 (1.13)	5.3 (1.41)	6.7 (0.94)
Number of Speech Act types	4.0 (1.63)	8.6 (2.36)	12.2 (4.18)	13.4 (2.67)
Pragmatic Flexibility	5.5 (1.90)	12.1 (3.69)	15.4 (6.36)	18.5 (5.31)

Figure 4.1 Summary for proportion of Communicative attempts interpretable at each age



In interpreting the descriptive measures, what is most noticeable is the fact that the children were becoming more adept in expressing their intents in an interpretable fashion. There are two levels of interpretable communicative attempts: one is the communicative attempt interpretable at a Social Interchange level and the other one is the communicative attempt at the Speech Act level. Examples 4.1, 4.2 and 4.3 reveal the different quality of the children's communicative attempts:

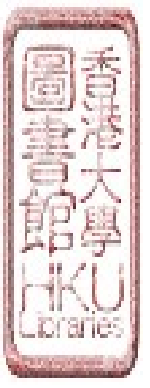
1. Communicative attempts that cannot not be interpreted by others even at a Social Interchange level, such as YYY: YY as in Example 4.1.
2. Communicative attempts that can be interpretable at a Social Interchange level but not at a Speech Act level, such as DHA: YY (*directing hearer's attention with vocal sounds plus gesture*).
3. Communicative acts interpretable at a Speech Act level, such as DHA: ST (*directing hearer's attention with statement*) at Example 4.3.

Example 4.1 Communicative attempt uninterpretable at an Interchange level

*CHI:	a da da la la.
%pin:	a da da la la.
%int:	Vocal sounds.
%spa:	YYY:YY
*MOT:	宝宝说什么？
%pin:	bao3bao suo1 shen2me?
%int:	What does Baobao say?
%spa:	$DHA:QN

Example 4.2 Communicative attempt uninterpretable at a Speech level

*CHI:	en-en +---
%pin:	en-en +---
%int:	Vocal sounds.
%act:	the child points at the ball, looks at mother.
%spa:	$DHA:YY
*MOT:	想玩球吗？
%pin:	xiang3 wan2qiu2 ma?
%int:	Want to play ball?
%spa:	$NIA:YQ



Example 4.3 Communicative attempts interpretable at a Speech Act level

*MOT:	球 .
%pin:	qiu2.
%int:	Ball.
%act:	the child points at the ball, looks at mother.
%spe:	$DHA:ST
*MOT:	噢 要 玩 球 呀.
%pin:	ao- yao4 wan2qiu2 ya.
%int:	Ou want to play ball.
%spa:	$DCA:ST

Table 4.1 shows an increase in the proportion of interpretable communicative attempts by the children and in the mean number of Interchange types and Speech Act types used by the children between 14 and 32 months. If we look closely at Figure 4.1 [also see above], we notice that the proportion of communicative attempts at an Interpretable level and at a Speech act level are also increasing. In fact, at 14 months, nearly 60% of the total number of communicative attempts was uninterpretable at a Speech Act level. However, 33% of the communicative attempts produced by the children were uninterpretable at the Speech Act level but were interpretable at the Interchange level. This means that, during this period, the children were often directing their hearers' attention to an object, or trying to answer a question, but it was unclear whether the children were, for example, stating a proposition or giving appropriate information about the object. The interpretation of children's communicative attempts at the Interchange level, as Snow pointed out (1996), was possible by virtue of an accompanying nonverbal component such as a gesture or a nod. This situation was changed by 20 months, when the proportion of communicative attempts interpretable at a Speech Act level increased to 80% and communicative attempts interpretable at a Social Interchange level increased to 90%. As we would expect, the importance of these nonverbal 'aids' decreased as children's

verbal skills improved. From 14 to 20 months seemed to be a critical period for the Chinese children, with the development of interpretable communicative acts at both the Social Interchange level and at the Speech Act level. The proportion of communicative attempts at the two levels became closer by 26 months and 32 months, until the children's speech in their interactions with their mother was almost completely interpretable.

Another noticeable change (see Table 4.1) is the increase in the mean number of types of communicative act. As noted earlier, the number of Social Interchange types and Speech Acts and of the two in combination, were the main measures of the development of communicative acts. The Chinese children as a group showed an increasing mean number of types from 14 months to 32 months, in particular, 3.9 to 6.7 at the Social Interchange level, 4.0 to 13.4 at the Speech Act level, and 5.5 to 18.5 at the combination level. It seems that Chinese children were learning to communicate with their mothers more intentionally, while their attempts at interaction were becoming more interpretable. The pattern for the American children in the Harvard study was similar: 4.00, 3.79 and 5.13, respectively, at 14 months (see Snow et al., 1996). However, by the end of this study period, a different pattern emerged, with lower ratings for the Chinese children than the mean numbers of types of communicative acts for the American children, which were 8.5, 14.4, and 22.7 for the three levels at 32 months (also see Snow et al., 1996).

Table 4. 2 Associations among pragmatic measures at each age

14 months	Prop.Interpretable Speech Acts	Interchange Types	Speech Act Types	Pragmatic Flexibility
Proportion Interpretable Interchanges	.50	.05	.51	.50
Proportion Interpretable Speech Acts		-.15	.48	.21
Interchange Types			.44*	.74*
Speech Act Types				.79**

20 months	Prop. Interpretable Speech Acts	Interchange Types	Speech Act Types	Pragmatic Flexibility
Proportion Interpretable Interchanges	.91**	-.32	-.03	-.32
Proportion Interpretable Speech Acts		-.03	.25	-.02
Interchange Types			.61*	.81**
Speech Act Types				.84**

26 months	Prop. Interpretable Speech Acts	Interchange Types	Speech Act Types	Pragmatic Flexibility
Proportion Interpretable Interchanges	.76*	-.02	-.02	-.02
Proportion Interpretable Speech Acts		.36	.36	.42
Interchange Types			.65*	.86**
Speech Act Types				.85**

32 months	Prop. Interpretable Speech Acts	Interchange Types	Speech Act Types	Pragmatic Flexibility
Proportion Interpretable Interchanges	.81**	-.15	.68*	.68*
Proportion Interpretable Speech Acts		.09	.40	.48
Interchange Types			.16	.02
Speech Act Types				.91**

*P<.05
*P<.01

We conducted a Spearman correlation analysis to find the relationship between the pragmatic measures for the Chinese children. As Table 4.2 (above) shows, at all four ages, children's interpretability of Social interchanges and of Speech Act were highly correlated with significance. The correlations among the number of Social Interchanges, Speech Act types and Pragmatic Flexibility were highly significant at 14 months, 20 months, and 26 months. The number of Social Interchange types correlated moderately with the number of Speech Act types, but was highly correlated to Pragmatic Flexibility at 14, 20, and 26 months. However, at 32 months, in contrast to the close association between the number of Speech Act and Pragmatic Flexibility, the number of Social Interchange type children used only correlated substantially to the number of Speech Act types. Meanwhile, recall that at 32 months Chinese children's mean number of Interchange types increased more slowly than both the number of Speech Act types and Pragmatic Flexibility. This reflects differences in developmental rates within the pragmatic domain.

4.2.2 Children's Social Interchange Repertoire

Children's Social Interchange repertoire is one of main measures used in this study to analyse children's communicative acts. At the first level of analyzing communicative acts using the INCA-A framework, Social Interchange types describe the child's communicative intention within the social context of an ongoing activity and capture what takes place between the speaker and the hearer. We asked two main questions about the children's social interchange repertoire:

1. Does the Social Interchange repertoire expand developmentally over time, as children learn a variety of communicative intentions to express themselves;
2. Is there a core set of communicative intentions that most children display as they interact with their mothers in relatively unstructured laboratory settings?

Table 4.1 (above) shows the mean number of Interchange types used by the Chinese children at 14, 20, 26 and 32 months. The Social Interchange repertoire of the children expanded. At 14 months, most of the children were just beginning to engage in communicative interaction. The number of interchange types they used ranged from 3 to 5. By 20 months, the mean number of interchange types expanded to an average of 5.2 for the group, a range of 4 to 7. At 26 months this had not changed much, for the mean number of Social Interchange types was 5.3 and the range was from 4 to 8. From 26 to 32 months, the children were again involved in a wider variety of communicative interactions and the average of social interchange types increased to 6.3, with a range of 6 to 9. Only the Social Interchange types that children produced twice at each interaction were counted. The actual engagement by the children in Social Interchange types was always higher. For example, at 32 months, the group of children actually used 15 different types of Social Interchange in their talking with their mothers.

Table 4.3 Proportion of children engaging in each interchange at 14, 20, 26, and 32 months

Interchange Types	Age			
	14m	20m	26m	32m
DHA: Directing Hearer's Attention	1.0	1.0	1.0	.90
NIA: Negotiating Immediate Activity	.90	.90	1.0	1.0
DJF: Discussing Joint Focus	.90	1.0	1.0	1.0
DCC : Discussing clarification of verbal communication	.00	.00	.30	.70
DFW: Discussing Fantasy World	.00	.20	.20	.40
DNP: Discussing Non-present	.00	.20	.20	.40
DRE: Discussing Recent Event	.00	.10	.10	.50
DRP: Discussing the Related-to-present	.50	.20	.60	.70
DSS: Discussing Speaker's Thought s and feelings	.00	.00	.10	.20
NFA: Negotiating Future Activity	.00	.00	.00	.20
NFW: Negotiating Fantasy World Activity	.00	.20	.10	.30
NMA: Negotiating Mutual Attention	.00	.00	.10	.40
PRO: Performing Verbal Moves in Activity	.20	.30	.30	.60
MRK: Marking	.10	.10	.20	.20
TXT: Reading Written Text	.10	.30	.10	.20
YYY: Uninterpretable Utterance	1.0	.80	.70	.60

Table 4.4 Mean proportion of communicative acts in each interchange at four ages

Interchange Types	Age 14m	20m	26m	32m
DHA: Directing Hearer's Attention	.21	.13	.08	.06
NIA: Negotiating Immediate Activity	.20	.24	.27	.29
DJF: Discussing Joint Focus	.20	.42	.57	.44
DCA $ DCC: Discussing Clarification of Action or Verbal Communication	.00	.01	.01	.03
DNP: Discussing Non-present	.00	.02	.01	.02
DRP: Discussing the Related-to-present	.02	.01	.01	.06
DFW: Discussing Fantasy World	.00	.02	.01	.03
DSS: Discussing Speaker's Thoughts and Feelings	.00	.00	.00	.00
NFA: Negotiating Future Activity	.00	.00	.00	.00
NFW: Negotiating Fantasy World Activity	.00	.01	.01	.02
PRO: Performing Verbal Moves in Activity	.02	.03	.00	.01
MRK: Marking	.01	.00	.00	.00
TXT: Reading Written Text	.00	.01	.00	.01
YYY: Uninterpretable Utterance	.32	.10	.02	.02

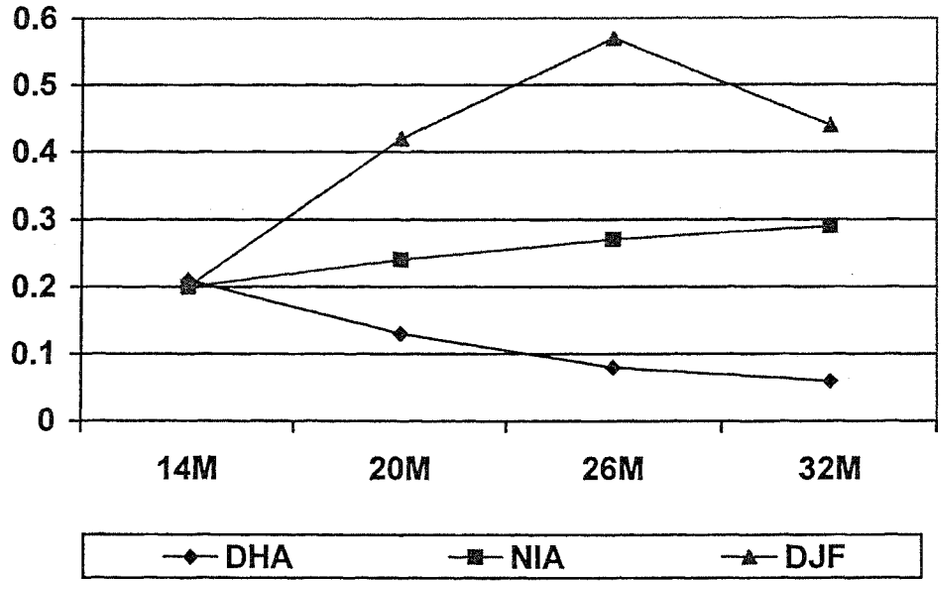
What are the most common types of Social Interchange for Chinese children, as they become intentional communicators? As Snow et al. (1996) reported, there was a core set of Social Interchange types that most of the children were engaging in as young as 14 months old. DHA (*Directing Hearer's Attention*), NIA (*Negotiating Immediate Activity*) and DJF (*Discussing Joint Focus*) are the three types of Social Interchange the children engaged in most frequently in the Harvard study (Snow et al., 1996). In order to find out what is the case for Chinese children, we calculated the proportion of children who engaged in each Social Interchange and the mean proportion of the children's production of Social Interchanges to discover the core repertoire of communicative intentions across all the children.

Firstly, we focused on the proportion of engagements in each Social Interchange at 14, 20, 26, and 32months. Table 4.3 lists the different types of Social Interchange. Almost all the Chinese children in this study engaged in a small core of social interchange types. Over 90% of the children at the four age groups, engaged in three types of Social Interchanges, described in the Harvard study as DHA, NIA and DJF (*Directing hearer's attention, Negotiating immediate activity and Discussing a joint focus).* The children used an average of 3.9 types of Social Interchange at 14 months. This shows that children at this age only use a handful of interchange types to express social intention. Though there was a noticeable upward trend as the children engaged in more types at the later three ages (see Table 4.3), DHA, NIA, and DJF remained the most frequently used of all the Social Interchange types.

Table 4.4 provides strong support for there being a "core" set of Social Interchanges in Chinese children's communication: DHA, NIA and DJF.

At 14 months, the Chinese children used DHA, NIA and DJF most frequently and in almost equal proportions: 21%: 20%: 20%. However, this situation did not remain for the later three stages. As Figure 4.2 [see below] illustrates, the frequency for these three types evolved as different developmental streams. The frequency of DHA was giving way to others and declined from 21% to 6%, the frequency of NIA steadily increased from 20% to 29% but the most obvious change was for DJF, as its frequency reached a peak of 57% at 26 months and then dropped to 44% at 32 months.

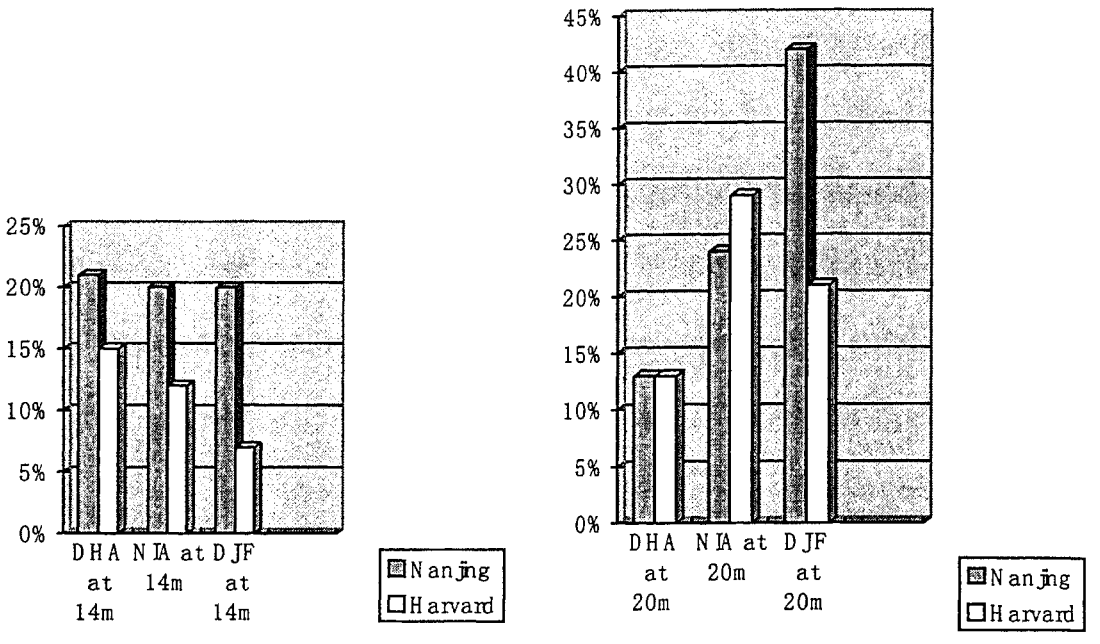
Figure 4.2 Mean proportion of core set of communicative interchanges at each age



A further observation was made of the distribution of child communicative intentions across all the types of Social Interchange. Looking closely at Table 4.3 and 4.4, while the children frequently used the three commonest ways to establish communication, they were also gradually engaging more in other types of Social Interchange. At 20 and 26 months, the children engaged in more than ten different kinds of Interchange, including DRP- *Discussing Related-to-present* and DFW- *Discussing Fantasy World.* At 32 months, the Chinese children engaged in 15 types of Social Interchange, and some which are thought of as more abstract were frequently used by the children (see above Table 4.3 and Table 4.4). For example, DCC or DCA - *Discussing Clarification of Verbal Communication or Action,* DRE- *Discussing the Related-to-present,* DNP- *Discussing None-Present* and NFW- *Negotiating Fantasy World Activity.* This finding indicates an increasing intelligibility in the communicative acts of the young children.

It is interesting to observe that, at the Social Interchange level, the Chinese children share a very similar mean number of types and a core set of Interchanges with the American children in Harvard study. However, there are still some differences in the acquisition of communicative acts. As far as the core Social Interchanges are concerned, in comparison with the American children, the Chinese children tended to use more DJF-*Discussing a joint focus* at all the four ages. Especially from the age of 20 months, DJF became the most frequently used by the Chinese children while the English children used more NIA- *Negotiating immediate activity* than any other types.

Figure 4.3. Comparison of the mean proportion of the core Social Interchange types at each age: Nanjing and Harvard data



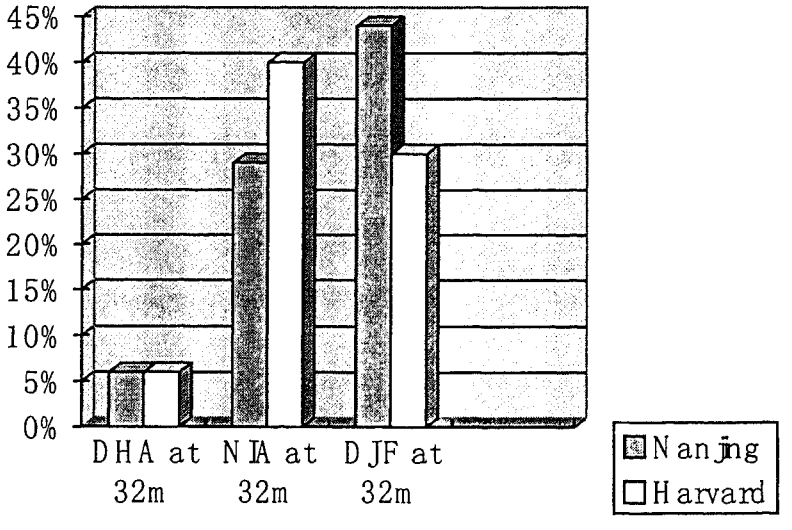
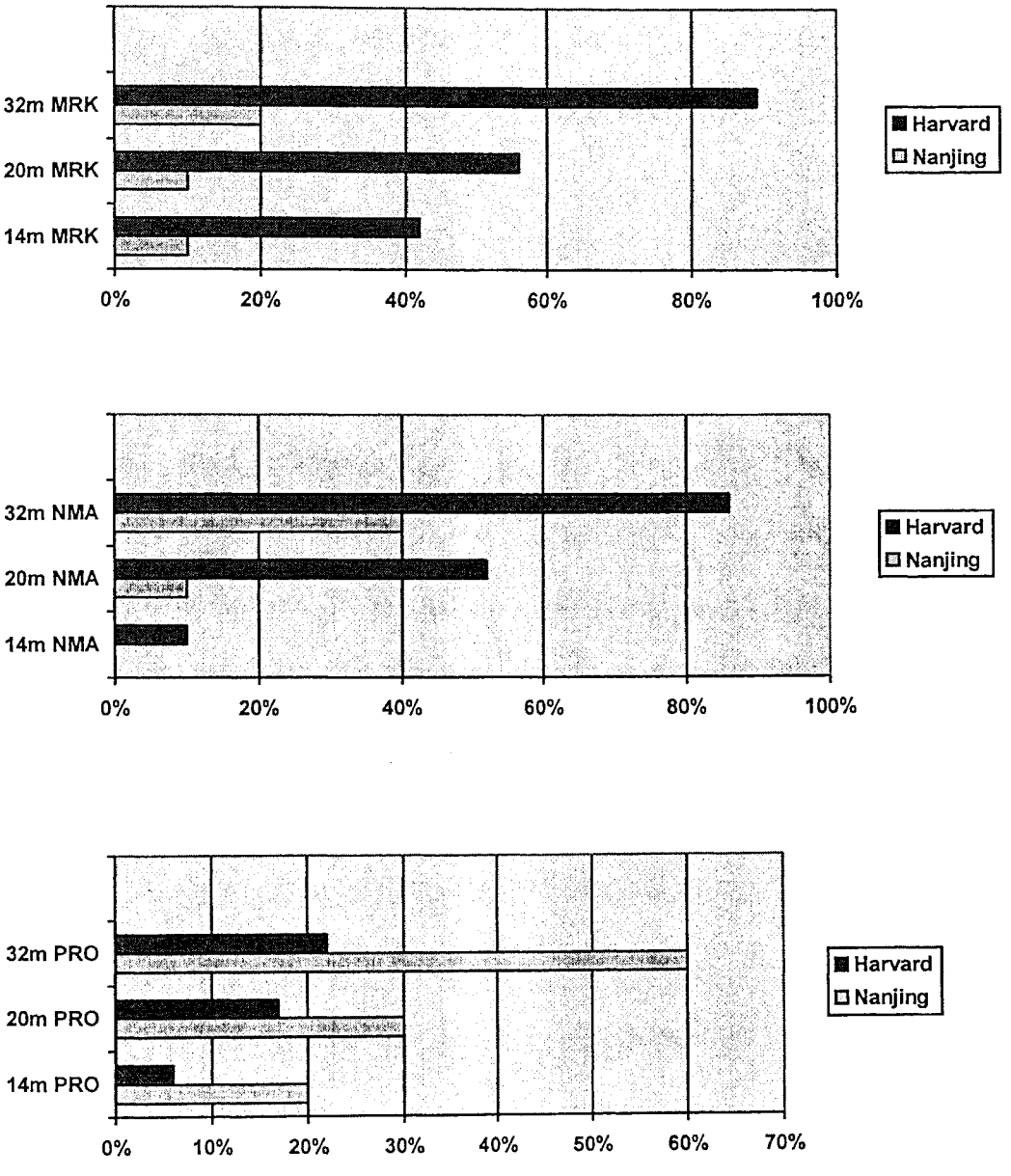


Figure 4.4. Comparison of the proportion of engagement in the three types of Social Interchange: Nanjing and Harvard data



There was a second group of Social Interchanges noted in the Harvard study. Snow et al. (1996) reported that the American children engaged in MRK (*Marking, e.g., oops, bye-bye, thank you)* at a rate, which rose from 42% at 14 months to 89% at 32 months. Those children used NMA (*Negotiating Mutual Attention and Proximity, e.g., ask to look at something)* at a rate that rose from 10% at 14 months to 86% at 32 months. In addition, they engaged in PRO (*Performing verbal moves in activity e.g., imitate cat sounds "miao, miao" in play)* in a rate, which rose from 10% at 14 months to 86% at 32 months. The Chinese children, however, had a much lower frequency of MRK and NMA (see above Figure 4.4), but a higher proportion of PRO. Chinese children engaged in *Marking* at a rate which started from 10% at14 month, then remained at 10% at 20 months and rose at 32 months to 20%. For engaging in *Negotiate Mutual attention*, Chinese children had a rate from 0% at 14 months to 40% at 32 months. Chinese children started using PRO (*Performing verbal moves in activity)* in a similar proportion to American children at 14 months, however, their engaging percentage increase to 60% at 32 month, while their American peers engaged in 22%. These results suggest that there might be different developmental patterns of communicative acts for children growing in various social contexts.

4.2.3 The Children's Speech Acts Repertoire

We now turn to examine the Chinese children's Speech Act repertoire. Speech acts, defined as the specific communicative intent that motivates his/her act of speaking and is expressed in his/her utterance, form the second-level measure of communicative intention in the INCA-A framework. The research questions asked here were similar to those we asked about the children's social interchange repertoire:

whether the Chinese children share a Speech Act repertoire that expands over the study period and what are the most common types children use in their interactions. To evaluate this, three descriptive summaries were used: (1) the mean number of types of Speech Act across the children in each age group; (2) the proportional engagement in Speech Acts which occurred at least twice and (3) the proportional occurrence of Speech Acts with a mean of at least 2% in the children's expression of their communicative intentions.

Before examining the composition of the Chinese children's speech acts at four age groups, we had discovered that their repertoire had expanded over the period. Table 4.1 provides the evidence that the children's mean production of Speech Act increased from 4.0 types to 13.4 types. The more detailed Table 4.5 shows that the total number of speech act types engaged in by the children at 14 months was 11. This repertoire of speech acts grew to 29 types at 18 months, providing further evidence of an expanding Speech Act repertoire.

Next, we move on to common types of Speech Act. As some researchers have pointed out, one should not expect to find a high degree of convergence across children because the total number of possible speech act types displayed in children's talk is large (Ninio & Snow, 1996; Snow, et al.1996). Therefore, the examination of common types in this study focused on speech act types that shared the highest proportion of engagement and frequency at each stage. From Table 4.5 and 4.6 [see below] we can see that the most frequent speech acts at the four age groups were: SA (*Answer a wh-question by a statement), ST* (*State or make a declarative statement)*, RP (*Request/propose*), AA (*Answer in the affirmation to*

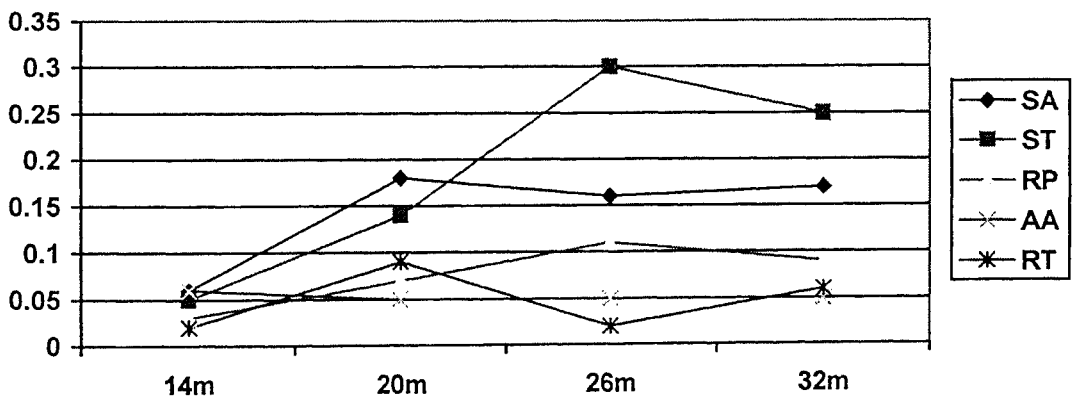
Table 4.5 Proportion of children engaging in each Speech Act type at least twice at each age

Speech Act	Age			
	14m	20m	26m	32m
YY *Utter a word-like utterance without clear function*	1.0	1.0	.80	.60
SA *Answer a wh-question by a statement.*	.50	1.0	1.0	1.0
AA *Answer in the affirmation to yes/no question.*	.50	.60	.90	.90
CL *Call attention to hearer by name*	.50	.30	.30	.10
ST *State or make a declarative statement.*	.40	1.0	1.0	1.0
AD *Agree to carry out act requested or proposed by other*	.30	.20	.70	.20
RP *Request/proposes*	.10	.90	.90	1.0
RT *Repeat/imitate other's utterance*	.10	.80	.30	.60
PR *Perform verbal move in game*	.10	.30	.40	.60
MK *Mark occurrence of event*	.10	.20	.50	.50
RD *Refuse to carry out act requested by other.*	.10	.40	.50	.70
SI *State intent to carry out act by speaker.*	0	.30	.90	.80
AC *Answer calls; show attentiveness to communications.*	0	.20	.30	.30
ET *Exclaim in surprise or enthusiasm*	0	.30	.30	.40
DC *Create a new state of affairs by declaration.*	0	.10	.40	1.0
QN *Ask a product-question (wh-question)*	0	.10	.30	.40
QA *Answer a question with a wh-question*	0	.10	.10	.10
YQ *Ask a yes/no question.*	0	0	.30	.20
EQ *Eliciting questions*	0	.10	.40	0
YA *Answer a question with yes/no question*	0	0	.20	0
TA *Answer a limited-alternative question*	0	0	.30	.10
AN *Answer in the negative to yes/no question*	0	.10	.70	.50
RA *Refuse to answer*	0	0	0	.20
FP *Ask for permission to carry out act*	0	0	.10	.40
PA *Permit hearer to perform act*	0	0	0	.10
CS *Counter-suggestion; an indirect refusal.*	0	0	0	.20
CN *Count.*	0	0	.10	.20
YD *Agree to a declaration.*	0	0	.20	.20
ND *Disagree with a declaration*	0	0	.10	0
DW *Disagree with proposition expressed by other*	0	.10	0	0
GR *Give reason.*	0	0	0	.20
RR *Request to repeat utterance*	0	.10	.20	0
PM *Praise for motor acts.*	0	0	.10	.10
CR *Criticize or point out error in nonverbal behavior.*	0	0	.10	.10
SS *Signal to start performing an act*	0	0	.10	0
TX *Read/recite a written text aloud*	0	.10	0	0

Table 4.6. Proportional Occurrence of speech acts accounting for a mean of at least 2% of all Speech Acts

Speech Act		Age			
		14m	20m	26m	32m
YY	Utter a word-like utterance without clear function	.59	.21	.04	.02
CL	Call attention to hearer by name	.08	.02	-	-
SA	Answer a Wh-question by statement	.06	.18	.16	.17
AA	Answer in affirmation to yes/no question	.06	.05	.05	.05
ST	State or make a declarative statement	.05	.14	.30	.25
PR	Perform verbal move in game	.04	.04	.02	.02
RP	Request/proposes	.03	.07	.11	.09
RT	Repeat/imitate other's utterance	.02	.09	.02	.06
SI	State intent	-	.03	.05	.03
RD	Refuse to carry out act requested by other	-	.03	.02	.04
AD	Agree to carry out act requested by other	-	-	.03	-
AN	Negative answer to yes/no questions	-	-	.03	.03
QN	Ask a product-question (Wh-question)	-	-	.04	.03
DC	Create a new state of affairs by declaration.	-	-	.02	.05

Figure 4.5 Proportional occurrence of common types of Speech Act at four age groups



yes/no question) and RT (*Repeat/imitate other's utterance*). These few types of Speech Act shared a continuing or increasing proportion of engagement [also see Figure 4.6]. It is rather surprising to see that children as young as 14 months do not only respond but have started to use Statement and Request/proposal. From the calculation of the growing proportion of engagement and frequency, we find that the children were taking active roles increasingly in interacting with their mothers.

Apart from the finding concerning common types, a further development of Speech Acts also needs taking into consideration. Some types of Speech Act emerged after 20 months, such as SI (*State intent*), DC (*Create a new state of affairs by declaration.*), QN (*Ask a product Wh-question*), AN (*Answer in the negative to yes/no question)* and RD (*Refuse to carry out act requested by other)*. However, they had an increasing mean proportion, either for engagement or for the rate of production [Tables 4.5 and 4.6, see above]. Some late emerging types showed a growing trend for engagement in the later stages. For example, FP (*Ask for permission to carry out act),* GR (*Give reason*) and CS (*Counter-suggestion; an indirect refusal)* are more adult-like ones, while PA (*Permit hearer to perform act*) and PM (*Praise for motor acts)* are considered as the typical speech acts of parents (Snow et al. 1996). Although the proportion of occurrence for these types was still low, we may expect that these types would develop after the third year of the children's lives. While most types of speech act were used proportionately more as the children grew, a few types, such as CL (*Call attention to hearer by name*), dropped, from 50% to 10% for engagement and 8% to 0% in frequency. These results together suggest a trend towards greater intelligibility of the children's speech acts.

In addition to the observations on the Chinese data, a brief comparison may give us a wider view of the development of Speech Acts. It is not surprising to see that the entire number of speech act types we listed in Tables 4.5 and 4.6 have already appeared in the list of earlier emerged speech acts in the Harvard study (Snow et al, 1996). However, there are some differences. Focusing on the most common types, the Chinese children showed a higher proportional frequency of SA and RP than the American children, at all three ages. For example: SA=. 06 vs. .02 at 14m; .18 vs. .12 at 20m; .17 vs. .14 at 32m and RP= .03 vs. less than .02 at 14m; .07 vs. .0 6 at 20m; .09 vs. .07 at 32m. For ST, the Chinese children had a slightly lower frequency at the first two stages but a higher frequency than the American children at 32months: .05 vs. .08; .14 vs.15; .25 vs.. 17. A few types of speech act were quite popular among the American children, such as MK (*Mark occurrence of event*), .28, .52 and .89 for proportional engagement at three age groups, and TO (*Mark transfer of object to hearer)*, .34, .25, and .28 for proportional engagement at three age groups). However, these were much less popular among the Chinese children (see Table 4.5 and 4.6). There are two further interesting points from this comparison. The first concerns the two main question types: QN (*Asking Wh-question*) and YQ (*Asking yes/no question*). We found that American children more frequently used these question forms, especially at 32 months (e.g., 6 % QN and 2% YQ). The Chinese children used QN at a rate of 3% and YQ at a rate of less than 2% at the same age. On the other hand, the two main negative types of question: AN (*answer in the negative to yes/no question*) and RD (*refuse to carry out act requested by other*), accounted for a mean of at least 2% of all the speech acts of the Chinese children, with a performance rate of 3% and 4% at 32 months. However, they do not appear in

the American list at all. Thus, this finding may suggest a Chinese pattern of speech act development in which linguistic and cultural characteristics embedded.

4.2.3 Children's Pragmatic Flexibility

The measure of the children's pragmatic flexibility is a count of the combination of the interchange type and the speech act type. This third level in the INCA-A aims to discover how the different social interchanges combine with the various speech acts to make more flexible and fruitful language expression possible. Still with the basic research questions in mind, we examined the frequency of the children's production of Interchange-speech act combinations in order to describe the nature of this repertoire.

First, we re-checked whether the children as a whole group shared a repertoire that expanded along with the rest of their development. Figure 4.6 shows the Social Interchange-Speech Act combination type children engaged in at each age. Taking this together with the mean number of these combination types (see Table 4.1), we found an expected increase in the children's pragmatic flexibility. While the mean number of combination types showed as an increasing stream (see Table 4.1: 5.5 at 14, 12.1 at 20 m, 15.4 at 26 m, 18.5 at 32m), the total numbers of types of engagement also showed an increasing format: from 24 at 14m, to 60 at 20m, then to 83 at 26 months. However, the total number of engagement types remained the same at 32 months. This result may indicate a developmental "ceiling" for the acquisitio of communicative acts.

Figure 4.6 Total number of combination types the children as whole group use at each age

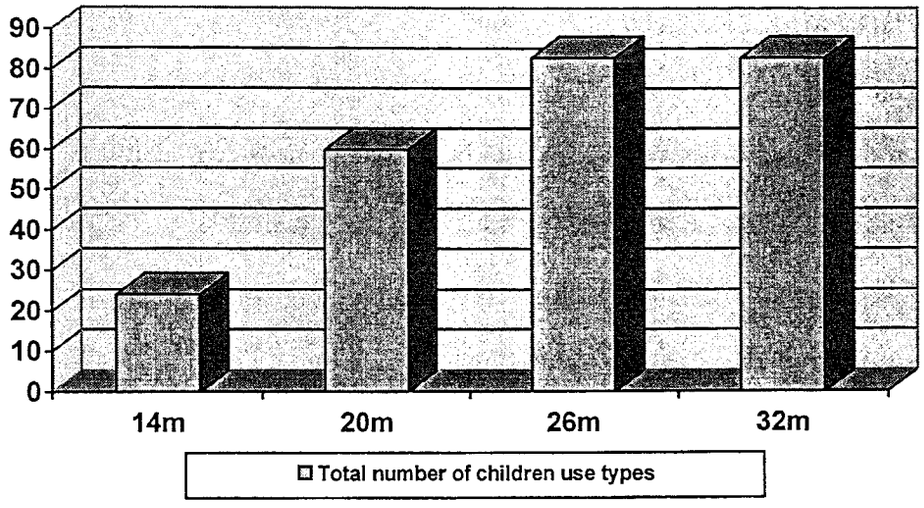


Table 4.7 Proportion of children producing social interchange-speech act combinations at each stage with at least 2% frequency

Interchange-Speech Act Combination	14m	20m	26m	32m
Directing hearer's attention: Calling name	.06	-	-	-
Directing hearer's attention: Statement	.03	.04	.04	.03
Discuss joint focus: Answer Wh-question	.06	.15	.15	.14
Discuss joint focus: Answer in affirmative to yes/no question.	.03	.03	.02	.02
Discuss joint focus: Statement	.02	.08	.23	.15
Discuss joint focus: Repeat/imitate other's utterance	-	.08	.02	.03
Discuss joint focus: Ask a Wh-question	-	-	.03	.03
Discuss related to present: Perform verbal moves	.03	-	-	-
Discuss related to present: Answer Wh-question	-	-	-	.02
Negotiate immediate activity: Answer in affirmative to yes/no question.	.02	.02	-	-
Negotiate immediate activity: Agree to do	.03	-	.03	-
Negotiate immediate activity: Request/proposes	.03	.07	.11	.08
Negotiate immediate activity: Refuse to do	-	.03	.03	.03
Negotiate immediate activity: State intent	-	.03	.04	.03
Negotiate immediate activity: Statement	-	-	-	.02
Perform verbal moves inactivity: Perform verbal moves	-	.03	-	-

Due to constraints on the large category of pragmatic flexibility, our observation of the most common types of combinations focused on those produced by the children with a frequency of at least 2%. Table 4.7 (see above) shows the result for the frequently occurring social interchange-speech act types produced by the children at the four stages. Despite the fact that the children's types of engagement comprised a much larger category, not all the acts occurred with high frequency within a single session. Looking closely at the list, we found that almost all the common social interchange-speech act combinations belonged to the core set of social interchanges: *DHA-directing hearer's attention, DJF-discuss joint focus and NIA-negotiate immediate activity*, though the children engaged more and more in other social interchange-speech act combinations as well, for example types combined with DFW, DNP or DRE. This confirms that these three types of social interchange account for the great majority of the children's communicative acts. Secondly, when combining specific intentions to those three social interchanges, SA, ST, and RP were the most frequently used types. It seems that children learn to expand their language flexibility pragmatically within these core interchange categories.

Further, there were three exceptional types noted in Table 4.7: *Discuss related to present: Perform verbal moves in activity* at 14 months, *Perform verbal moves in activity: Perform verbal moves* at 20 months, and *Discuss related to present: Answer to Wh-question* at 32 months. It is less easily to explain that these types only occurred frequently at one stage. Of course, we should remember that a speaker's communicative act involves another person. Thus, it might be necessary to have further exploration whether the occurrence of these types relies on the mother's direction.

4.3 Development of syntax in relation to Communicative acts

The second research question in this study focuses on children's syntactic development in relation to communicative acts. Findings from the first research question indicate that the development of children's communicative acts may relate to children's linguistic capacities, in particular, to their syntactic development. What is the relationship between pragmatic development and syntactic development in relation to children's acquisition of communicative acts? Whether and how does Chinese syntactic development influence the development of Chinese communicative acts? To answer these questions, we used the computerized CLAN system to measure Mean Length of Utterance (MLU) and Mean Length of 5 Longest Utterance (MLU 5), and to identify children's syntactical development levels at each stage and as a group. We applied descriptive analysis and Spearman correlation analyses in this study to generate results from the above syntactic measures, as well as from the previous pragmatic measures.

4.3.1 Children's syntactic changes for MLU and 5 longest MLU

It has been widely accepted that MLU and MLU 5 are the two major indicators of a child's syntactical development level. It had a confirmation in the measurement of the syntactic development of Chinese children.

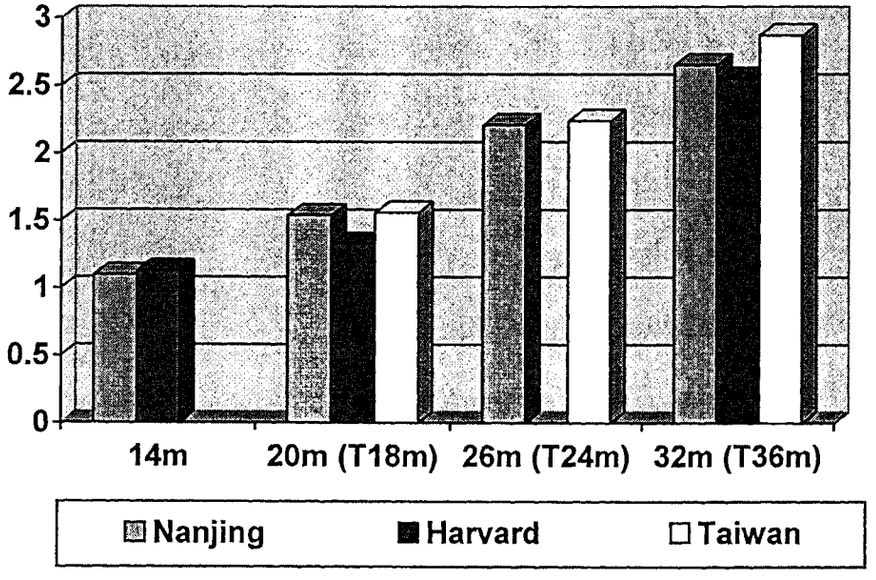
Table 4.8 shows the growth trajectory of MLU and MLU5 for Chinese children from 14 months to 32 months respectively. At 14 months, the children's

mean MLU was 1.10 with a range 1.0- 1.24. Most children were mainly producing single word utterances. There were very few multiword utterances at this stage. At same time, the result of the five longest MLU indicated children's low language level. At 20 months the children's mean score of MLU increased to 1.54 and there was a wider range: 1.06-2.78. Although they remained at MLU Stage I, the children were now producing more multiword utterances, combining semantic roles, reflected in a mean MLU for five longest utterances of 3.0. Further, the Chinese children had a mean MLU of 2.21 with a range of 1.48 to 2.85 and their MLU 5 increased to 4.7. By 32 months, the mean MLU of the Chinese children reached 2.7 with a range of 2.05-3.57 and the mean MLU 5 at this group increased to 6.06. Two trends for the children's syntactic growth trajectory emerge from these results. First, the children's MLU level over the study period clearly increased from MLU stage I to MLU Stage III. Second, there was a gradually increasing distance between their mean MLU and mean MLU 5 scores. As some researchers have suggested, the MLU of longest utterances tends to be approximately three times greater than the MLU, in children who are developing normally (Pan et al. 1994; Bennett, James & Prosek, 1991, cited from Pan et al. pp. 28-30, 1993). The results in this study provide evidence for an additional observation, that there might be an asymptotic process to account for the MLU 5 becoming three times greater than the MLU in children's language.

Table 4.8 Means and standard deviations for measures relating to syntactic development at 14, 20, 26, and 32 months

	14m (SD)	20m (SD)	26m (SD)	32m (SD)
MLU	1.10 (1.23)	1.54 (.48)	2.21 (.48)	2.65 (.40)
MLU 5	1.38 (.36)	3.0 (1.41)	4.7 (1.68)	6.06 (1.41)

Figure 4.7 Comparison on MLU between Nanjing data and other research data



Here we make a comparison to other MLU studies. Our results are similar to the Taiwan Mandarin sample, but somewhat different from other comparable Chinese samples. Although the age of the children differed, Cheung predicted a MLU for Taiwan Chinese children of 1.56 at 18 months, 1.99 at 24 months, 2.44 at 28 months and 2.87 at 36 months (Cheung, 1998. Also, see Figure 4.7). However, researchers such as Zhu (1992) reported higher MLU scores for Mainland Chinese children, of 2.91 at 24 months, 3.76 at 28 months, and 4.61 at 36 months. There are several ways of calculating MLU and this may partly explain these differences.

Compared to the Harvard data, the MLU found in this study was very similar (see Figure 4.7). As Snow et al. (1996) and Pan et al. (1996) have reported in separate papers, the mean MLU in the Harvard study was 1.13 at 14 months (range 1.00-2.40), 1.33 at 20 months (range 1.00-2.40), and 2.55 at 32 months (range 1.12-3.90). It is interesting that the Chinese children had a slightly lower score at 14 months and a higher score at 20 or 32 months, though the differences between the Nanjing and Harvard data are all inside the ranges. Further, we compared the Harvard data to relevant English studies. For example, Miller and Chapman (1981, cited from Pan et al. 1993) reported an MLU at 33 months of 2.67 and Mellers (1985, also cited from Pan et al. 1993) found an MLU at 33 months of 2.8. Pan et al. (1993) argued that the differences were partly the result of collecting the data in different settings because MLU might be more sensitive than type-based measures to being assessed in an unfamiliar, laboratory situation. This study used the same procedure as the Harvard study but in a kindergarten classroom instead of an unfamiliar laboratory. The data reported here provides more information about using MLU to measure the growth rates for a group of children who are all developing normally.

4.3.2 Correlations between syntactic development and communicative acts

Researchers who carry out the group studies often rely on correlation measures to find out the relationships between several factors. Snow et al (1996) reported using correlation measures to identify an associated relationship between pragmatic and syntactic development. Pan et al (1993) announced positive correlations in multiple domains in a so-called Within Individual Growth Model study. In this study, we applied a Spearman correlation to data analyses, to examine the relationship between two parallel developing domains: Pragmatics and Syntax.

In general, we classified associations between syntactic development and pragmatic development in two main ways: First, we looked at the association between MLU and pragmatic measures. Table 4.9 shows that the Chinese children's MLU are associated to the proportion of interpretable communicative attempts at interchange level and at speech act level in all four ages. There was a rather higher correlation between MLU and the interpretability of interchanges at 14, 20, and 26months, followed by a very low correlation at 32 months. In contrast, the correlation between MLU and interpretability of speech acts correlated slightly at the beginning but substantially at the later three stages. MLU had a higher correlation to interchange types at 14 and 32 months but had no noticeable correlation at 20 and 26 months. The positive correlation between MLU and Speech Act types was stable in a moderate level at 14, 20, and 26months.

Table 4.9 Association between pragmatic measures and syntactic measures at four ages

14 months	Proportion Interpretable at Interchange level	Proportion interpretable at Speech act level	Interchange Types	Speech Act Types	Pragmatic Flexibility
MLU	.52	.19	.57*	.30	.59*
MLU 5	.51	.12	.64*	.30	.66*
20 months	**Proportion Interpretable at Interchange level**	**Proportion interpretable at Speech act level**	**Interchange Types**	**Speech Act Types**	**Pragmatic Flexibility**
MLU	.56*	.49	.00	.56*	.27
MLU 5	.31	.37	.36	.71*	.41
26 months	**Proportion Interpretable at Interchange level**	**Proportion interpretable at Speech act level**	**Interchange Types**	**Speech Act Types**	**Pragmatic Flexibility**
MLU	.61*	.59*	.30	.32	.25
MLU 5	.39	.61*	.63*	.60*	.60*
32 months	**Proportion Interpretable at Interchange level**	**Proportion interpretable at Speech act level**	**Interchange Types**	**Speech Act Types**	**Pragmatic Flexibility**
MLU	.06	.52	.60*	-.01	.15
MLU 5	.47	.51	.29	.64*	.73**

* $p < .05$
** $p < .01$

However, it became negative at the last stage. The correlation between MLU and pragmatic flexibility only had a higher correlation at 14 months before falling between 20 months and 32 months. These correlation results are rather different from the Harvard study. Snow et al. (1996) report positive correlations between MLU and the other three pragmatic measures of Interchange types, Speech act types and Pragmatic Flexibility only at 20 months. All the correlations at 14 months and 32 months were negative.

Next, we looked at the correlation between MLU 5 and pragmatic measures. As an indicator of the upper limit of utterance production, MLU 5 positively correlated to all the pragmatic measures at all the stages. It is interesting to see that MLU 5 was strongly correlated to the children's Interchange types and pragmatic flexibility at 14 months but was only associated highly with speech act types at 20 months. At 26 months, the correlation with children's interchange types, speech act types, and pragmatic flexibility was again higher. Lastly, MLU 5 became strongly associated with speech act types and pragmatic flexibility at 32 months.

These findings have three significant implications. First, the correlations illustrated above suggest that there is a cross-domain relationship between children's syntactic development and pragmatic development. Secondly, the pattern of correlations between measures of communicative ability and syntactical ability suggest a rather complicated relationship. The two developmental aspects may cooperate more in certain ways and at certain age. For example, syntactic development may associate with communicative ability more in Speech Acts and Pragmatic Flexibility after 20 months. Thirdly, MLU 5 seems to be a very sensitive

indicator of the correlation between syntactic development and pragmatic development.

4.3.3 Syntactic and pragmatic illustration of the five longest Mean Length Utterances

In previous analyses, we demonstrated a connection between the development of communicative acts and syntax. The goal of this section is to explore further the connection between the children's five longest utterances and the pragmatic measures, because it has been found that these 5 longest utterances are a significant indicator. Using MAXWD in the CLAN program, all the five longest utterances for each child at each age group were examined in terms of: (1) the identification of their syntactic structures; (2) the classification of their communicative intentions. The first observation was of sentence structure. Three basic sentence structures were counted in this study: Declaratives, Negatives and Questions. Figure 4.9 shows that the earliest 5 longest MLU utterances belonged to the Declarative sentence type.

Figure 4.8 Proportional summary on communicative intentions of 5 longest MLU measure at four stages

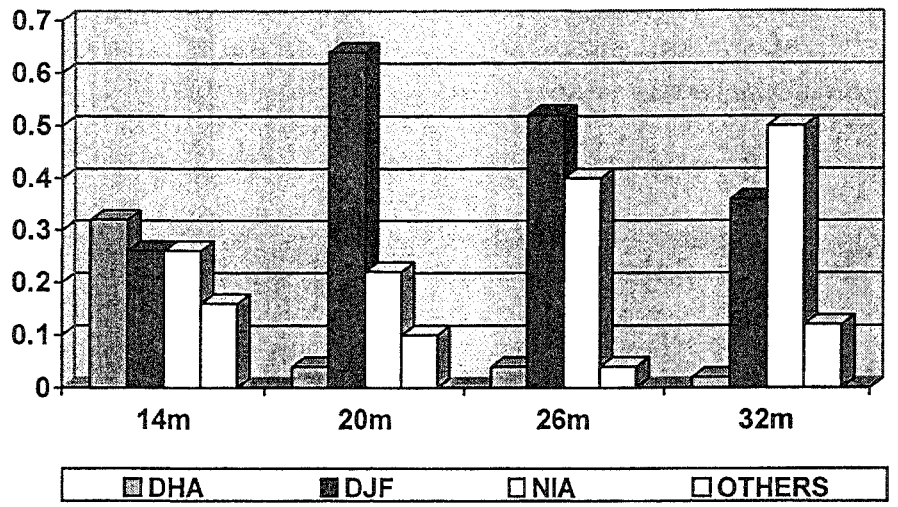
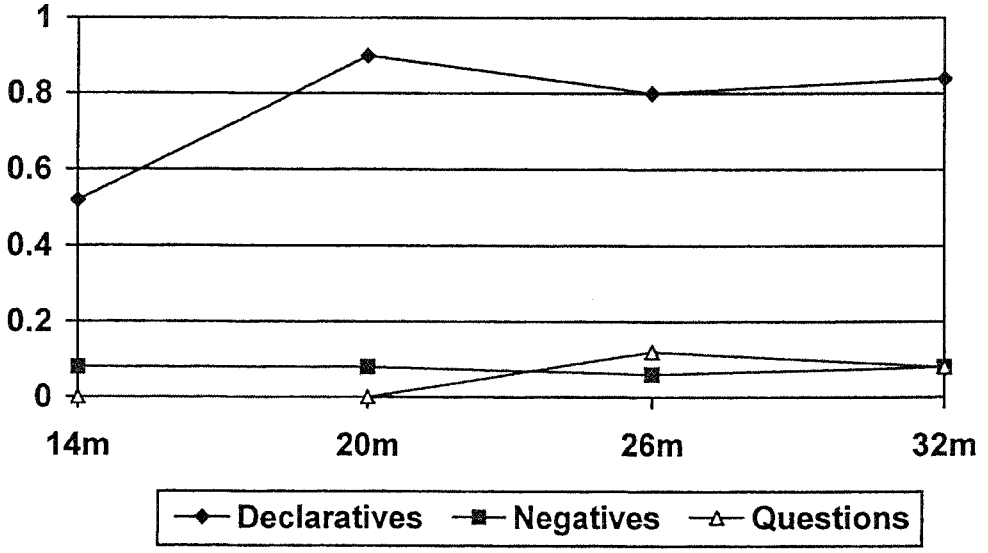


Figure 4.9 Proportional summary of three syntactic structures for 5 longest MLU at four ages



At 14 months about 52% of the children's longest utterances were in a declarative format, though most of these utterances were single-word or two-word combinations. At 20 months, the proportion increased to 90% and remained over 80% at 32 months. Negative forms occurred as early as 14 months, but remained at a rate of lower than 10% at all four ages. Question forms emerged in the five longest MLU utterances at 26 months but again with a frequency of about 10% of the total. These results show that no matter what kind of communicative intentions the children had in their interaction, their early syntactic production was mainly of declarative forms with embedded syntactic change. The time between 14 and 26 months could be a critical period for Chinese children to expand their declarative expression and make a contribution to pragmatic usage because the 5 longest MLU utterances usually represent the speaker's top level of language production, especially for children under age three. Secondly, the lower frequency of negatives and questions in the five longest utterances may have different implications. One possibility is that the pragmatic need of negatives and questions was less than declaratives in communication. Another explanation could be the children's limited syntactic acquisition of negatives and questions, which may make the children's use of Speech Acts in negatives and questions difficult.

The frequency of communicative intentions inside the five longest utterances was also noteworthy. Figure 4.8 illustrates the result of this observation. It is rather surprising to see that, at 14 months, the longest utterance children produced pragmatically belonged to the three core Social interchanges. These were the categories we have mentioned many times: DHA- *Directing Hearer's Attention,* DJF- *Discussing a Joint Focus* and NIA- *Negotiating Immediate activity* (also see Figure

4.8). It is noticeable that the children's five longest MLU utterances distributed equally to DJF and NIA at 14 months, with a frequency of 26%, but showed an even higher frequency, 32%, with DHA. However, this situation changed at 20 months with a sudden drop in the proportion of DHA and an increase in DJF. Although DJF and NIA dominated the five longest utterances at the later two stages, we found that DJF was reducing slightly while the production of NIA was going up. This result may suggest interaction in the development of Chinese syntax and communicative acts. Due to the limitations of quantitative analyses, the more detailed information derived from qualitative observations is needed.

4.4 The mother's interactional influence

It has been long to assume that communicative acts are "talking culture" in which cultural characteristics are embedded and delivered from one generation to another (Moerman, 1988; Rogoff, 1990). Findings from the first research question of this study indicated that there were developmental characteristics of communicative acts, which relate to cultural differences. Therefore, the third research question in this study aims to explore the mother's interactional influence because mothers as interlocutors very possibly influence their children's learning of communicative behaviors.

What is the general picture for communicative acts of the Chinese mothers in interaction with their children at different ages? Are there culturally specific features of the Chinese mothers communicative processes? How do Chinese mother-child communicative acts relate to each other? How does the mothers' communicative behavior influence their children's communicative acts? To answer these questions, we applied the descriptive and correlation analyses. The results are shown in the following section.

4.4.1 Mothers' involvement in interaction with their children

Guided by our research questions, we examined the Chinese mothers' communicative acts. Table 4.10 gives a basic picture for the Chinese mothers, with measures of their mean number of communicative acts. It is interesting to observe that Chinese mothers sustained a similar pattern of interactional effort through their children's developmental changes at 20, 26 and 32months, but that they showed a

quite different way of talking to their children at 14 months. Here we look in more detail at Table 4.10 and Figure 4.10. Although the mean number of Social Interchange types was quite close for each group of mothers (= 6.3: 7.0: 7.2: 7.5), the mean number of Speech Act types and combination types which the mothers used differed between the time their children were 14months old and the other three age groups (= 11.4: 15.2:15.2:14.5 and 15.4: 22.7: 21.6: 22.2). These measures indicate that Chinese mothers have a simpler format for talking with their children before they transfer from their prelinguistic to their linguistic period.

This pattern of Chinese maternal communicative acts is dissimilar to what researchers have found in American mother-child dyads. American mothers had a mean number of Social Interchange types of 12.5 when their children were 14 months old, 12.1 when they were 20 months and 11.5 when they were 32 months. The mean number of Speech Act types was 20.4, 22.9 and 19.2 for above three age groups and the mean number of Social Interchange and Speech Act combination types was 36.1, 39.7 and 34.2 at all three aged groups. These mean numbers are much higher than those mean numbers for the Chinese mothers at every age group. Further, American mothers' communicative acts showed a stable amount of involvement in dyadic interaction at all age groups (Pan et al., 1996).

What do Chinese mother intend in their interactions with their young children? Since Chinese mothers pragmatically used less social interchange types than the American mothers, it would be interesting to observe what social interchange types they did use most often with their children. Table 4.11 shows the result of counting the mothers most commonly produced social interchange types at each stage.

Table 4.10 Means and standard deviations for summary measures for mothers and children at four ages

	Age							
	14 months (child, mother)		20 months (child, mother)		26 months (child,mother)		32 months (child,mother)	
Number of Interchange types	3.9 (0.56)	6.3 (1.16)	5.2 (1.13)	7.0 (1.94)	5.3 (1.41)	7.2 (1.22)	6.7 (0.94)	7.5 (1.77)
Number of Speech Act types	4.0 (1.63)	11.4 (2.31)	8.6 (2.36)	15.2 (5.28)	12.2 (4.18)	15.2 (4.21)	13.4 (2.67)	14.5 (4.47)
Pragmatic Flexibility	5.5 (1.90)	15.4 (3.83)	12.1 (3.69)	22.7 (6.23)	15.4 (6.36)	21.6 (6.89)	18.5 (5.31)	22.2 (7.71)

Figure 4.10 Summary of communicative acts of Chinese mothers at four age groups

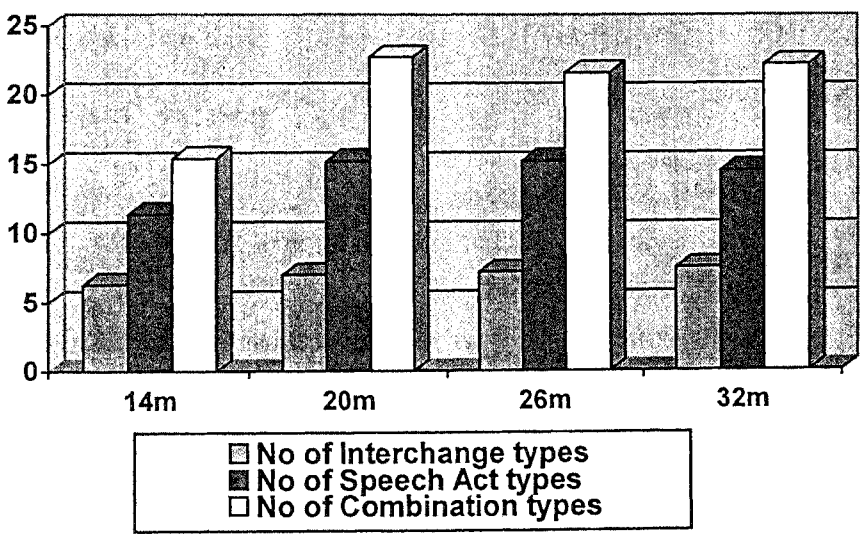


Table 4.11 Proportion of social interchange types produced by mothers at each age

Interchange Types	Age			
	14m	20m	26m	32m
DHA: Direct Hearer's Attention	.12	.08	.03	.02
NIA: Negotiate Immediate Activity	.48	.44	.34	.39
DJF: Discuss Joint Focus	.12	.33	.47	.40
DCA: Discuss Clarification of Action	.06	.04	.01	.03
DCC: Discuss Verbal Communication	.01	.03	.06	.04
DNP: Discuss Non-present	-	-	.01	.02
DRP: Discuss the Related-to-present	-	.01	.01	.03
DRE: Discuss recent event	-	.01	.01	.02
DFW: Discuss Fantasy World	-	-	-	.02
DHS & DSS: Discuss Hearer's or Speaker's Thoughts and Feelings	-	-	-	-
NFA: Negotiate Future Activity	-	-	-	-
NFW: Negotiate Fantasy World Activity	-	-	-	-
PRO: Perform Verbal Moves in Activity	-	-	-	-
MRK: Marking	-	-	-	-
TXT: Read Written Text	-	.02	.04	-
COM: Comfort	-	-	-	-

Note. Only those social interchange types produced with at least 1% frequency are shown.

Despite the fact that Chinese mothers engaged into fewer social interchange types, the core set of communicative intentions was the same as for the American mothers reported by Pan et al. (1996). Chinese mothers used three common types of social interchange, in particular, *Directing Hearer's Attention*, *Negotiating Immediate Activity*, and *Discussing Joint Focus*, more frequently in talking with their 14 month-old children. This situation changed, with DHA decreasing and NIA and DJF increasing at the next three ages. Around 80% of the social interchanges were DJF (*discuss joint focus*), while NIA (*negotiate immediate activity*) accounted for a much higher proportion of all communicative acts than was reported for the American mothers.

We found some other differences in maternal communicative intentions. Some interchange types were found to be popular in the Harvard data, for example, MRK (*marking*) and PRO (*perform verbal moves in activity*), but not common in the Chinese mother's intention list for all the age groups (see above Table 4.11). Chinese mothers showed attentiveness to their children, they discussed the clarification of both nonverbal (DCA) and verbal communication (DCC) when their children were as young as 14 months. They showed a similar pattern to the American mothers in their decreasing usage of DCA and increased usage of DCC, perhaps because as the children got older they provided more meaningful communications to which mothers could respond (Pan et al., 1996). However, the Chinese mothers hardly ever used DHS (*discuss hearer's thoughts or feelings*) and DSS (*discuss speaker's thoughts or feelings*) in all the age groups. This finding may indicate the existence of cultural differences in mothers' use of communicative acts, which in turn may influence the language use of their children.

4.4.2 Correlations between children's and mothers' communicative acts

In order to determine whether communicative acts of Chinese mothers relate to their children's behaviors, we conducted a Spearman correlation test to observe the associations between pragmatic measures for mothers and their children. As expected, there were positive correlations between the mothers' communicative acts and their children's communicative abilities, with the sole exception of Social Interchanges at 14 months (see below Table 4.12).

Three kinds of measures of maternal communicative acts associated differently to the children's communicative abilities. Looking closer at the mothers' social interchange behaviors, as we noted before, they correlated negatively to the children's social interchanges at 14 month. However, there seemed to be an increasing trend for maternal social interchanges to be associated with their children's pragmatic performance at the next few stages. Especially when the children were 32 months old, maternal social interchange behaviors significantly correlated to their children's social interchange types. This suggests that the influence of the mothers' communicative intentions leads to increasingly cohesive interaction between mothers and their children.

Moreover, measures of the mother's speech acts and pragmatic flexibility show a stronger correlation to their children's speech acts and pragmatic flexibility. These two streams had positive but moderate correlation at children's 14 months. Then the pattern of correlations between mother and children became significantly high in stable way in later three stages. This suggests that the mothers' verbal expression of communicative intention has close relationship to their children's performance of communicative acts.

Table 4.12. Association between pragmatic measures for mothers and children at each age

14 months	Children Interchange Types	Children Speech Act Types	Children Pragmatic Flexibility
Mother Interchange Types	-.26	-.07	-.28
Mother Speech Act Types	.48	.49	.37
Mother Pragmatic Flexibility	.46	.25	.34
20 months	Children Interchange Types	Children Speech Act Types	Children Pragmatic Flexibility
Mother Interchange Types	.15	.29	.55*
Mother Speech Act Types	.68*	.77**	.94**
Mother Pragmatic Flexibility	.52*	.73**	.88**
26 months	Children Interchange Types	Children Speech Act Types	Children Pragmatic flexibility
Mother Interchange Types	.50	.09	.36
Mother Speech Act Types	.82**	.75**	.83**
Mother Pragmatic Flexibility	.63*	.62*	.82**
32 months	Children Interchange Types	Children Speech Act Types	Children Pragmatic flexibility
Mother Interchange Types	.67*	.19	.22
Mother Speech Act Types	.34	.84**	.86**
Mother Pragmatic Flexibility	.54	.83**	.74**

* p<.05

** p<.01

4.4.3 Interactional links between mother-children interlocutors

A communicative act defines as interlocutors' behavior that involves both participants. Researchers have pointed out the importance of analyzing the relevant unit of communicative acts, not only discerning the general communicative activity but also interpreting the specific intention (Pan. et al. 1996). Thus, to further characterize the mother-child interaction process, it is not the social interchange level or speech act level individually which is the relevant unit, but rather the social interchange and speech act levels in combination. In order to link the great majority of communicative acts used in interactions, we calculated the three most frequently occurring types of combination for mothers and children as a whole at each age.

It is surprising to see that these frequently occurring types between Chinese mothers and children are interactionally connected (see above Table 4.12). First, Chinese mothers favored the use of DJF: QN (*discuss joint focus: ask wh-question*) at all four ages, when their children as interlocutors were giving DJF: SA (*discuss joint focus: answer to wh-question*) even at a single-word level. Second, Chinese mothers focused a lot on DJF: ST (*discuss a joint focus: statement*). Their children did not give response in same way at 14 months, perhaps due to the children's limited linguistic ability. Nevertheless, DJF: ST became one of the most frequently used combination types in the children's repertoire at 20 months and maintained this higher proportion over the rest of the study period. These two top combinations on the mothers' side could possibly explain why Chinese children use more DJF at a social interchange level, as well as more ST and SA at a speech act level. Third, NIA: RP (*negotiate immediate activity: request*) is a different story, because negotiation with request is

Table 4.13 Three most frequent types of social interchange and speech act combinations at each age

	Mother		Children	
14 Months	NIA: RP	36%	DHA: YY	13%
	DJF: ST	11%	NIA: YY	9%
	DJF: QN	8%	DJF: SA	6%
20 Months	DJF: ST	13%	DJF: SA	15%
	DJF: QN	10%	DJF: ST	9%
	NIA: RP	3%	DJF: RT	8%
26 Months	NIA: RP	21%	DJF: ST	23%
	DJF: QN	16%	DJF: SA	15%
	DJF: ST	13%	NIA: RP	11%
32 Months	NIA: RP	26%	DJF: ST	15%
	DJF: ST	13%	DJF: SA	13%
	DJF: QN	11%	NIA: RP	8%

nearly always used to initiate an interaction. As noted in Table 4.12, on the one hand, the Chinese mothers produced a very high proportion of NIA: RP when their children were 14 months old. At 20 months this proportion gave way to other types such as NIA: YQ (*negotiate immediate activity: yes/no question*) and NIA: RR (*negotiate immediate activity: yes/no question about hearer's wishes*). However, NIA: RP again increased in frequency when the children were 26 and 32 months. On the other hand, the children's motivation to negotiate increased as is shown by their production at 26 and 32.

In addition to the linkage information, the proportional occurrence of DJF: QN, DJF: ST and NIA: RP in Chinese mothers is higher than in American mothers. As the Harvard study reported, the proportion of DJF: QN was 2% when the children were 14 months old, 4% at 20 months and 7% at 32 months. The proportion of DJF: ST was 7%, 6%, and 7% at the 3 ages and the proportion of NIA: RP was 14%, 14%, and 8%.

These results may reflect different models of mother - child interaction in Chinese and western culture. Chinese mothers mostly used questioning and statements in their discussions with their children and the mother-child joint attention become very much "task centered," indicating that the children's communicative acts were influenced by their mothers during their interactions.

4.5 Summary

The goal of this chapter was to explore quantitatively the development of communicative acts for four groups of Chinese children at 14 months, 20 months, 26 months and 32 months, and to explore quantitatively the influence on the children's communicative acts both of their own syntactic abilities and of their mother's interactional behaviors.

We tracked the expansion of communicative repertoire for the Chinese children over the study period. The communicative repertoire for the group of Chinese children as a whole was expanded, with an increased number of types used at three levels of measure and with a decreased proportion of uninterpretable communicative attempts. We found a core set of communicative interchanges in the study, together with commonly used types of speech act, which indicates that the children were learning to be more intentional communicators. This suggests that the main development in communicative acts was in their frequency and intelligibility during the period under study. The late appearance of some types in the interchange category and speech act category highlighted the fact that pragmatic difficulty might exist in addition to syntactic difficulty. The comparison of the repertoire and proportions of communicative acts showed similarity and differences between Chinese children and the American children in the Harvard study. This finding suggests that we need to consider cultural and linguistic differences as we look for universal determinants of human development.

We also analyzed the syntactic development of Chinese children quantitatively, by measuring the Mean Length of Utterance and Mean Length of five longest Utterances. Over the study period, the Chinese children showed a clearly increasing trend in both MLU and MLU 5. In examining the relationship between children's communicative and syntactic measures, MLU and MLU 5 correlated with Speech act and Pragmatic Flexibility in a positively stable way at 14 months, 20 months and 26 months, but not at 32 months. Both MLU and MLU 5 were associated with the number of Interchange types at age 14 months, 26 months and 32 months, but not at 20 months. This suggests a complicated, cross-domain relationship between aspects of pragmatic ability and syntactic knowledge at particular periods of development. A further examination of the five longest MLU utterances, found that the most frequent syntactic examples were declaratives and that there were very few negatives at any age. Questions only emerged and with a low frequency, at the later two ages. Pragmatically, the children mostly used social interchange on directing hearer's attention, negotiating immediate activity, or discussing joint focus in their five longest MLU utterances. That is, there was a marked interaction between a higher level of syntax and a familiar communicative context.

We measured all the mother-child dyads for their communicative acts. Chinese mothers showed a simpler format in talking with their prelinguistic children of 14 months and they sustained this pattern in their interactional efforts as the children's communicative skills increased. In comparison to the American mothers in the Harvard study, Chinese mothers had a smaller repertoire of communicative acts, but they showed their intentions clearly by their frequent use of these limited types. A few types of communicative acts that were popular among American mothers did not

appear in the list for Chinese mothers and these types were rare in the Chinese children's communicative behavior. Analyses showed strong correlations between the communicative acts of mothers and children, significantly between speech acts and pragmatic flexibility at the later three stages. Frequently used interchange-speech act combinations resulted in considerable cohesion between mother and child. These findings suggested that Chinese mothers have their own characteristic ways of communicating and transmit cultural information in interaction with their children.

Chapter 5

Analysis of Results on Longitudinal Data

troduction

This chapter presents the results of a longitudinal study of a monolingual ırin girl Haohao. This longitudinal study has two goals. The first is to track ıatic development in a single child, at 14 months, 20 months, 26 months, and 32 hs. The second goal is to obtain a fuller understanding of the details of pragmatic lopment, focusing on the growth of communicative acts, the relation between gmatic development and syntactic development; and a mother's influence on her ld's communicative behaviors during the interactions.

In this chapter, we describe the findings in age order sequences, presenting the sults in three parts: First, we examine the emergence of communicative acts. This art will focus on how children's communicative acts emerge and how they learn to ecome intelligent communicators. The second part emphasizes pragmatic and yntactic relationships at each stage, to see how children express their communicative ntentions by means of their growing linguistic ability and how the linguistic characteristics of Chinese influence the children's communication. The third part of each age-related description will be the qualitative analysis of child-mother interaction. This part aims to reveal the interactional relationship between mother and child as interlocutors, and the cultural influence of the mother on her child's developing communication.

5.2 Longitudinal data analysis at 14 months

5.2.1 Emergence of communicative acts at 14 months

Comparison of pragmatic measures for longitudinal data and cross-sectional data

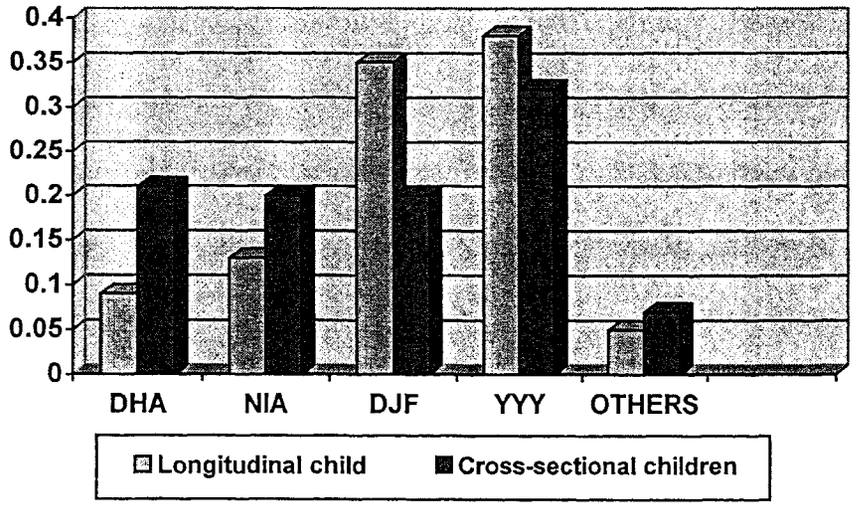
This section begins by presenting the comparative results of the pragmatic measures for the longitudinal data and the cross-sectional data. Table 5.1 results by generating information from the computerized Child Language Analysis (CLAN). That is a proportion of the children's communicative attempts, interpretable at both a social interchange level and a speech act level, under two- token criteria measuring the number of social interchanges, the number of speech acts and the number of social interchange- speech act combinations.

At first glance, it might seem as if there are some differences between the two kinds of data at 14 months. For the proportion of communicative attempts, Haohao, the child studied longitudinally showed slightly lower than the children studied as a group at 14 months for interpretable social interchanges, but nearly ten percent higher than them in interpretable speech acts. This result may reflect Haohao's use of speech act types. However, all these differences were inside the range found in the cross-sectional group children.

Table 5.1 Comparison of communicative acts for the child studied longitudinally and the children studied as a group at 14 months

	Longitudinal Data	Cross-sectional Data
Proportion of communicative attempts interpretable at Interchange Level	.62	.67 (Range .35- .96)
Proportion of communicative attempts interpretable at Speech Act Level	.52	.41 (Range .13- .93)
Number of Interchange Types	4.0	3.9 (Range 3.0– 5.0)
Number of Speech Act Types	6.0	4.0 (Range 2.0- 7.0)
Pragmatic Flexibility	6.0	5.5 (Range 2.0-9.0)

Figure 5.1 Comparison of proportion of common social interchange types for longitudinal data and cross-sectional data at 14m



Observation of Social Interchange Level at 14 months

The observation of social interchanges for Haohao in 14 months confirmed the finding from the cross-sectional data analysis. Among the earliest social interchanges to emerge, DHA (*direct hearer's attention*), NIA (*negotiate immediate activity*) and DJF (*discuss a joint focus*) were three frequently used types for Chinese children at 14 months, whether they talked with mothers at home or in the laboratory.

Observing Haohao's use of *DHA*, one might find that the child mainly made calling name to direct her mother's attention at 14 months. For example, Haohao called her mother twice in the observation. When the mother turned to her, she added a pointing gesture to the actual object, and then her mother told her that it was a cat in the picture (see Example 14-1, see below). It seemed that the child came to know the animal's name in the picture book by using the strategy of calling mother to get attention. She had successfully initiated conversation as early as 14 months old. This observation supported the finding in cross-sectional data analysis, as well to Harvard study: children's role in communication is active, not passive from the beginning (Snow et al., 1996).

Example 14m-1:

*CHI: 妈妈.
%pin: ma1ma .
%int: Mom .
%spa: $DHA:CL
*CHI: 妈妈.
%pin: ma1ma .
%int: Mom .
%spa: $DHA:CL
%gpx: The child pointing to the cat in the picture.
*MOT: 告诉 妈 这 是 猫 .
%pin: gao4su4 ma1ma zhe4 shi4 mao1.
%spa: Tell Mom this is cat.

%spa: $NIA:RP

The emergence of *Negotiate Immediate Activity* was a rather different story at this early stage. As Example 14m-2 showed (see below), the mother usually took the position of proposing to *Negotiate Immediate Activity* and the child was mostly in the position of responding with agreement or disagreement. The mother tended to request very specifically with yes/no questions, this way reducing the degree of difficulty for the 14-month-old child. So then, the child gave positive or negative answers in very simple responses.

Example 14m-2:

*MOT: 要大熊猫 吧.
%pin: yao4 da4 xiong2mao1 ba.
%int: want big panda?
%spa: $NIA:YQ
*CHI: 要.
%pin: yao4.
%int: want.
%spa: $NIA:AD
*MOT: 说要就 给.
%pin: shuo1 yao4 jiu4 gei3.
%int: say want so give you.
%spa: $NIA:ST
*CHI: zanga-zang-e-re-ba +---
%spa: $YYY:YY
%act: CHI 唱歌般地发出声音.
*MOT: 要喝 点水啊?
%pin: yao4 he1 dian3 shui3 a?
%int: want to drink some water?
%spa: $NIA:YQ
*CHI: 喝 .
%pin: he1.
%int: drink.
%spa: $NIA:AD

As early as 14 months, Haohao started to learn to *Discuss a Joint Focus*. As for Negotiate Immediate Activity, she generally maintained her responding and answering position. In Example 14m-3 (see below), the mother asked a productive

question: " where is the Grandpa Sun?" and Haohao answered by repeating name "Grandpa." However, immediately after this answer, the child exchanged information related to the discussion by pointing to a cat in the focused picture and giving a statement "cat." So this example again showed that children takes an active role in *Discussion Joint Focus* even when very young.

Example 14m-3:

*MOT: 太阳 公公在哪里啊?
%pin: tai4yang2 gong1gong zai4 na3li3 a?
%int: where is Grappa Sun ?
%spa: $DJF:QN
*CHI: 公公.
%pin: gong1gong .
%int: Papa (grandpa) .
%gst: pointed to the picture book.
%spa: $DJF:SA
*CHI: 猫 .
%pin: mao1 .
%int: Cat.
%spa: $DJF:ST
*MOT: 还有马呢?
%pin: hai2you3 ma3 ne?
%int: What else， house ne?
%spa: $DJF:QN

Example 14m-4:

*MOT: 猫 怎么叫的?
%pin: mao1 shi4 zhen3me jiao4 de?
%int: how cat cry?
%spa: $DRP:QN
*CHI: maomao.
%pin: maomao.
%int: (imitate cat crying sound)
%spa: $DRP:PR
*MOT: 猫是妙妙 的叫的?
%pin: mao1 shi4 miao1maio1 jiao4 de?
%int: Does cat cry as "miaomiao"?
%spa: $DJF:YQ
*MOT: 猫妈妈呢?
%pin: mao1 ma1ma ne?
%int: Mother cat ne(question marker)?
%spa: $DJF:EQ

Example 14m-5:

*MOT: 好好 来象飞机一样睡觉.
%pin: Hao3hao lai2 xiang4 fei1ji1 yi2yang4 shui4jiao4.
%int: Haohao come to sleep like fight.
%spa: $NIA:RP
*CHI: 不睡.
%pin: bu2 shui4.
%int: Not sleep.
%spa: $NIA:RD
*CHI: n +---
%pin: n+--
%int: (vocal sound)
%spa: $YYY:YY
*MOT: 摇啊摇 我家宝宝要睡觉 .
%pin: yao2 a yao2 wo3 jia1 bao3bao yao4 shui4jiao4.
%int: rolling boat my baby want sleep.
%spa: $TXT:TX
*CHI: 再见 (dai ji) .
%pin: zai4jian4.
%int: bye-bye.
%spa: $MRK:MK
%act: 作再见招手动作.

Here we need to mention two more types of Social Interchanges, though under two-token measuring we did not consider those as acquired types. The first one was DRP (*Discuss Related-to-Present)*. An Example 14m-4 shows (see above) the child once touched on DRP when her mother asked, "How does a cat cry?" It seemed popular with Chinese children both in this individual one and in groups, to answer their mother related-to present question of how the animals cry and imitate certain animal's sounds. Another Social Interchange type was MRK (*Marking*, see above Example 14m-5). Because the child refused her mother's proposal to go to sleep, her mother started to sing a cradlesong: "rolling boat." Then the child said "zaijian"("bye-bye") in response. It is not clear how to interpret that "bye-bye." It may mean differently, either to say goodnight following her mother's cradlesong, or to show refusal to listen to mother's singing in early years. However, this example provides the emergence of social interchange of "marking" in children 14 months.

Observation of Speech Act Level at 14 months

The six speech act types that emerged from the longitudinal data of Haohao at 14 months were: *CL-calling attention to hearer by name*, *SA-answer to wh-question, AD-agree to do, RT-repeat, ST-statement* and a very special type of speech act: *YY-uninterpretable vocal sounds.*

First, take an observation of the special type of speech act *YY-uninterpretable vocal sound.* At 14 months, Haohao produced 48% unintelligible sounds, which we interpret at a social interchange level but not at a speech act level. Looking closely into these *YY*, in below Example 14m-7, one might find that the uninterpretable speech acts had some special meanings for children at beginning of communication. At first Haohao's mother asked Haohao what would happen if she fell down. Haohao had a clear answer "wawa", which actually is baby talk often used by young children to mean "crying". When her mother asked another wh-question, about who should tell if she falls down, Haohao responded with the uninterpretable sound "mao." Then her mother tried to inspire her to say "A Gong (Grandpa)." However, Haohao answered again with the uninterpretable sound "mao." Therefore, the *YY* might serve different function in children's communication. (1) Expanding the interaction, in which the first *YY* Haohao used in response to her mother's question, was mainly to maintain the interaction of discussing joint focus. (2) Express the intention of answering a question and then to push the conversation going in turn in the interaction. (3) Expressing disagreement, in which the second *YY* in Example 14m-6 (see below) seemed to express a different idea or functioned to stop a talking turn.

Example 14m-6:

*MOT: 跌下去怎么样啊?
%pin: die1 xia1qv4 zhen3me yang4 a ?
%int: what happened if you fall down ?
%spa: $DJF:QN
*MOT: 跌下去怎么样啊?
%pin: die1 xia1qv4 zhen3me yang4 a ?
%int: what happened if you fall down ?
%spa: $DJF:RR
*CHI: 哇哇 .
%pin: wa1wa.
%int: wa wa (crying sound imitation)
%spa: $DJF:SA
*MOT: 跌在这里告诉谁 啊?
%pin: die1 zai4 zhe4li gao4shu shui2 a ?
%int: Whom do you tell if you fall down here?
%spa: $DJF:QN
*CHI: mao.
%int: vocal sounds.
%spa: $DJF:YY
*MOT: 告诉 阿公吧?
%pin: gao4su4 a3gong1 ba ?
%int: telling grandpa?
%spa: $DJF:YQ
*CHI: mao.
%int: vocal sounds.
%spa: DJF:YY

SA-answer to wh-question was the most frequently used type at this stage with an occurrence rate of occurrence 20%. From Example 14m-3, one might have found that Haohao was able to answer her mother's wh-question with a very simple statement. When her mother asked Haohao where the Grandpa Sun was, during their joint discussion of the picture book, Haohao gave an answer right away by naming Grappa Sun and pointing to the picture. It was common for this child at this age, as well for other Chinese children, that a *SA-answer to wh-question* combined with a DJF-discuss joint focus answer to mother's simple *What* and *Where* questions. In addition, like her peer group, Haohao responded with her very limited language to name things and share conversation in turns with her mother.

RT-repeat/imitate other's utterance was another emerging Speech Act type at 14 months. There were two kinds of situation that Haohao used *RT-repeating* at this age. One was the child motivated repeating mother's talk by catching up as most important word in her mother's sentence. The first *RT* showed this situation as in Example 14m-7. Sometimes the mother directly requested Haohao to repeat, as in the second *RT* in Example 14m-7, where the mother asked her child to "call it mother cat" and Haohao responded. In this situation, the mother seemed to be trying to reinforce her child' mastery of a new word. In fact, Haohao applied the *RT-repeating* type during conversation to some new words at this stage.

Example 14m-7:

*MOT: 猫 妈妈 呢?
%pin: mao1 ma1ma ne?
%int: where is mother cat?
%spa: $DJF:YQ
*CHI: 猫 妈.
%pin: mao1 ma1.
%int: mother cat.
%spa: $DJF:RT
*MOT: 叫 它 猫 妈妈.
%pin: jiao4 ta1 mao1 ma1ma.
%int: call it mother cat.
%spa: $NIA:RP
*CHI: 猫 妈.
%pin: mao1 ma1.
%int: mother cat.
%spa: $DJF:RT

Haohao used *CL-calling attention to hearer by name,* only in relation to *DHA-direct hearer's attention,* when she needed to show mother something. As mentioned in relation to the Social Interchange level observed in Example 14m-1, Haohao commonly tried this strategy for getting her mother's attention at 14 months. She

usually took the initiating position. Perhaps the calling mother strategy was the easiest way to do this, so her communicative attempts were successful every time.

There were a few attempts at *ST-statement* in their discussion of a joint focus. Unlike *SA-answer to wh-question by statement*, that *ST-statement* more equally distributed in spontaneous talking between mother and child. In Example 14m-3, Haohao pointed the picture to say "mao (cat)," following a previous answer to a wh-question from her mother. This statement actually meant, "this is a cat," despite the limitation on her expressive language.

Finally, *AD-agree to do* and *RD-refuse to do*, these two opposing types are worthy of attention. The child usually applied these two speech act types in combination with *NIA-negotiate Immediate Activity.* As Example 14m-2 showed, Haohao responded to her mother's proposal with a positive attitude, she agreed to carry out her mother's proposed activity with a single word: "want" or "drink". *RD-refuse to do* was not counted as emerged type, for child only produced only once at this stage. Haohao clearly show the use of a negative expression in negotiating intend activity, though she could only use "not want" to refuse to do something (see Example 14m-3).

Observation of Combination level

The observation of Haohao's Communicative acts at combination level showed that her pragmatic flexibility at 14 months was very limited. Under the two-token criteria measuring, Haohao produced only six types of interchange and speech

act combinations at this observation.

Further, we look closely to the different types of combinations. We found that Haohao used a few DHA:CL. At this age, she only combined the DHA- directing hearer's attention with *CL- calling names* in her early interaction with her mother. Calling "Mama" to propose mother's attention was Haohao's first strategy to direct her mother's attention.

Meanwhile, Haohao had two kinds of combination types when she started to participate the discussion of joint focus. DJF: SA and DJF: RT were two popular combination types Haohao used at 14 months. From these two combination types, we can understand that children's early participating discussion may begin with responding to their mother initiating of discussion.

Haohao's pragmatic flexibility at negotiation was also limited. She produced only one type of NIA: AD (*negotiate immediate activity: agree to do*) over twice, though she had several trying in different ways to negotiating with her mother. This observation on Haohao's negotiation behavior indicated that, at 14 months, children's negotiating expression may be limited by their developmental level of syntax.

5.2.2 Pragmatics and syntax relationship at 14 months

The quantitative measures of Mean Length of Utterances and Mean Length of 5 longest utterances had similar results for two kinds of data. Table 5.2 shows a

comparison of results from these basic syntactical measures. The individual child Haohao had higher scores on both MLU and MLU 5 than the average of her peers, but again these differences were inside of the range. The result of MLU 5 longest utterances for the Haohao actually provided evidence for what we previously found in cross-sectional data analysis, which was that the regular rate for children's MLU and MLU 5 might not reach to one third at the beginning stage.

Table 5.2 Comparison of syntactic development for longitudinal and cross- sectional data at 14 months

	Longitudinal Data	Cross-sectional Data
MLU	1.09	1.06 (Range 1.0-1.14)
MLU 5	1.8	1.4 (Range1.0-1.8)

One of the central research questions in this study is to find out how pragmatics and syntax cooperatively work together along with children's acquisition of communicative acts. Children can start to communicate without mature language, because young children are attracted to social interaction, as well as being attracted to social interaction at very early years (Oller, & Hilers, 1989, cited from Snow et al. 1996; Snow et al. 1996). However, we have also observed the limitation of syntactic expression in these early communicative acts.

Observation on Declarative form

Most speech acts were syntactically in the single word stage at 14 months. Observing child and mother conversation in discussion of joint focus, Haohao used many single words in *SA-answer to wh-question* or *ST-give a statement*. Those single Chinese words, such as "*hua1* (flower)"or "*ma3* (house)," were mostly nouns with a single syllable. As noticed in Example 14m-3, in answer to "*zhe4 shi4 shen2me* (what is this)?" or "*ma3 zai4 na2li3 a* (where the house is)?" even to a yes/no question, the 14-month Haohao often gave the same answer, giving the object name plus a pointing gesture. Therefore, for very young children, this strategy works well in learning how to exchange information, because usually children pick up the most important information from communication.

Early noun combinations emerged during the observation period. The child used these nouns pragmatically in repeating or imitation of her mother's utterances. For instance at Example 14m-7, Haohao imitated her mother's word "*mao1 ma1ma1* (mother cat)" twice. Nevertheless, she could only pronounce it incompletely as "mao1 ma1."

Haohao also produced a few verbs in her communication. In expressing a communicative intention to *NIA- negotiate immediate activity*, Haohao responded to her mother's question with a single verb. Taking Example 14m-2 again, when her mother asked Haohao whether she wanted a toy Panda, she gave a positive answer"*yao4* (want)." Later, her mother asked another yes/no question, this time about drinking corn juice. Then Haohao responded to the question positively with

verb "*he1* (drink)." This observation concurs with the finding in previous research, that Chinese children use more verbs at a very young age; the forms of responding to Chinese question, which are difficult from functionally similar forms in other languages, may influence this feature of their development (Tardif, 1998; 2000).

Observation on Negative forms

At 14 months, Haohao used early negative expressions in responding to her mother's negotiation of immediate activity. For instance, responding to her mother, she said "*bu2 yao4* (not want)" and "*bu2 shui4* (not sleep)," refusing her mother's request in the interaction period. The child applied an early negative form only in a situation that directly related to her own need.

The negative form that emerged earliest was the negative marker plus verb. As noted, research has reported that Mandarin negation makes several distinctions that are not explicit in English. Rejections "*bu4*," denial "*mei2*"are two main negative particles (Chang, 1992). In this observation, we found that Haohao used two ways to express her refusing intention at the beginning stage. Form one is that using the Chinese negative mark "*bu2* (not)" plus main verb"*yao*4 (want)." Form two is a"*bu2* (not)" plus verb, such as "*bu2 shui4* (not sleep)" or "*bu2 chi1* (not eat)." These early emerging negatives remind us of the characteristics of the Chinese language, because the 14-month Chinese girl was not saying "*bu4* (no)" to start expressing her negative meaning, but using the verb explicitly as well.

Observation on Question forms

Though her mother used many questions, there were no productive question forms in Haohao's speech at 14 months. However, with regard to the understanding of and responding to her mother's question, at this stage the child seemed quite capable of answering the following question forms:

(1) *yao*4 (want) + verb + *ma1* (question marker)? = Answer with *yao4* (want) or *bu2 yao4* (not want)

(2) *zhe4* (this) *shi4* (be) + *shen2me* (what) ? = Answer with noun naming object

(3) *Noun* + *zai4* (at) + *na2li3* (where)? = Answer with noun naming object plus pointing to object.

Observation of other grammatical forms

From this observation, we found that there were a few Chinese baby talk forms, with which Haohao exchanged information with her mother while they discussed a joint focus. For example, the child said "*niao3niao3* (bird bird)" in answer to her mother's question "*zhe4ge zhi1dao4 ma* (Do you know this)?" She reduplicated the single noun "*niao3* (bird)" to be a new word. Another example was when her mother asked what could happen if she fell down, Haohao answered with double"*wa1wa1*"to mean crying (see above Example 14m-7), a sound of imitate crying as a substitute for the verb. Chinese linguistic forms embedded in the early baby talk. Many forms followed this pattern, as in "*gong1gong* (grandpa)" or"*pu1 pu1 chuang2* (making bed)."

5.2.3 Mother – Child interaction at 14 months

The goal of this section is to analyze the interactional process of mother-child communication, to reveal the interactional relationship between the interlocutors, and the cultural meanings carried by the mother that might influence the child's communicative ability, both now and later.

How did the mother behave in communication with the 14-month child Haohao? What was the mother's focus in the session? An overview of observations gives a general picture. During the 30-minute session, the number of types of communicative acts, which the mother used in interaction with her 14-month child, was seven for Social Interchanges, 11 for Speech Act and15 for Pragmatic Flexibility. Within the mother's Social Interchanges: *NIA-negotiate immediate activity* (40%), *DJF- discuss joint focus* (28%) and *DHA- direct hearer's attention* (11%) and *DCC- discuss vocal behavior* (10%), four common types occurred frequently. At the Speech act level, the mother used (28%) *RP- request/proposal,* (21%) *QN- ask a productive question,* (11%) *YQ- ask yes/no question* and (11%) *ST- statement.* From these frequencies, one might expect to discover Chinese mother's attentional focus in the interaction.

There were several communicative strategies applied by the mother for communication with her 14-month child Haohao. First, interpreting her child's unclear speech acts and framing a correct structure was one commonly used in the interaction. The below Example 14m-8 and Example 14m-9, show how the mother applies this strategy. When Haohao said *lu4ying1ji1* (audio recorder) in unclear way,

her mother caught the meaning from the sound and interpreted for her with the right noun. Later the mother asked Haohao what the thing was and the child answered with the sound "*dai,*" which was close to *Dian4shan4* (electronic fan). Then her mother repeated the words with a correct pronunciation. The mother's strategy of interpreting her child's unclear speech acts, not only provided the language model for the child to learn, but also helped to keep the conversation going smoothly. This finding supports studies of children transferring from a pre-linguistic to a linguistic period, showing their striking ability to be communicators in everyday social interactions and revealing that mothers' responsiveness to their young children's behaviors made a contribution to their children's communicative development (Fogel & Thelen, 1987; Golinkoff, 1983; Pan et al. 1996; Ratner & Bruner, 1978; Snow, 1977; Trevarthen, 1977).

Example 14m-8:

*MOT: 唱个摇啊摇.
%pin: chuang4 ge yao2a1yao2.
%int: Sing a Rolling song.
%spa: $NIA:RP
*MOT: 唱歌给 录音机听.
%pin: chuang4ge1 gei3 lu4ying1ji1 ting1.
%int: sing a song to the recorder.
%spa: $NIA:RP
*CHI: weisi.
%pin: weisi.
%int: (vocal sounds close to lu4ying1ji1-recorder)
%spa: $DHA:YY
*MOT: 机啊.
%pin: ji1 a.
%int: ji1.
%spa: $DCC:ST
*MOT: 对录音机.
%pin: dui4 lu4ying1ji1.
%int: yes recorder.
%spa: $DJF:ST

Example 14m-9:

*MOT: 宝宝 这是什么?
%pin: bao3bao zhe4 shi4 shen1me.
%int: Baby what is this.
%spa: $DHA:QN
*CHI: dai .
%pin: dai.
%int: (vocal sound close to "dian")
%spa: $DJF:YY
*MOT: 电扇 .
%pin: dian4shan4.
%int: Electronic fan.
%spa: $DCC:CT

Simplifying the question form might be another strategy for a mother to use in communication with her very young child. During the observation, Haohao's mother applied many questions to elicit her child's talk. Pragmatically the mother used four kinds of questions in particular: a QN- wh-question, a YQ- yes/no question, a EQ-eliciting question and a RR- repeating question, a total of 37.5% of all the speech acts. From a syntactic view, the mother simplified all those questions in discussion or negotiation to fit the communication needs of a 14-month child. Looking back to Example 14m-3, first Haohao's mother asked Haohao where the Grandpa Sun was in the picture; and then she asked another question "*hai2you3 ma3 ne* (what else the horse + question marker)?" In Example 14m-4, the mother asked her child "*mao1 ma1ma1 ne* (Mother cat + question marker)." The full form of these questions should be: " where is the horse (or mother cat)? " These examples supported the earlier findings in other language. That is that the speech of parents addressed to young children was simple and restricted in linguistic forms as well as in pragmatic forms, because these forms of simplicity may be as crucial in making adult utterances usable to language learning children (Cross, 1978; Goldfield, 1987; Ninio, 1992; Pine, 1994; Snow, 1972, 1994).

In order to get her child to talk, Haohao's mother sometimes repeated her question in the interaction. One example given in the previous observation (see Example 14m-7), the mother tried to get her child to say what would happen if she fell down. The first time she asked the question, she did not get an answer from her child. Then the mother repeated the same question "*die1 xia4qu4 hui4 zhen3me1yang4* (what happens if you fall down)?" Haohao responded "*wa1wa1* (crying)." This strategy of repeating the question showed the mother's determination to involve her child in discussion.

Finally, there was a strategy of role changing used by the mother. Haohao could barely talk much at this stage, especially in relation to the discussion of a joint focus. What could her mother do for this real situation? We found that this Chinese mother sometimes changed her role in communication and took her child's perspective to response to the questions she herself asked. For example, the mother asked Haohao who should tell after she fell down. She herself immediately answered by suggest, " *gao4shu4 a1gong1 ba* (tell grandpa)" (see Example 14m-7). We found the similar situation in the interaction, which was whenever the mother asked question and she gave her own answer. So this strategy the Chinese mother used in communication helps us to understand how the mother was sensitive to her child's linguistic ability, and how she made an effort to keep early discussion going on.

5.3 Longitudinal data analysis at 20 months

5.3.1 Emergence of communicative acts at 20 months

Comparison of pragmatic measures for longitudinal data and cross-sectional data at 20 months

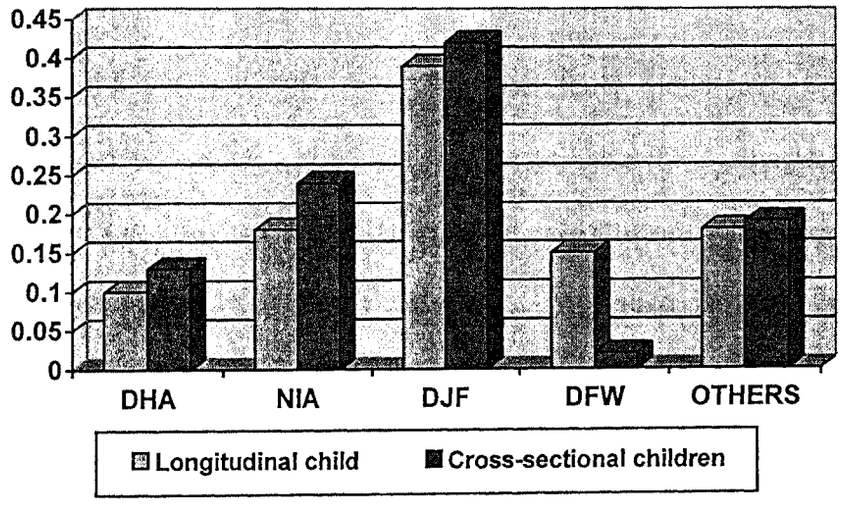
We found several developmental changes of communicative acts in this comparison. For one thing, Haohao had a higher proportion of interpretability than her matched cross-sectional group, both on Social interchange level and Speech Act level (see below Table 5.3), though the interpretable proportion of communicative attempts went up for all the children. There was a distance between the interpretable proportion at the interchange level and at the speech level. While children in the group study had 10% social interchanges and 20% speech acts that could not interpreted, Haohao displayed 3% uninterpretable social interchanges and 5% uninterpretable speech acts. We could say, therefore, that children's communicative behaviors mature first for showing their intentions, and later for giving complete expressions.

The comparison of number of types of communicative acts indicated a similar pattern between Haohao and the cross-sectional children. Under the two-token criteria, Haohao was mainly using six social interchange types, eight speech act types, and eleven types of combinations. These numbers were quite close to the average level of the peer group. Across the two kinds of data, children at 20 months used more social interchange types than they did at 14 months.

Table 5.3 Comparison of communicative acts for longitudinal child and cross- sectional children at 20 months

	Longitudinal Data	Cross-sectional Data
Proportion of Attempts Interpretable at Interchange Level	.98	.90 (Range .83- .99)
Proportion of Attempts Interpretable at Speech Act Level	.95	.80 (Range .57- .98)
Number of Interchange Types	6.0	5.2 (Range 4.0– 7.0)
Number of Speech Act Types	8.0	8.6 (Range 6.0- 13.0)
Pragmatic Flexibility	12.0	12.1 (Range 7.0-19.0)

Figure 5.2 Comparison of proportion of common social interchange types for longitudinal data and cross-sectional data at 20 months



The third, going into more detail, we found that the common types of social interchange were changing at this stage. In the cross-sectional children's group, *DHA-direct hearer's attention*, *DJF –discuss joint focus* and *NIA- negotiate immediate activity*, were still the most common types with highest frequent occurrence on average. However, from the observation of the longitudinal child, *DHA* type had given way to *DFW- discuss fantasy world* on going by the frequent occurrence. Thus, we may need to consider the influence from the context of conversation in children's performance of communicative acts.

Observation of Social Interchange Level at 20 months

What was the new evidence regarding the expression of communicative intentions? How did the Haohao learn to use the emerged types of social interchange in the interaction process? The continuing observations of social interchange level provided a new picture at 20months.

In the first place, one might need to know what had happen to those types that emerged at 14 months. As noted above, three common types *DHA, NIA* and *DJF* were popular at 20 months, the NIA and DJF were increasing in frequency of usage while the *DHA* decreasing. Aside from the calculation of frequency, we looked closely at examples of developmental changes. Using *DHA-direct hearer's attention* in the below Example 20m-1, Haohao pointed out "a lot of water" and "in the sofa" to her mother. In comparison to frequently calling at previous stage, she now applied a different strategy in getting her mother's attention. In Example 20m-2 and 20m –3, this child started proposing or stating her self-intent to negotiate immediate activity,

thus showing signs of taking a more active role in communication. Qualitatively, the discussion of joint focus between mother and child also differed from before as Example 20m- 3 showed. The child no longer stayed in the answering position. Instead, she used many ST- statements in discussion so that she became an equal discussant.

Example 20m -1:

*CHI: 好多水.
%pin: hao3duo1 sui .
%int: lot of water.
%spa: $DHA:ST
*CHI: 在沙发上.
%pin: zai4 sha1fa3 shang4 .
%int: on sofa.
%spa: $DHA:ST
*MOT: 是油漆.
%int: It is paint.
%spa: $DCC:ND
*MOT: 不是水 .
%pin: shi4 you2qi1 bu2shi4 shui3 .
%int: Not water.
%spa: $DCC:ND
*MOT: 水是透明的.
%int: Water is transparent.
%spa: $DJF:ST

Example 20m -2:

*CHI: 妈妈 .
%pin: ma1ma .
%spa: $DHA:CL
*CHI: 宝宝要看书.
%PIN: bao3bao yao4 kan4 shu1.
%spa: $NIA:RP
*MOT: 好的.
%pin: hao3 de .
%spa: $NIA:AP
*MOT: 看什么书啊?
%pin: kan4 she2me shu1 a ?
%spa: $NIA:QN

Example 20m -3:

*CHI: 这个是它的腿.
%pin: zhe4ge shi4 ta1 de tui3.
%int: This is its leg.
%spa: $DJF:ST
*CHI: 这个是它的窗户.
%pin: zhe4ge shi4 talde cuang1hu4 .
%int: This is its window.
%spa: $DJF:ST
*CHI: 宝宝教你.
%pin: bao3bao jiao1 ni3.
%int: Baby teach you.
%spa: $NIA:SI
*MOT: 你教我啊.
%pin: ni3 jiao1 wo3 a.
%int: You teach me a.
%spa: $DCC:ST
*MOT: 好吧小先生.
%pin: hao3 ba xiao3 xian1sheng.
%int: OK little teacher.
%spa: $NIA:AP

Next, we move to newly emerged type of social interchanges. *DFW- discuss fantasy world* was one type of social interchange that emerged at this stage of observation. As defined in INCA-A, DFW functions as a way to hold a converse about objects, people and events within fantasy play, or to refer to a narrative situation, which is in the speaker's own imagination not a written text (Ninio et al. 1991). In Example 20m-4 (see below), we found that DFW brought a functionally different intention to child-mother conversations. When the mother requested Haohao to talk a little more to the audio-recorder, Haohao spoke out from her imagination: dressing the recorder and kissing the recorder, before going to work. In talking with *DFW -discuss fantasy world*, the mother and the child hold a conversation not on something observable in the environment, but on some objects, people or events within their imagination. The emergence of DFW actually expanded conversation between the

Haohao and her mother, so that conversations between them were very different from these they had at 14 month. Of course, the child got into DFW talk only after her mother's initiation. So mother's sampling and encouragement were important to the emergence of a new social interchange type for the child.

Example 20m -4:

*MOT: 还有 呢?
%pin: hai2you3 ne ?
%int: what else?
%spa: $DJF:EQ
*CHI: 录音机和你---
%pin: lu4ying1ji1 he2 ni3---
%int: recorder and you ---
%spa: $DFW:ST
*CHI: 穿件衣服 .
%pin: chuan1 jian4 yilfu2.
%int: wear a cloth.
%spa: $DFW:ST
*MOT: 带帽子的?
%pin: dai4 mao4zi de ?
%int: with a hat ?
%spa: $DFW:YQ
*CHI: 给录音机戴帽子.
%pin: gei3 lu4ying1ji1 dai4 mao4zi .
%int: put a hat on recorder .
%spa: $DFW:ST
*CHI: 吻一下录音机.
%pin: wen3 yi2xia4 lu4ying2ji1 .
%int: kiss once the recorder.
%spa: $DFW:ST
*CHI: 宝宝上班了 .
%pin: bao3bao shang4ban1 le .
%int: baby go to work .
%spa: $DFW:ST

DRP- discussing the related-to present was another newly emerged social interchange type at 20 months. Acting as a different function from other interchange types in communication, *DRP* is commonly used to hold a conversation about the

non-observable attributes of objects or persons present in the environment or to discuss past or future events related to those referents. The Example 20m-5 and 20m-6 showed the emergence of DRP in Haohao's talk (see below). The using of *DRP* lead mother-child conversations in a somewhat different direction and broke through the limitations of the information exchange at the last stage. In Example 20m-6, for instance, Haohao directed her mother's attention to a watch but she called it a "little clock." When her mother told her that was a watch, the child thought about and mentioned her own watch. Later she added some information about how she broke her watch. All the talking related to the present, but it brought more information to the present situation. The emergence of *DRP* social interchange enlarged the child-mother conversation, so that the child-mother interaction was no longer based on " what is this -this is what".

Example 20m-5:

*MOT: 你知道哥哥在干什么?
%pin: ni3 zhildao4 gelge zai4 gan4 she2me ?
%int: Do you know what brother is doing?
%spa: $DRP:QN
*CHI: 摊摊床睡觉.
%pin: tanltanl chuang2 shui4jiao4 .
%int: Making bad to sleep .
%spa: DRP:SA

Example 20m-6:

*CHI: 小钟.
%pin: xiao3zhongl.
%int: Little clock.
%spa: $DHA:ST
*MOT: 小钟.
%pin: xiao3zhongl.
%int: Little clock.
%spa: $DCC:RT
*MOT: 但是戴在手上我们叫手表.
%pin: dan4 dai4 zai4 shou3 shang4 wo3men2 jiao4 shou3biao3 .

%int: But we call it watch when we wear it.
%spa: $DJF:ST
*CHI: 宝宝也有的.
%pin: bao3bao ye2 you3 de .
%int: Baby has this too .
%spa: $DRP:ST
*CHI: 宝宝手表.
%pin: bao3bao shou3biao3 .
%int: Baby watch .
%spa: $DRP:ST
*CHI: 给宝宝一折掉.
%pin: gei3 bao3bao yi1 zhe2diao4.
%int: Be baby once fold .
%spa: $DRP:ST

We also observed the mother's eliciting of the new interchange type for DRP emergence at 20 month. As Example 20m-5 (see above) shows, the mother asked Haohao first what she thought her brother was doing. This was the start of discussion around whom related to the present but not visible in the situation. The response from the child was a *DRP* answer, which in fact made it rather easier for the child at the beginning to talk in a different way.

In this observation, we also found a few examples of *TXT- read written text aloud* in Haohao's talk (see Example 20m-7). Following a directing proposal from her mother, Haohao could sing some songs. Likewise, she responded to her mother by telling a story with one beginning sentence, but this sentence had a typical story format.

Example 20m-7:

*MOT: 唱我的好妈妈.
%pin: chang4 wo3 de hao3 malma .
%int: sing "my good mother".
%spa: $NIA:RP
*CHI: 我的好妈妈.
%pin: wo3 de hao3 malma .

%int: My good mother +---
%spa: $TXT:TX
*CHI: 下班回到家.
%pin: xia4ban1 hui2dao4 jia1 +---
%int: Come home after work.
%spa: $TXT:TX
*MOT: 讲个故事吧.
%pin: jiang3 ge gu4shi4 ba .
%int: Telling a story.
%spa: $NIA:RP
*CHI: 从前有个小贝贝.
%pin: cong2qian2 you3 ge xiao3bei4bei4 .
%int: Long time ago there is a little baby.
%spa: $TXT:TX

As result of this observation of social interchanges, there was a question about one type of *MRK-marking event.* The observations of Haohao' talk lead to the conclusion as we demonstrated in the last chapter. Haohao used only once of *MRK* in this observation: when she returned to her mother's proposal to say "hello." Unlike what researchers have found in American children (Snow et al. 1996), Chinese children applied this early-emerged type much less frequently.

Observation of Speech Act level at 20 months

With regard to communicative acts at speech act level, we found that the child in this observation, still frequently used some types that emerged at last stage. *ST-statement* was the most popular type among all the speech acts that the longitudinal child used 40% in this interaction section; *RD-refuse to do* also increased in frequency to 10%. Right in front of the increasing frequency of ST, the frequency of SA- *answer to wh-question* decreased to 7% in this observation. However, it was one of the few speech act types with proportional occurrence of over 5%. We would discuss some

quality changes within these emerged types later. The following observation emphasizes the new type of speech act that emerged at 20 months.

Most noticeably, *AA- answer in the affirmative to yes/no questions* emerged with 8% occurrence in Haohao's conversation at 20 months. Haohao learned to use *AA-answer to yes/no question* later than *SA- answer to wh-questions.* If we analyze Example 20m-8 below, we can see the way of answering yes/no question in Chinese is somewhat different from English. To answer whether something looks good, in English one can use only one word "yes" or "good." However, in Chinese, Haohao must say two words "look good," together, to express the affirmative meaning. The second AA in the Example 20m-8 was different, one needs to answer that yes/no question in two ways: either say "like" or say "yes." Therefore, the complexity of the syntactic requirement to answer yes/no questions could possibly be the reason for AA type emerged later than SA in Chinese.

Example 20m-8:

*MOT: 那件衣服好看吧?
%pin: na4 jian4 yilfu hao3 kan4 ba ?
%int: That cloth looks good?
%spa: $DJF:YQ
*CHI: 好看.
%pin: hao3 kan4 .
%int: Look good.
%spa: $DJF:AA
*MOT: 你 喜欢 穿 是 吧?
%pin: ni3 xi3huan1 cuan1 shi4 ba ?
%int: You like to wear it right?
%spa: $DJF:YQ
*CHI: 是.
%pin: shi4 .
%int: Yes.
%spa: $DJF:AA

Recall that there was no *RP-request/propose* for Haohao at 14 months. Mostly the child had replied to her mother's requesting with *NIA- negotiate immediate activity*. This situation changed at 20 months in this observation, Haohao started to apply *RP-request/proposal* to negotiate directly. As Example 20m- 2 showed, Haohao proposed to her mother for a "read book" activity after calling her mother's attention. In fact, this direct request worked well because the child got mother's approval immediately.

It was interesting to observe that Haohao started to express her self- intent. Example 20m -3 shows the first of a few attempts at *SI- state intent to carry out act*. Using in discussion of a joint focus, Haohao indicated a part of the audio- recorder as "its window." Then she expressed her intent to her mother: "Baby teach you." The word "Baby (*bao3bao*)," which the child used to mean herself and was actually present before in her mother's talk, is a very common way for Chinese adult to refer to a young baby. So here, what the child expressed as her intent to her mother was "I am teaching you."

Example 20m-9

*CHI: 这个是什么?
%pin: zhe4ge shi4 shen2me ?
%int: What is this ?
%spa: $DJF:QN
*MOT: 这是插耳机的.
%pin: zhe4 shi4 cha1 er3ji1 de .
%int: This is for putting ear phone .
%spa: $DJF:SA

Finally, we need to mention *QN- asking a productive question* which we observed at 20 months. This speech act type appeared in the 20- month cross-sectional

data, with very low proportional engagement and occurrence. In this observation, we found only one QN example in Haohao's conversation of discussion of joint focus. Looking at Example 20m-9, Haohao initiated a whole question to her mother: "*zhe4ge shi4 shen2me* (what is this)?" She showed an interest to search information in discussion of joint focus.

Observation of Pragmatic Flexibility at 20 months

Observations of pragmatic flexibility made the situation clearer. Where there were combinations of Social Interchange and Speech Act levels, Haohao started using emerged speech act types to combine different social interchanges, as well as using new types of speech act with emerged social interchanges. Pragmatically, this change gave her a more flexible expression in communication.

First, we shall look at *DHA-direct hearer's attention*. At the last stage, Haohao frequently applied *CL- calling mother* to get her attention. Now this same child learned to direct her mother's attention differently. As Example 20m-1 shows, she used *ST-statement* to point out that there was some water on the sofa, so that she successfully got her mother's attention. Though *DHA: CL (direct hearer's attention-calling name)* still existed in this observation, the frequency of occurrence had decreased. Meanwhile, Haohao used more *DHA: ST (direct hearer's attention-statement)* instead.

With relation to *NIA (negotiate immediate activity)*, *RD (refuse to do)*, *RP (request/propose)* and *SI (state intent to do)* were three popular combinations. As

noted above in the examples, the new types of combination allowed the child to indicate her own interest and intention towards new activities.

From the observation of the discussion group, including *DJF* (discuss joint focus), *DFW* (discuss fantasy world) and *DRP* (discuss relate-to-present), common combination types were *ST* (statement), *SA* (answer to wh-question) and *AA* (answer in affirmative to yes/no question. Following this observation, one might conclude that the child's pragmatic flexibility in discussion was limited at 20 months, although she demonstrated a great increased interest in participant in discussions.

5.3.2 Pragmatics and syntax relationship at 20 months

Comparison of syntactic development for the longitudinal data and the cross-sectional data at 20 months

Following the observation at the last stage, this section focuses on finding out whether there was a developmental change in the child's syntactic ability at 20 months. The MLU and MLU 5 results demonstrated a developing trend in the child's syntactic ability (see Table 5.4). In comparison to the cross-sectional group, Haohao achieved higher scores on both MLU and MLU 5 measures than the average of her peers. As we found in the last stage, however, Haohao's syntactic performance was within the range for children of this age.

Table 5.4 Comparison of Syntactic Development for Longitudinal and Cross- sectional data at 20 months

	Longitudinal Data	Cross-sectional Data
MLU	2.36	1.54 (Range 1.03-2.65)
MLU 5	4.0	3.0 (Range1.20-5.6)

If we consider Haohao's performance on MLU and MLU 5 as an individual difference in relation to the children observed as group at same time, we can think that there was a rapid period of change for the child between 14 months and 20 months. At the last observation, Haohao had MLU of 1.09 counted as MLU stage 1 (Brown, 1973). Six months later, Haohao had reached an MLU of 2.36 that came to MLU stage II. How does the child's syntactic ability differ qualitatively from before? How does the child's syntactic development work together with her pragmatic development? We try to answer these questions in the next section.

Observation of Declarative forms

Haohao had a rapid development of syntactic ability around 20 months. In this observation, the 5 longest Mean Length of Utterances of hers were all declaratives – affirmative forms, using for DJF: ST (*discuss joint focus: statement*) and NIA: RP (*negotiate immediate activity*).

One main syntactical structure observed in this section was a simple declarative sentence. As we mentioned before in examples, early SVO sentences emerged in Haohao' s discussion of joint focus or negotiation immediate activity with her mother. At this age, the child frequently repeated a SVO sentence *zhe4ge shi4 xx* (this is xx) in DJF: ST (*discussion joint focus by statement*). The earliest simple declaratives had already contained the general marker *de,* such as *zhe4ge shi4 ta1 de chuang1hu4* (this is its window). This Chinese morpheme is located between specifier and the head noun.

In her use of NIA: RP (*negotiation immediate activity: request/propose*) and NIA: SI (*negotiate immediate activity: intent to do something*), Haohao started to put SVO and SV (VP) structure into practice. She proposed to her mother with: "*bao3bao yao4 kan4shu1* (baby want read book)." She also said " *Bao3bao jiao1 ni3* (baby teach you)"to her mother. During the same observation, she used several times of "*Bao3bao shang4ban1 le* (baby has gone to work)." One might notice that Haohao called herself as "*bao3bao* (baby)" instead of saying personal pronoun "I," though she had used "ta1 (it)" during this observation.

We should say here that not all the communicative acts reached beyond this level for the 20- month-old longitudinal child. In trying to express new social interchanges, the statements child made were rather different and not fixed. Some researchers have reported findings of VOVO and SV structures for Chinese children around the age of 2;0 (Erbaugh, 1992; Miao & Zhu, 1996). These grammatical characteristics newly emerged in Haohao's expression of communicative intentions. For example, Haohao used VOVO structure to express an incomplete DFW: ST

(*discuss fantasy world: statement*): *gei3 lu4ying1ji1 dai4 mao4zi* (give audio-recorder wear hat).

Perhaps due to her growing awareness of pragmatic functions, all the speech acts for answering questions were comparatively short and simple. For instance, Haohao still answered wh-questions (*SA*) with a single noun, such as "button" or "loudspeaker." At same time, she used the single verb "*dong3* (understand)" or the verb phase "*hao3 kan4* (look good)," to answer yes/no questions (*AA*). Thus, when children learn to talk communicatively, their awareness of pragmatic function may practically help them using certain grammatical structure.

Observation of Negative forms

The syntactic development of negative forms was found in Haohao's talk at 20 months. From this observation, we conclude that main syntactic changes to negative forms happened in Haohao's use of Negotiating Immediate Activity for refusing (*NIA: RD*). This type of communicative act emerged at the last stage. By 20 months, Haohao applied the VO structure to express negative meaning. In fact, she mostly talked in NOT + want + V + O or NOT + V + O. For example, Haohao said *bu4 yao4 chi1* xiang1jiao1 (not want eat banana); *bu4 yao4 tuo1 yi1fu2* (not want take off clothes); and *bu4 he1 shui3* (not drink water) to refuse mother's request. Haohao acted as if she decided simply to respond her mother with a "*bu4 yao4* (not want)"plus the verb that her mother had used in requesting, to express her refusal meaning. There was an interesting example, when the mother requested Haohao using

an unusual expression: "*xiao3 ge bian4* (have a pee)." Haohao refused her mother's request with "*bu4 yao4 xiao3 ge bian4* (not want have a pee)."

Observation of Question forms

Two questions emerged during this observation. The first one was a simple question in an incomplete declarative form plus a question mark, which pragmatically functioned as an *EQ-eliciting question.* During a discussion of joint focus, Haohao asked her mother"*hai2 you3 ne* (what else ne)*?*" to ask for more information. Though this earliest question form was very simple, it was a notable that the child used a question marker "ne" after a VP *hai2 you3* (adv + Vt), which is a common expression in oral Mandarin Chinese. Li & Chen have reported similar questions produced by Mandarin children around 2; 11 (Li & Chen, 1998)

The next one was a wh-question. As previous research has reported, 'what' questions, especially 'what is this?' are the earliest wh-question forms emerging at around 2;0 in Mandarin Chinese (Erbaugh, 1992; Zhu & Miao, 1996; Zhou, 1997; Li & Chen, 1998). In this observation, Haohao produced one *zhe4 shi4 shen2me* (what is this), when she discussed a joint focus with her mother. Considering the characteristics of Chinese Wh-question forms, there was no need to change the verb and the word order, for the question, form remains same as declaratives "*zhe4 shi4* xxx (this is xxx)." Therefore, the earliest Chinese wh-question "*zhe4 shi4 shem2me* (what is this)" might relate to children's acquisition of declarative forms (Zhu, 1986; Li, 1996).

Observation of other grammatical forms

Two more Chinese forms were found in Haohao' s talk at this observation. First, we observed the emergence of an early Chinese BA construction. The BA sentence is special linguistic form in Chinese. This sentence contains a construction of NP1 + BA + NP2 + VP where the BA form governed the direct subject of the verb. Although linguists suggested that the BA construction is not easy to acquire (Lee, 1992), Cheung (1992; cited from Lee, 1992) reported that Taiwan Mandarin children started to use BA sentences at around two years old. The example from this observation was an incomplete BA sentence without the subject, in particular, a V+O+VP structure. During the discussion of a joint focus, the mother asked Haohao if she was a good person or a bad person. The child replied as "*shi4 huai4dan4* (cop. verb+ bad person). Later she further explained using her imagination "*ba3 da4hui1lang2 gan3zou3 le* (BA big wolf drive away le)." Here a perfective marker *le* was involved in the early BA construction, even for the incomplete BA sentence.

Another special form found in this observation was a passive construction. When Haohao was talking with her mother about a watch using related-to-present (see Example 20m-6), she mentioned her watch *gei3 bao3 bao yi1 zhe2 diao4* (<watch> by baby once folded). This earliest passive form had a VOVP structure with the passive marker "*gei.*" Though the actual meaning in this expression was not too clear, we can say that the child was telling her mother that she had broken her watch.

5.3.3 Mother – Child interaction at 20 month

Following up the analyses at 14 months, we applied the same method to explore the interactional relationship between mother and child at this new stage. To begin with, an overview leads us to a general picture of the mother's communicative behavior. Using two-token criteria, during the 30-minute interaction period the mother produced eight types of Social Interchanges, 13 types of Speech Act and 18 types of combinations. This was more than she had used at the last stage, which indicated that, the quantities of the mother's communicative acts changed, as her child grew older. Taking the mother's communicative intentions, the frequency of her use of common Social Interchanges was now different. *DJF- discuss joint focus* became the number one type, with a frequency of 41%. *NIA-negotiate immediate activity* was reduced to 29%, while at same time the proportional occurrence of *DHA- direct hearer's attention* dropped to 4%, even less than other discussion types such as *DNP-discuss non-present* (7%) and *DRP-discuss related-to-present* (7%). At the Speech act level, the mother used 21% *ST-statement*, 22% *YQ- ask yes/no questions*, *14% QN- ask a productive questions*, and 9% *RP- request/proposals*. From these proportional occurrences, we conclude that the Chinese mother paid mot attention to DISCUSSION in interacting with her child at 20 months.

We found that mother used some new strategies during the talking with her child. First, the mother started to add more information and to extend the discussion. As Example 20m-1 shows, when Haohao pointed out "a lot of water" on the sofa, her mother immediately gave her feedback with the correct information. She explained why that liquid was not water, because water would be transparent. The same

situation happened in Example 20m-6, when Haohao stated a "little clock." Her mother told her that it should be as "watch" when people wear it on their wrist. This new strategy made the mother's talking rather different from the last stage. She was more serious about exchanging information with her child, trying hard to extend the discussion content.

Secondly, the mother applied a narrative strategy in talking with her child. Perhaps the mother had a sense that her child talked a lot in an imaginative way at this period, so she used the same way to communicate with child. In several cases, the mother discussed with her child in a narrative way. For example, she explained to the child: "let insect come out, otherwise your teeth will be break". During the same observation, the mother encouraged Haohao to talk. She requested Haohao to "tell little clock how you drive big wolf away." From these examples, one might find that mother was playing a partner role to fit the child's communication need at this stage.

5. 4 Longitudinal data analysis at 26 months

5.4.1 The Emergence of communicative acts at 26 months

A comparison of pragmatic measures for longitudinal data and cross-sectional data

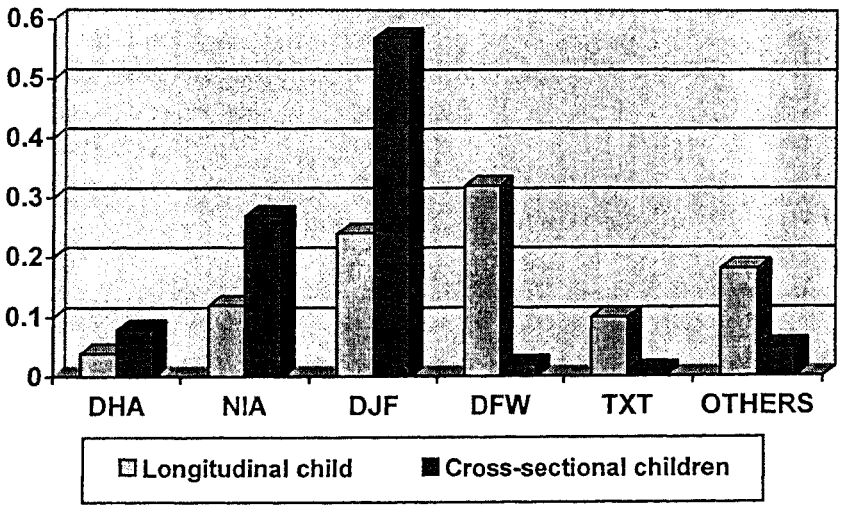
A comparison of pragmatic measures revealed development for both the individual child Haohao and the group of Chinese children at 26 months (see Table 5.5). First, the children talked more clearly than they did at the last stage. Their communicative attempts were almost completely interpretable at the social interchange level, which meant that their communicative intentions were well understandable for others. At the speech act level, Haohao's interpretable proportion was slightly higher than the average of her peers, but was still within the group's range. Along with the increasing interpretability of communicative attempts, we found two kinds of change. One was that the proportional difference between interpretable social interchanges and interpretable speech acts reduced at this stage. The other was that the difference of proportional interpretability was tending to reduce between the two kinds of data, as well as among the group children.

Next, Haohao's repertoire of communicative acts expanded at 26 months. In fact, the types of communicative act increased in number for both Haohao and the group children (also see Table 5.5). Haohao produced eight types of social interchange, more than average performance for 26-month- old children. At same time, she used slightly fewer types of speech act than her peer group. Therefore, in this observation session, she had in her repertoire a similar number of combination

Table 5.5 Comparison of communicative acts for the longitudinal child and the cross- sectional children at 26 months

	Longitudinal Data	Cross-sectional Data
Proportion of communicative attempts interpretable at Interchange Level	.99	.98 (Range .95- 1.0)
Proportion of communicative attempts interpretable at Speech Act Level	.99	.94 (Range .87- .99)
Number of Interchange Types	8.0	5.3 (Range 3.0– 8.0)
Number of Speech Act Types	11.0	12.2 (Range 6.0- 17.0)
Pragmatic Flexibility	15.0	15.4 (Range 6.0-24.0)

Figure 5.3 Comparison of proportion of common social interchange types for longitudinal data and cross-sectional data at 26m



types as the group children. It seemed that the individual differences became obvious in the children's use of communicative acts at this age, while all the children became more alike in the interpretability of their communicative attempts.

Besides the number of types of speech act, we need to look again at the social interchanges common between all the children. We have distinguished the meaning of the common types in different ways. On the one hand, the frequency of type of engagement could show how many children at this age used one particular type. On the other hand, the frequency of occurrence could tell us how often one child or a group of children used a certain type in communication. Figure 5-3 shows the proportional occurrence of common types for both groups of children. From this observation, we saw that the individual child Haohao used the same core types of social interchange that we found in the cross-sectional data analysis. However, the proportional occurrence of *DHA-direct hearer's attention, DJF-discuss joint focus and NIA-negotiate immediate activity* in Haohao's talk was very different from the average for the children in the cross-sectional group. At the same time, Haohao applied *DFW-discuss fantasy world* and *TXT-read written text* a lot in this session. These differences between the two kinds of data suggest a significant connection between conversational situation, topic, and communicative acts.

Observation of Social Interchange level at 26 months

Two new types of Social Interchange emerged during this within-child observation. First, Haohao started to use *DNP-discuss the non-present* in talk with her mother. As defined in the INCA-A coding system, *DNP* is used to hold a conversation

about topics which are not observable in the environment, for example, past and future events and actions, distant objects and persons, abstract matters (excluding conversations about the hearer's and speaker's inner states) (Ninio, et al. 1991). The emergence of DNP allowed Haohao and her mother to express a new and very different communicative intention. In Example26m-1 (see below), Haohao, and her mother discussed an activity, which would carry out in the next few days. They talked about taking a train or a flight to go somewhere, what they were going to do in Chengdu and who was in the city called Chengdu now. The interaction between the mother and her child pragmatically leads the child's communicative intention to a more open level.

Example 26m-1:

*MOT: 我们再过几天干吗?
%pin: wo2men2 zai4guo4 ji3tian1 gan4ma ?
%int: What are we going to do a few days later?
%spa: $DNP:QN
*CHI: 搭火车.
%pin: da1 huo3che1 .
%int: Take train .
%spa: $DNP:SA
*MOT: 搭火车还是搭飞机啊?
%pin: da1 huo3che1 hai2shi4 da1 fei1ji1 a?
%int: Take train or take fight?
%spa: $DNP:TQ
*CHI: 大火车.
%pin: da4 huo3che1 .
%int: Big train.
%spa: $DNP:AQ

Like the emergence of new types of social interchange at the last stage, Haohao's mother once more initiated a new way to talk. This was by asking a question in order to remind Haohao what would happen in few days time. However, as Example 26m-2 shows, Haohao returned to the topic about going to Chengdu when

her mother moved on to others. Then her mother asked several more questions to enlarge the range of their talk. It was interesting to observe that, when Haohao answered her mother's question in the wrong way, by saying: "play Chengdu" [1]her mother didn't use any of the common strategies to give Haohao the right sentence or to correct her. She simply repeated Haohao's utterance plus a question mark "a?" Then the mother moved to an easier question " who is in Chengdu" to get a correct answer. The mother seemed to know that talking in a new way was difficult for a child at the beginning. Thus, compared to the other social interchange types she used in the same conversational session, Haohao was interested in the new topic but mostly dealing with the new situation in a rather passive way.

Example 26m-2

*CHI: 到成都去.
%pin: dao4 cheng2du1 qu4 .
%int: go to Chengdu.
%spa: $DNP:ST
*MOT: 到成都玩什么?
%pin: dao4 Cheng2du1 wan2 shen2me ?
%int: What to do in Chengdu?
%spa: $DNP:QN
*CHI: 玩成都 .
%pin: wan2 Cheng2du1 .
%int: Play Chengdu (city).
%spa: $DNP:SA
*MOT: 玩成都啊?
%pin: wan2 cheng2du a?
%int: Play Chengdu ?
%spa: $DNP:AQ
*MOT: 成都有谁在啊?
%pin: cheng2du1 you3 shui2 zai4 a?
%int: Who is in Chengdu now?
%spa: $DNP:QN
*CHI: 爸爸.

[1] The original words the child said in Chinese were "wan2 Chengdu (play Chengdu)". It is not correct to put the verb "wan2 (play)"in front of the city name "Chengdu". The right form in answer to her mother's question of "dao4 Cheng2du1 qu4 gan4shen2me (what are we going to do in Chengdu)", should be "dao4 Cheng2du1 qu4 wan (go to play/have fun in Chengdu)" or "qu4 wan2 (go to play/have fun)".

%pin: ba4ba .
%int: Daddy.
%spa: $DNP:SA

The second new type to emerge during this observation was *DRE-discuss a recent event*. After telling a story she herself made up, Haohao suddenly asked her mother two yes/no questions (see below the Example 26m-3). One question was whether the Little Minmin (a boy character in her story) was polite. Another was whether the story was a good story. These two questions sustained the conversation on after her story telling. It was interesting to see the expressions in these earliest *DRE* examples, because they sounded like those often used by a Chinese mother or a Chinese teacher after telling stories to children. Therefore, Haohao was imitating her mother or teacher to discuss her story after telling it.

Example 26m-3:

*CHI: 小明明有礼貌吧？
%pin: xiao3ming2ming you3 li3mao4 ba ?
%int: Is Little Minmin polite?
%spa: $DRE:YQ
*CHI: 好听不好听？
%pin: hao3ting1 bu4hao3ting1 ?
%int: Pleasant hearing or not pleasant hearing?
%spa: $DRE:TQ
*MOT: 好听.
%pin: hao3 ting1 .
%int: Good.
%spa: $DRE:TA
*MOT: 讲得真好.
%pin: jiang3 de zhen1 hao3 .
%int: Your story is really good.
%spa: $DRE:PM

We also made some other observations on Social Interchanges at this time. Haohao used *DFW-discuss fantasy world* and *DRP-discuss related to present* at this stage. These two social interchange types, *DFW* and *DRP*, had appeared at the last

stage as new communicative intentions. At first, there were limitations on Haohao's use of these two social interchange types. However, *DFW* seemed to be blossoming in Haohao's 26- month talking. Haohao was telling her own made-up story to her mother in this observation. It was interesting to observe that she started repeatedly from the beginning, whenever her mother asked her a question in order to widen the story's content (see Example 26m-4 and 5). Sometimes Haohao talked with *DFW* as if she was in a role-play. As Example 26m-6 shows, she acted as a mother to take care of baby rabbits. There were a few examples of DRP before the mention of the rabbits. It seemed that her mother was trying to enlarge her child's interactional content and requested Haohao to think about whether a rabbit or other animals slept at night (see Example26m-7). Haohao answered her mother's D*RP- Related to Present* question much easier than at the last stage.

Example 26m-4

*MOT: 编个故事给我们听.
%pin: bian1 ge4 gu4shi gei3 wo3men ting1ting .
%int: Make a story to tell us.
%spa: $NIA:RP
*MOT: 大灰狼说什么?
%pin: da4hui1lang2 shuo1 shen3me ?
%int: What does big wolf say?
%spa: $NIA:QN
*CHI: 我要给小朋友讲个故事.
%pin: wo3 yao4 gei3 xiao3 peng2you3 jiang3 ge4 gu4shi .
%int: I want to tell a story to children.
%spa: $NIA:SI
*CHI: 故事的名字叫小明明有礼貌.
%pin: gu4shi de ming2zi jiao3 xiao3 ming2ming you3 li3mao4 .
%int: The story name is called "Xiao Minmin is polite".
%spa: $NIA:DC
*CHI: 有一天啊.
%pin: you3 yi2tian1 a .
%int: One day ---.
%spa: $DFW:ST
*CHI: 小明明有礼貌.
%pin: xiao3 ming2ming you3 li3mao4 .
%int: Xiao Minmin is polite.

%spa: $DFW:ST
*CHI: 到了托儿所.
%pin: dao4 le tuo1zuo4suo3 .
%int: Arrive to nursery school.
%spa: $DFW:ST
*CHI: 喊老师早.
%pin: han3 lao3shi1 zao3 .
%int: Say good morning to teacher.
%spa: $DFW:ST
*CHI: 小朋友就夸我.
%pin: xiao3peng2you3 jiu4 kua1 wo3 .
%int: Friends praise me.
%spa: $DFW:ST
*CHI: 你是好宝宝.
%pin: ni3 shi4 hao3bao3bao .
%int: You are good child.
%spa: $DFW:ST

Example 26m-5

*MOT: 后来小明明在路上又碰到谁了?
%pin: hou4lai2 xiao3 ming2ming zai4 lu4shang you4 peng4dao4 shui2 le ?
%int: Who does he meet late on the way?
%spa: $DFW:QN
*CHI: 老奶奶.
%pin: lao3nai3nai3 .
%int: Old lady.
%spa: $DFW:SA
*CHI: 从前.
%pin: cong2qian2 .
%int: Long time ago.
%spa: $DFW:ST
*CHI: 有一个小明明.
%pin: you3 yi2ge4 xiao3ming2ming .
%int: There is a Little Minmin.
%spa: $DFW:ST
*CHI: 他呢有礼貌.
%pin: ta1 ne you3 li3mao4 .
%int: He is polite.
%spa: $DFW:ST
*CHI: 碰到奶奶.
%pin: peng4 dao4 nai3nai3 .
%int: Seeing old lady.
%spa: $DFW:ST
*CHI: 就喊奶奶好.
%pin: jiu4 han3 nai3nai3 hao3 .
%int: He would greet old lady.
%spa: $DFW:ST

Example 26m-6

*MOT: 那你不要给小白兔喂饭啊？
%pin: na4 ni3 bu2yao4 gei3 xiao3bai2tu4 wei4 fan4 a ?
%int: Then you don't want to feed baby rabbit?
%spa: $NFW:YQ
*CHI: 小白兔还睡觉的.
%pin: xiao3bai2tu4 hai2 shui4jiao4 de .
%int: Baby rabbit (are) still sleeping.
%spa: $DFW:CS
*CHI: 还睡得好好的.
%pin: hai2 shui4de hao3hao de .
%int: Sleep well.
%spa: $DFW:CS
*MOT: 它们没有枕头怎么办？
%pin: ta1men mei2you3 zhen3tou zen3me ban4 ?
%int: How can they sleep without pillow?
%spa: $DFW:QN
*CHI: 小白兔小枕头.
%pin: xiao3 zhen3tou xiao3 zhen3tou2.
%int: Small rabbit small pillow.
%spa: $DFW:SA
*CHI: 大白兔大枕头.
%pin: da4bai2tu4 da4zhen3tou .
%int: big rabbit big pillow.
%spa: $DFW:SA

Example 26m-7

*CHI: 小白兔睡觉了.
%pin: xiao3bai2tu4 shui4jiao4 le .
%int: Baby rabbit is sleeping.
%spa: $DHA:ST
*MOT: 它晚上睡不睡啊？
%pin: ta1 wan3shang4 shui4 bu2 shui4 a ?
%int: Does it sleep at night?
%spa: $DRP:YQ
*CHI: 小白兔不睡.
%pin: xiao3bai2tu4 bu2 shui4 .
%int: baby rabbit not sleep.
%spa: $DRP:AN
*MOT: 小猫要不要睡？
%pin: xiao3lie4 yao4 bu2yao4 shui4 ?
%int: Does baby cat want to sleep?
%spa: $DRP:YQ
*CHI: 不要.
%pin: bu2 yao4 .
%int: Not want.
%spa: $DRP:AN

At same time, Haohao had often used *DJF-discuss joint focus, NIA-negotiate immediate activity,* and *TXT-read loudly written text* at 26 months in talking with her mother. We will discuss these within-type changes for DJF and NIA with the observation of combination level and the observation of relating to syntactic development. Here we need to add only one point about the use of TXT type. Recall Haohao's use of TXT at the last stage. She sang a song at mother's request. During this observation, she became more active in wanting to read written text aloud. She sang a rolling boat song, recited a nursery rhyme, and told a brief story in this 30 min session. This may suggest that using *TXT-read loudly written text* became a familiar way of communicating for the individual child in her daily communication with her mother. Because both the Chinese children and the group of American children had a very small proportional occurrence of the TXT type in semi-structured laboratory situations (please refer to last chapter), once again, we should consider the difference between the situations.

Checking for other Social Interchange types, we did not find the using of *NMA-negotiate mature attention, PRO-perform verbal moves in activity* and *MRK-marking* during this observation. This result added more information to what found for children in cross-sectional group. While the Chinese mothers and children talked a lot in discussion, either about something to do with joint focus or a fantasy world, no doubt their preferred style of communication limited their use of certain types, if these were not relevant to the content of their discussion.

Observation of Speech Act level at 26 months

While her repertoire of communicative acts was growing, Haohao also showed some qualitative changes on her Speech Acts.

Firstly, some new types of speech act were emerging at this stage. *CS-count suggestion* appeared a few times it Haohao's talk during this observation. In Example 26m-7, her mother challenged Haohao to feed the baby rabbit but Haohao replied with two counter-suggestions. First, she told her mother that the baby rabbit was sleeping and then she immediately added one sentence to say that the baby rabbit was sleeping very well. These two utterances carried an implicit meaning: "I will not feed the baby rabbit." So here these two utterances served an indirect refusal function, as some researchers have defined in the INCA-A coding category (Nonio, et al. 1991).

Secondly, *TQ-limited alternative question* and *TA-answer to limited alternative question* both emerged in Haohao's conversation of 26 months. Haohao could correctly answer her mother's *TA- answer to limited alternative question* first. As Example 26m-1 has already showed, her mother asked Haohao if she would fly to Chengdu city by plane or by train. Haohao answered with her choice of "taking big train". Later, telling her own made-up story, Haohao used two limited alternative questions to ask her mother whether her story was good or not good (see Example 26m-3). These two TQ were imitative, because the form of Haohao's TQ question was just like the way a teacher or her mother would ask.

Next, there was another new type of speech act, coded as *DC-create a new state of affairs by declaration*, that came into Haohao's conversation with her mother (refer to above Example 26m-4) at this time. Before Haohao started telling her own story, she first stated her intention and then used *DC* to make the announcement: " *gu4shi4 de min2zi jiao4 xiao3 min2min2 you3 li3mao4* (the name of the story is: "Little Minmin is polite"). This type of Speech Act here served a different function, that of expressing something new like an announcement.

Finally, we look at those Speech Act types that emerged before. Although Haohao explored some new types, she was still using the other types of Speech Act that had emerged at the last two stages. *ST-statement* was the most frequently used type during this observation. *SA-answer to wh-question* and *TX-read loudly written text* were the second most common. *SI-state self-intent, RP-propose/request, RD-refuse to do* and *AA-answer in the affirmative to yes/no question* could all also be found in Haohao's talk at this stage. However, the frequency of these types was decreasing during this observation.

Observation of Pragmatic Flexibility at 26 months

We have seen that Haohao further expanded her communicative repertoire of Pragmatic Flexibility level at 26 months. What were the main characteristics of this development? How did she learn to combine different Social Interchanges with various Speech Acts?

Haohao was adding her emerging types of Speech act to previously emerged Social Interchange types. For instance, she used *DC-create a new state of affairs by declaration* in DJF-discuss joint focus and NIA-*negotiate immediate activity.* She combined CS-*counter suggestion* with DFW-*discuss fantasy world* and she applied TA-*answer to limited alternative questions in* DJF-*discuss joint focus,* DNP-*discuss non-present,* and DRP-*discuss related-to-present.* At same time, Haohao combined previously emerged Speech Act types with different Social Interchanges, including the emerging ones. During this observation, Haohao was using ST-*statement* in *Discussion of joint focus, Discussion of fantasy world,* but also *Discussion of non-present.* Further, there were very few combinations of newly emerging Social Interchanges with emerging Speech Acts. For example, there were DRE: TQ-*discuss related-to-present: ask limited alternative questions* in Haohao's talk.

Despite the obvious developments, we found some limitations at the level of Pragmatic Flexibility. One example was that there was no change in DHA-*direct hearer's attention.* Pragmatically this earliest Social Interchange type was limited in the way it combined with Speech Acts. Another example was DFW-*discuss fantasy world.* Haohao only combined two kinds of Speech Act with DFW; most frequent being the ST-statement, though she was talking very actively within this social interchange. Therefore, we should concern the limitation resulting from the child's syntactic level.

5.4.2 Pragmatic and Syntax relationship at 26 months

A comparison of syntactical measures for longitudinal data and cross-sectional data

This section focuses on finding out whether there was a developmental change in the child's syntactic ability at 26 months and how the child used her syntactic ability to express her communicative intentions.

Haohao's MLU level was expanded at 26 months (see below the Table 5.6). Considering that the mean MLU for the group children was 2.21 at 26 months, Haohao's achievement of MLU 2.78 was closer to the average performance than at the last stage. The measuring of MLU 5 resulted in a pattern similar to the MLU measures between the individual child and the group children.

Table 5.6 Comparison of Syntactic Development for Longitudinal and Cross- sectional data at 26 months

	Longitudinal Data	Cross-sectional Data
MLU	2.78	2.21 (Range 1.48-2.85)
MLU 5	5.8	4.7 (Range2.0-7.0)

As noted in the last chapter, the 5 longest Mean Length of Utterance used by the group children were mainly declarative forms. Looking at Haohao's speech during this observation, her 5 longest MLU's consisted entirely of declaratives, confirming the finding for the cross-sectional group.

Observation of Declarative forms

The first evidence of syntactic development was a within-type change in Haohao's speech acts. That is, syntactically, in familiar social interchange types, Haohao's use of a familiar speech type altered. For example, at the last stage, in combination with DJF- *discussing joint focus, ST- statement* was the type most frequently used by the child to label things in the environment. During this observation, Haohao used more *ST-statements* with DJF to discuss a joint focus or she used DFW to discuss a fantasy world. However, she frequently used some sentences with a typical SVO structure. In Example 26m-4, Haohao talks about her story of a boy character called Little MinMin using *ST-statement*:

xiao3 min2min shang4 tuo1er2suo3 le (Little Minmin goes to nursery school le)

dao4 wan3shang4 ba4ba lai2 jie1 (In the evening Daddy come <to> pick up)

lao3shi1 dou1 tuo1 di4ban3 le (Teacher <has> clean the floor le)

xiao3 min2min jiu4 shuo lao3shi1 zai4jian4 (Little Minmin then said teacher good bye)

From these examples, we can see the changes within *ST-statement* and within SVO declarative structures. For one thing, Haohao started to use a final particle le to express the conclusion of the completed action in her talk. At same time, she tried to use time-duration adverbs such "*dao4 wan3shang4* (in the evening)," to indicate the time during which events occur. She also used adverbs of scope to add intensifiers to the speech act content, such as "dou (already) clean floor."

There were some other within-type changes in Haohao's use of *SI-state self-intent*. In Example 26m-4, Haohao intended to tell her own story after following her mother's encouragement. She used a causative verb before the main verb to express a wanting action:"*wo3 yao4 gei3 xiao3 peng2you3 jiang3 ge4 gu4shi* (I want <to> tell children a story)", which was a structure of S +V1 (wanting) +V2 (action) +O + V + O in Chinese. This example shows Haohao's syntactic development at 26 months.

A second kind of evidence comes from her use of pragmatics and syntax cooperation with emerging types of communicative acts. At the Social Interchange level, it seems that Haohao's syntactic practice in the newly emerging Social Interchanges was simpler than that when she was using already familiar types. For instance, she used *ST-statement* in discussion with her mother about a non-present event: "go to Chengdu city"(DNP: ST). She repeated "*dao4 cheng2du qu4* (go to Chengdu city)" a few times, but her utterances were all brief. These examples suggest that, at 26 months, pragmatically, children's talk is more complicated within familiar social interchange types, when they have the confidence to handle their experience.

However, things were rather different for the types emerging at the level of Speech Acts. There were some syntactic changes in newly emerging Speech Act types, such as *DC-create a new state of affairs by declaration* and *CS-count suggestion*. In Example 26m-4, one *DC* utterance of"*gu4shi4 de min2zi jiao4 xiao3min2min you3 li3mao4* (the story name called <as> Little Minmin be polite)", Haohao used an associate noun phrase as subject and object, making a rather more complicated NP + V +NP structure than the simple SVO. Nor was Haohao's *CS* utterance at a lower syntactic level. Example 26m-7, "*xiao3 bai2tu4 hai2 shui4jiao4 de* (Little rabbit < is

> still sleeping de) shows a S+VP structure, in which the adverb of scope hai2 was used to explain the situation and de was placed at the end of verb to express certainty.

Finally, we looked again at the *SA-answer to wh-question* and *AA-answer in affirmative to yes/no question* speech acts. These stayed syntactically shorter and simpler in structure, whether Haohao used them to discuss a joint focus or discuss a fantasy world. One interesting example came when Haohao answered her mother's question with "*xiao3 bai2tu4 xiao3 zheng3tou2* (small rabbit small pillow)"(Example 26m-6). Syntactically this answer is wrong, because the child did not use a verb between the subject and the object. However, pragmatically it worked well in Chinese speech. These *SA* and *AA* acts indicate that children learn pragmatic awareness at the same time as they pick up appropriate utterances to serve their conversational needs.

Observation of Negative forms

During this observation, Haohao used fewer negative forms than at the previous stage. She became a more fluent communicator. As at the last stage, she used a few negative forms of the construction NIA: RD (*negotiate immediate activity: refuse to do*). Nevertheless, these negative utterances such as"*bu4 chang4* (not sing)" showed no great change in syntax.

One example showed syntactic development in negative forms. When her mother asked a limited alternative question about whether rabbits sleep at night, Haohao answered "*xaio3 bai2tu4 bu2 shui4* (baby rabbit (is) not sleep)." This answer to limited alternative question contained an S + bu + V structure. It was the first time

that Haohao produced a simple negative sentence. It is clear that the syntactic development helped her to express herself better.

Observation of Question forms

Question forms were still rare during this observation. However, we did find examples in which Haohao showed developmental change, both in syntax and in pragmatics.

In the first instance, a yes/no question emerged in Haohao's conversation at 26 months. After telling her own made up story, Haohao put a yes/no question to her mother, to discuss a character in the story. As Example 26m-3 shows, she added the interrogative final particle ba to a simple affirmative declarative sentence. Then the sentence became: *xiao3 min2min you3 li3mo4 ba* (Little Minmin is polite ba?). Some Chinese linguists point out that yes/no questions with the interrogative particle ma or ba is quite simple in Chinese, because it only adds the interrogative final particle, with a neutral tone, at the end of affirmative statement or negative statement (Tiee, 1986). However, as we have noted, this "quite simple" question form did not appear earlier than others in the cross-sectional group. Other Chinese researchers have reported the same result. Children do not produce the yes/no question until they are 25 months old (Li & Chen, 1998). Looking at the example of Haohao's speech, you might feel that, pragmatically, this simple yes/no question required greater awareness on information content. Perhaps Chinese children wait to use yes/no questions until they can have enough information to share with their interlocutors.

Next, we found a limited alternative question form in Haohao's talk at 26 months. In the Example 26m-3 following the yes/no question about the character in the story, Haohao asked her mother "*hao3ting1 bu4 hao3ting1* (pleasant listening or not pleasant listening). Here she used a rather simple syntactic form Adj.+V + bu (negative signal) +Adj. +V. However, her mother picked up her question and gave her a positive answer. Therefore, they successfully shared understanding between each other. Considering the limited alternative question, pragmatically, Chinese people ask many questions in this simplified form in everyday talk. For example, people ask whether food is delicious or not delicious, whether their clothes look good or not and whether a movie is funny or not. Moreover, it seems that this limited alternative question form emerges earlier in Chinese children's conversation.

Observation of other grammatical forms

Haohao applied a longer passive sentence in DFW: ST *(discuss fantasy world: statement)*. We recall how she used an unclear utterance about her watch "once be felt by Baby"? She used a much better expression this time. During her story-making session, Haohao described the situation of leaving school to go home, she said: *bu4 wa2wa2 wan2ju4 du1 shou1 qi3lai2 le (*dolls and toys all <be> put in order*)*. Most reports of Chinese language acquisition indicate that passive sentences with "bei" appear from 32 months onwards (Tse et al. 1991; Lin, 1991). We might take a different view in thinking about passive voice acquisition. Although Haohao's example was not a NP1+ V +NP2 passive sentence, it was a typical Chinese non-marker passive sentence with a NP + VP construction. According to Tiee (1986), Chinese speakers very often use sentences that carry the sense of the passive voice but

are not overtly marked by bei or an agent. That is true in Mandarin language. The example for Haohao at 26 months suggests a cooperative model of communication, at least in early years, involving a clear pragmatic intention plus growing grammar.

5.4.3 Mother-child interaction at 26 months

To start with, we examined the communicative acts that Haohao's mother used with Haohao at 26 months. During the 30-minute interaction period, Haohao's mother produced eight types of Social Interchange, 13 types of Speech Act and 18 combinations. The number of the mother's communicative acts was the same as at the last stage. This finding supported the results from the cross-sectional group. More specifically, the frequency of her use of Social Interchanges was changed, NIA-*negotiate immediate activity* remained at 29 %, DJF-*discuss joint focus* reduced to 29%, while DNP-*discuss non-present*, DRP-*discuss related-to-present*, and DRE-*discuss recent event* shared another 18 %. DCC-*discuss clarification of verbal communication* increased to 13%, which meant that Haohao's mother talked with her more about the use of language itself. There was no MRK-*marking* found in the mother's talk at this observation. At the Speech Act level, her mother asked many questions. With an increasing frequency of *QN-ask wh-questions* and *TQ-ask limited alternative questions*, the total proportional occurrence of questioning Speech Acts was over 50 %. *ST-statement* and *RP-propose/request* were the second and third most often used speech acts. This quantitative analysis, again leads us to the conclusion that the Chinese mother paid most attention to DISCUSSION in interacting with her child at 26 months.

Observing the mother-child interaction at this stage, we found some new strategies used by the mother in talking to her child. Above all, the mother started to use the Give-In strategy in their communication. In Example 26m-8 (see below), her mother suggested to Haohao that she tell a story. Haohao refused and gave " have told" as the reason. This time her mother used the give-in strategy and said "o.k. Then we agree your opinion." Later the mother moved to the new topic of the toy bear. It seemed that mother wanted to make her child an equal partner in the discussing conversation.

Example 26m-8

*MOT: 好好你把那个故事讲给我听听.
%pin: hao3hao3 ni3 ba3 na4ge4 gu4shi jiang3 gei3 wo3 ting1ting .
%int: Haohao, you tell us that story.
%spa: $NIA:RP
*CHI: 不要.
%pin: bu2 yao4 .
%int: Not want.
%spa: $NIA:RD
*MOT: 哎?
%pin: ai3 ?
%int: What?
%spa: $NIA:EQ
*CHI: 讲过了.
%pin: jiang3guo4 le .
%int: Have told it.
%spa: $NIA:GR
*MOT: 那好吧.
%pin: na4 hao3 ba .
%int: O.K.
%spa: $NIA:GI
*MOT: 那我们就同意你的意见吧.
%pin: na4 wo3men jiu4 tong2yi4 ni3de yi4jian4 ba .
%int: Then we agree with you.
%spa: $NIA:GI
*MOT: 好好.
%pin: hao3hao .
%int: Haohao.

%spa: $DHA:CL
*MOT: 你说这个小熊是熊妈妈还是熊娃娃?
%pin: ni3 shuo1 zhe4ge4 xiao3xiong2 shi4 xiong2ma1ma hai2shi4 xiong2wa2wa xiong2wa2wa ?
%int: You say this bear is a mother bear or baby bear?
%spa: $DJF:TQ
*CHI: 熊妈妈.
%pin: xiong2ma1ma .
%int: Mother bear.
%spa: $DJF:TA

As one would expect from the previous stage, her mother challenged Haohao more by asking her to explain why she wanted to talk about a topic. In Example 26m-1, when Haohao responded with "take a train," her mother immediately asked Haohao a question to elicit the correct information:" taking train or taking flight?" Her mother followed this up with several questions seeking further information: "where" and "what." We found this challenging strategy in several places during this observation. While Haohao talked about "baby rabbit is in sleep," her mother asked: "is it warm now?" "Don't you think too warm to cover baby rabbit with heavy quilt?" Haohao gave a reasonable explanation: "*lu4 zhe4 jiao3ba1zi3* (bare at foot)." All these mother's questions were messages prompting Haohao to develop her talk.

Another strategy the mother used was waiting for a response. Unlike at the first and second stages, the mother did not immediately respond to her child's initiation of a new topic. In fact, the mother talked less than she did when her child was at14 months and at 20 months. She left space for her child to tell a story she had learned or her own story. Mother did ask questions later to expand the story plot. For example, after the child told her own story of Xiao Minmin's politeness, her mother asked what Xiao Minmin did next in nursery school and whom he met on his way to

school, etc. Haohao did not answer directly but began to tell telling story again from the beginning.

The new strategy mother used during this observation related to expanding the interactions and to help her child give more information during the discussion period. Thus, her mother's communication acts differed qualitatively from those she had used during the last stage.

5. 5 Longitudinal data analysis at 32 month

5.5.3 The Emergence of communicative acts at 32 months

A comparison of pragmatic measures for longitudinal data and cross-sectional data

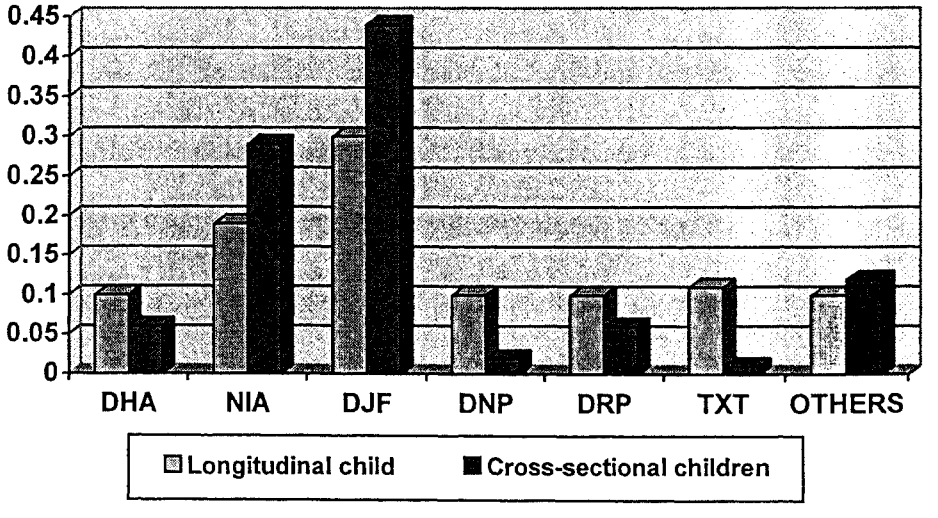
At the last stage of this study, children's communicative acts quantitatively upgrade again with improved interpretability and expanded repertoire. All the children, including the individual child Haohao and the group children in the study, closely reached to a higher level in the first place. Their communicative attempts became well interpretable not only at social interchange level but at speech act level (see Table 5.7). This meant that children at this age mainly depended on their oral language, instead of some other ways, to make their effort on communication.

To compare the number of types of communicative act (also see below the Table 5.7), the individual child Haohao used more types of Social Interchanges in the interaction with her mother. She held nine types of Social Interchanges in this observation, which were more than the average number of 6.7 in the cross-sectional group. This number of productive Social Interchanges was similar to the average of 8.5 for American children in Harvard report (Snow et al., 1996). However, Haohao's Speech Act types and combination types were slightly lower than children in the group. Once again, individual differences, as well as culture difference, might become increasingly obvious when children mastered various ways to express their communicative intentions.

Table 5.7 Comparison of communicative acts for the longitudinal child and The cross- sectional children at 32 months

	Longitudinal Data	Cross-sectional Data
Proportion of communicative attempts interpretable at Interchange Level	1.0	.98 (Range .92- 1.0)
Proportion of communicative attempts interpretable at Speech Act Level	.99	.97 (Range .92- .1.0)
Number of Interchange Types	9.0	6.7 (Range 6.0– 9.0)
Number of Speech Act Types	12.0	13.4 (Range 8.0- 18.0)
Pragmatic Flexibility	16.0	18.5 (Range 10.0-27.0)

Figure 5.4 Comparison of proportion of common social interchange types for longitudinal data and cross-sectional data at 32m



Another glance to comparison of proportion of common social interchange types, showed a surprising picture. For children inside of cross-sectional group, two of the three core Social Interchanges *DJF-discuss joint focus* and *NIA-negotiate immediate activity* still collectively occurred with greater frequency than any other types, though these group children increased their using of other types of Social Interchanges, such as *DFW-discuss fantasy world* and *DRP-discuss related-to-present* in the observation (see above the Table 5.7). In comparison, although, the occurring proportion of *DJF-discuss joint focus* and of *NIA-negotiate immediate activity* were still the top, for the individual child Haohao, she distributed her communicative intentions more to some other directions. As Figure 5-4 showed, Haohao's frequent occurrence on *DHA-direct hearer's attention*, *DRP-discuss related-to-present, DNP-discuss non-present* and *TXT-read loudly written text* equally shared each of 10% occurrence. Thus, once again, the different proportional occurrences of Social Interchanges between the two kinds of data suggest a significant connection between conversational situation, topic, and communicative acts.

Observation of Social Interchange level at 32 month

While her repertoire of communicative acts was growing, Haohao also showed some qualitative changes on her Social Interchanges. Above all, as we would expect, some new types of speech act were emerging in Haohao's talk at this stage.

The first emerging type of Social Interchanges was DSS-*discuss speaker's non-observable thought and feelings.* On the opposite, there is one DHS-*discuss hearer's inner non-observable thought and feelings.* These types of Social Interchanges functionally used to hold a conversation on discussing abstract inner states and

sensations (Nonio et al. 1991). Observing Example 32m-1 (see below), in the first place Haohao mentioned a blue toy phone. She explained that the toy phone was the one Daddy bought for her, when her mother doubted it. Later the mother initiated a DHS to discuss with Haohao whether her Daddy liked her. Haohao gave a DSS answer in the affirmative. Afterwards her mother immediately asked another question "*ni3 xi3huan1 ma1ma1 ma* (do you like Mom)?" Once again, Haohao responded a very positive answer"*xi3huan1* (like)." From these examples, we found that DSS and DHS allowed the mother and the child to exchanged their thinking, especially their feelings toward each other. This observation demonstrated what we have found in the cross-sectional data analysis. It was interesting to observe that the Social Interchange DSS and DHS were rarely used by Chinese young children and their mothers and only late on, in comparison to English mother and children in the Harvard study. Tardif (2000) has pointed out that Mandarin young children applied fewer verbs relating to abstract action, such "*xiang3* (think)"or "*xi3huan1* (like)", than those comparable children in English or in Italian. Considering the late emerging and rare use of DSS and DHS in Chinese young children, it suggested a disregard for an unfamiliar pragmatic situation in language practice. Haohao's examples signaled her success reaching a shared understanding on discuss abstract feelings between interlocutors. However, the limitation for a new attempt to talking rather abstract way was obvious for this 32 months old child.

Example 32m-1

*CHI: 有红电话.
%pin: you3 hong2 dian4hua4.
%int: Have a red phone.
%spa: $DHA:ST
*CHI: 还有蓝电话.
%pin: hai2you3 lan2 dian4hua.

%int: And have blue phone/
%spa: $DHA:ST
*MOT: 还有蓝电话?
%pin: hai2you3 lan2 dian4hua?
%int: And have blue phone?
%spa: $DJF:YQ
*MOT: 怎么会有蓝电话呢?
%pin: zen3me hui4 you3 lan2 dian4hua4 ne?
%int: How come have blue phone?
%spa: $DJF:QN
*CHI: 我叫爸爸给我买的.
%pin: wo3 jiao4 ba4ba gei3 wo3 mai1 de.
%int: I let my daddy bought it.
%spa: $DRP:GR
*MOT: 给你买的蓝电话?
%pin: gei3 ni3 mai3 de lan2 dian4hua4?
%int: bought you a blue phone?
%spa: $DRP:AQ
*MOT: 爸爸喜欢你吧?
%pin: ba4ba xi3huan1 ni3 ba?
%int: Daddy likes you, right?
%spa: $DHS:YQ
*CHI: 爸爸喜欢我.
%pin: ba4ba xi3huan1 wo3.
%int: Daddy likes me.
%spa: $DSS:AA
*MOT: 你喜欢妈妈吧?
%pin: ni3 xi3huan1 ma1ma ba?
%int: You like Mom right?
%spa: $DHS:YQ
*CHI: 喜欢.
%pin: xi3huan1.
%int: like.
%spa: $DSS:AA

Another new type to emerge during this observation was NFA-*negotiate future* activity. Distinguished from NIA-*negotiate immediate activity,* people functionally use NFA to negotiate a future activity that may relate or not relate to current activity (see INCA-A, Ninio et al.1991). Haohao had a NIA-*negotiate immediate activity* first to propose her mother to buy her a toy robot. However, her mother wanted her to wait. The mother used a *NFA-negotiate future activity* to agree to buy her a birthday present later, together with a permission to buy a birthday cake (see Example 32m-2). Afterward the mother suggested Haohao to talk with her father, thus, Haohao

proposed with *NFA* to say "*Ba4ba, guo4 sheng1ri4 de shi1hou4 yao4 ji1qi4ren2* (Daddy, at birthday time <I> want a toy robot)." Later she added one more request "*hai2yao4 chi1 dan4gao1* (and want to eat birthday cake)." When they talked about the future activity, both the mother and the child indicated the time that would be the child's birthday. Here one might need to notice that the temporal status of a event in Chinese is mainly indicated by temporal adverbial or phrases, because Mandarin Chinese, unlike many other languages, does not inflect the verb form for tense (Tiee, 1986). Considering Haohao's inclusion of the time word in her sentence structure, this may prove that the child started to have lexicon and syntax to catch the expression of things happen in the future.

Example 32m-2

*CHI: 花好多钱给我买机器人好不好?
%pin: hua1 hao3 duo1 qian2 gei3 wo3 mai3 ji1qi4ren1 hao3 bu4 hao3
%int: Can you spend a lot of money to buy me a robot (alright) ?
%spa: $NIA:RQ
*MOT: 你要妈妈花很多钱给你买个机器人啊?
%pin: ni3 xiang3 yao4 ma1ma hua1 hen3duo1 qian2 gei2 ni3 mai3 ge4 ji1qi4ren1?
%int: You want Mammy spend a lot of money to buy you a robot ?
%spa: $NIA:YA
*MOT: 你想要机器人玩啊?
%pin: ni3 xiang3 yao4 ji1qi4ren2 wan2 a ?
%int: You want a robot to play with?
%spa: $DNP:YQ
*MOT: 什么样的机器人?
%pin: shen2me yang4 de ji1qi4ren2 ?
%int: What kind of robot ?
%spa: $DNP:QN
*CHI: 黄色的.
%pin: huang2se4 de .
%int: Yellow one.
%spa: $DNP:SA
*MOT: 大的还是小的?
%pin: da4 de hai2shi4 xiao3 de?
%int: Big one or small one?
%spa: $DNP:TQ
*CHI: 大的.
%pin: da4 de.
%int: Big one.
%spa: $DNP:TA

*MOT: 下次给你买啊.
%pin: xia4ci4 gei3 ni3 mai3 a.
%int: Buy you next time OK?
%spa: $NFA:PD
*MOT: 等你过生日的时候好不好?
%pin: deng3 ni3 guo4 sheng1ri4 de shi2hou4 hao3 bu4 hao3?
%int: Wait your birthday OK?.
%spa: $NFA:RQ
*MOT: 过生日一起吃蛋糕好不好?
%pin: guo4 sheng1ri4 de shi2hou4 yi1qi3 chi1 dan4gao1 hao3 bu4 hao3?
%int: Have birthday cake together O.K?
%spa: $NFA:RQ
*MOT: 你跟爸爸讲一讲过生日要什么礼物好不好?
%pin: ni3 gen1 ba4ba jiang3 yi1 jiang3 guo4 sheng1ri4 yao4 shen2me li3wu4 hao3 bu4 hao3?
%int: Talk to your Daddy about what you want for birthday pleasant O.K.?
%spa: $NIA:RP
*CHI: 爸爸.
%pin: ba4ba.
%int: Daddy.
%spa: $DHA:CL
*CHI: 过生日时候要机器人.
%pin: guo4 sheng1ri4 de shi2hou4 yao4 ji1qi4ren2.
%int: Birthday time <I> Want a Robot.
%spa: $NFA:RP
*CHI: 还要吃蛋糕.
%pin: hai2yao4 chi1 dan4gao1.
%int: And want to eat birthday cake.
%spa: $NFA:RP

There were a few examples of SDS-*self-directed speech* found at this observation. As the below Example 32m-3 shows, Haohao engaged in talking "brush teeth, wash face" twice, which was clearly not addressed to present hearer- her mother. It seemed that Haohao was directing her own thought for getting ready to breakfast, because she had just finished the discussion with mother about where to have their breakfast. Based on our knowledge, *SDS* as self-centered speech should be popular in young children's talk. However, it was the first time we found *SDS* in Haohao's speech. Checking the result in cross-sectional data group, Chinese children hardly used this type in the laboratory situation either.

Example 32m-3

*CHI: 我是个漂亮的小姑娘.
%pin: wo3 shi4 ge piao4liang4 de xiao3 gu1niang1.
%int: I am a little pretty girl.
%spa: $DJF:ST
*MOT: 噢是吗?
%pin: ao shi4 ma1?
%int: Oh ya?
%spa: $DJF:YQ
*MOT: 你自我感觉很好.
%pin: ni3 de zi4wo3 gan3jue1 hen3 hao3.
%int: You are self prouded.
%spa: $DJF:ST
*CHI: 涮牙 洗脸.
%act: The child doing her preparation for leaning work.
%pin: sua1ya2 xi3lian3.
%int: Brush teeth <and> wash face.
%spa: $SDS:ST
*CHI: 涮牙.
%pin: sua1ya2.
%int: Brush teeth.
%spa: $SDS:ST
*MOT: 你是不是老板娘?
%pin: ni3 shi4 bu2 shi4 lao3ban3niang2.
%int: Are you a lady boss?
%spa: $DHA:YQ
*CHI: 不是的.
%pin: bu2 shi4 de.
%int: Not right.
%spa: $DJF:CT
*CHI: 是小姑娘.
%pin: shi4 xiao3 gu1niang1.
%int: <I> am little girl.
%spa: $DJF:CT

We also made some other observations on emerged Social Interchanges at this time. DNP-*discuss non-present* and DRE- discuss recent event were two types we found at Haohao's 26 months. During this observation, Haohao used DRE only once, but she tried again DNP several times. Recall at last stage, Haohao used DNP under her mother's initiation. In this observation, Haohao talked with DNP on her own initiative. For example, she mentioned " *die1jiao1 zai4 ren2xing2dao4 shang4* (fall down at sidewalk)," the mother pretended to be very surprise and asked who did it to

her (see below the Example 32m-4). Follow this topic, Haohao, and her mother talked about who has responsibility for this bad experience and what happened when Mom complained the Daddy. Of course, at this time, Haohao seemed much more comfortable to handle the discussion of non-present. It was interesting that Haohao tried to exculpate her father's responsibility. She explained to mother with "*ni3 zi4ji3 die1 de* (you fell down yourself)," here pragmatically she took the right form but wrong in syntax as she used personal pronoun "you" to substitute "I." There was another mistake. When mother asked what mother should say to criticize Daddy's carelessness, Haohao had a funny answer "*bu2 yong4 xie4* (you are welcome)."[2] So this was the right syntactic form but all that was wrong in pragmatics.

Example 32m-4

*CHI: 跌交在人行道上.
%pin: die1jiao1 zai4 ren1xing2dao4 shang4 .
%int: fall down at sidewalk .
%spa: $DNP:ST
*MOT: 哪个带你跌交啊?
%pint: na3ge dai4 ni3 die1jiao1 a ?
%int: Who makes you fall down ?
%spa: $DNP: QN
*CHI: 在人行道上.
%pin: zai4 ren1xing2dao4 shang4 .
%int: At sidewalk .
%spa: $DNP:ST
*CHI: 爸爸.
%pin: Ba4ba .
%int: Daddy .
%spa: $DNP:ST
*MOT: 哎呀你爸爸怎么搞的?
%pin: aiya ni3 ba4ba zhen3me gao3 de ?
%int: Oh what your father did ?
%spa: $DNP:QN
*CHI: 你自己跌的.
%pin: ni3 zi4ji3 die1 de .
%int: you self fall down .
%spa: DNP:SA

[2] Utterance of"Bu2 yong4 xie4 不用谢"has surface meaning of "no need to say thanks", which often be used at social context as response to "xie4xie4 (thank you". So this utterance actually means "you are welcome".

*MOT: 你爸 爸没管好你.
%pin: ni3 ba4ba mei2 guan3hao3 ni3 .
%int: Your Daddy didn't take good care of you.
%spa: $DNP:ST
*MOT: 妈妈批评爸爸.
%pin: ma1ma pi1ping2 ba4ba .
%int: Mama will take to Daddy.
%spa: $DNP:ST
*MOT: 说什么呢?
%pin: shuo1 shen2me ne ?
%int: What should Mama say ?
%spa: $DNP:QN
*CHI: 不用谢.
%pin: bu2yong4 xie4.
%int: No thanks (=you are welcome)
%spa: $DNP:SA

While trying new communicative intentions, Haohao kept using DJF-*discuss joint focus,* NIA-*negotiate immediate activity* at 32 months in talking with her mother. They discussed things around and negotiated what to do next. These two types emerged earliest remained at most important position in Haohao's learning of communication. She had also used DRP-*discuss related-to-present* and DHA-*direct hearer's attention* with less frequently application, and one DRE-*discuss recent event*. To compare to last stage, Haohao was more fluently using these learned types in her communication. At this observation, Haohao talked with TXT-*read loudly written text* again several utterances. Although this type of Social Interchanges already existed at all three states before, the content of TXT Haohao used at this stage was different. Haohao was actively reciting a TV advertisement that related to children's toothpaste. She used this TXT type to express much more complicated language content. We would discuss these within-type changes with the observation of combination level and the observation of relating to syntactic development.

Finally, there was no MRK-*marking*, PRO-*performing verbal moves in activity*, and NFW-*negotiate mature attention* at this observation. This result reminds us again, what we have found among Chinese children in cross-sectional group. Looking at Haohao's performance on Social Interchange at 32 months, she and her mother discussed so many events of their joint focus, things related-to-present or non-present or recent happened event, even about their inner feelings. They had also negotiated immediate activities and future activities at total 30 min session. Question here would be: Did Haohao has opportunity to say social greeting words? Did she have time to play with verbal moving sounds at the recording time? If the mother had already put full attention on Haohao, why does she need to negotiate mature attention? The answer to these questions could be "no time" and "no need."

Observation of Speech Act level at 32 month

Haohao's Speech Acts also showed some qualitative changes along with her growing of Social Interchanges at 32 months. During this observation, some new types of speech act were continually emerging in Haohao's conversation with her mother.

A new type of speech act, coded as *GR-give reason* appeared in Haohao's conversation with her mother. In the Example 32m-5, Haohao's father participated in the middle of conversation. He teased the girl and called Haohao "little baking- potato friend." Haohao seriously gave her father a statement "*wo3 shi4 hao3hao* (I am Haohao)." Then she followed with a further explanation " *ba4ba ma1ma dou1 jiao4 wo3 hao3hao* (Daddy Mammy all call me Haohao)." When Haohao's mother checked

whether her brother went to grandpa's home, she explained the reason to the mother "*ta1 bu4 xiang3 zhu4 zai4 zhe4li3* (he didn't want to stay over night here)." The *GR-give reason* sometimes difines to justify a request, a suspicion, or a refusal in the INCA-A coding system (Ninio et al. 1991). During this observation, Haohao used *GR* to tell her mother "*wo3 jiao4 ba4ba gei3 wo3 mai3 de* (I let Daddy bought it for me)," as responded to her mother's suspicion on her talking of "blue toy phone."

Example 32m-5

*FAT: 这个小姑 娘叫什么名字?
%pin: zhe4ge xiao3 gu1naing1 jiao4 shen2me min2zi ?
%int: What name this little girl has?
%spa: $DJF:QN
*CHI: 好好.
%pin: hao3hao .
%int: Haohao(name).
%spa: $DJF:SA
*FAT: 不对.
%pin: bu2 dui4 .
%int: Not right .
%spa: $DJF:DW
*FAT: 叫烘山芋小朋友吧.
%pin: jiao4 hong1 shang1yu4 xiao3 peng2you3 ba ?
%int: Named Little baking potato friend, right ?
%spa: $DJF:YQ
*CHI: 我是好好.
%pin: wo3 shi4 hao3hao .
%int: I am Haohao.
%spa: $DJF:ST
*CHI: 爸爸妈妈都叫我好好.
%pin: ba4ba ma1ma du1 jiao4 wo3 hao3hao .
%int: Daddy Mammy all call me Haohao.
%spa: $DJF:GR

CT- *correct verbal error either form or content* was emerging in Haohao's talk at 32 months. In Example 32m-3, perhaps for directing Haohao's attention from self-directed speech, the mother asked Haohao a funny question "*ni3 shi4 bu2 shi4 lao3ban3niang2* (are you a lady boss); Haohao answered with correction "*bu2 shi4 de.*

shi4 xiao3 gu1niang2 (not right. Should be little girl)"[3]. This type of Speech Act here served a different function, that for expressing disagreement to other's verbal errors. In fact, the using of *CT- correct verbal error either form or content* showed the child's confidence for her language capacity applying in communication.

In the next place, a question type of speech act emerged in Haohao's conversation of 32 months. Haohao used RQ- *yes/no question about hearer's wishes, ability, and intentions* to negotiate with her mother for the toy robot. She asked her mother "*hua1 hao3duo1 qian2 gei3 wo3 mai3 ji1qi4ren2 hao3 bu2 hao3* (spend a lot of money to buy me a toy robot O.K.?" This happened after they talked about whether father liked the child and whether the child liked her mother. Therefore, it seemed a sort of bargaining for testing "like or not like." However, Haohao used a very polite way for asking things that was different from before. We have to notice that, what she said was a typical Chinese RQ about her wishes, because at the end of the sentence she had "*hao3 bu4 hao3* (O.K.)," which usually is applied with politeness into negotiation.

Taking a look to those Speech Act types that emerged before. As we found at last two stages, Haohao was continually using the most types of Speech Act that had emerged at an earlier time, while she explored some new types. Once again, ST-*statement* was the most frequently used type during this observation. SA-*answer to wh-question,* AA-*answer in an affirmative to yes/no question* and TX-*read loudly written text* were the second most common. RP-*propose/request,* RD-*refuse to do,*

[3] There is one similar part between two Chinese words for lady boss "lao3ban3niang2" and "xiao3gu1niang2". "niang2" means female in some Chinese sophistic words.

AD-*agree to do,* QN-*ask wh-question,* and TA-*answer to limited alternative question* could all also be found in Haohao's talk at this stage. However, the frequency of these types was equally low during this observation.

Observation of Pragmatic Flexibility at 32 months

Haohao's communicative repertoire of Pragmatic Flexibility level further expanded at 32 months. As noted in above comparison session, Haohao made more effort to combine various Social Interchange types to different Speech act so that her pragmatic using of language became more flexibility.

Firstly, Haohao continued to add her emerging types of Speech act to previously emerged Social Interchange types. The first instance was that, she used GR-*give reason* in DJF-*discuss joint focus,* DRP-*discuss related-to-present* and DRE-*discuss recent event.* She combined CT-*correct verbal error* with DJF-*discuss joint focus* and she applied RQ- *yes/no question about hearer's wishes, ability, and intentions* in NIA-*negotiate immediate activity.* At same time, Haohao combined previously emerged Speech Act types with different Social Interchanges, including the emerging ones. For example, Haohao was using RP-*request/propose* into not only in NIA- *negotiate immediate activity*, but also NFA- *negotiate future activity.* She combined ST-*statement* with more Social interchanges she produced such as DHA-*direct hearer's attention*, DJF-*discuss joint focus,* DRP-*discuss related-to-present*, DRE-*discuss recent event* and NIA- *negotiate immediate activity.* There were no combinations of newly emerging Social Interchanges with emerging Speech Acts during this observation.

Next, the limitations at the level of Pragmatic Flexibility still existed. Same as we found at 26 months, Haohao used CL-*calling names*, ST-*statement,* and QN-*ask wh-question* in DHA-*direct hearer's attention* at 32 months. Another example was DRE-*discuss recent event.* Haohao only combined a Speech Act with *DRE*, very low frequent being the GR-give reason. Therefore, we should consider the limitation resulting from the child's syntactic level and other developmental area.

5.5.2 Pragmatic and Syntax relationship at 32 months

A comparison of syntactical measures for longitudinal data and cross-sectional data

To compare the individual child Haohao and other Chinese children in cross-sectional group, we found a continue changing of syntactic development for all the children at 32 months. Looking at Haohao's syntactic development, her MLU score increased to 2.97 as her peer group reached to the average of 2.61 (see Table 5.8). The measuring of MLU 5 resulted in a pattern similar to the MLU measures between the individual child Haohao and the group children.

It was the first time that one question sentence came into Haohao's 5 longest Mean Length of Utterance at 32 months. This was a true situation for group children at same stage (please refer to Chapter four). Recall the MUL5 utterances children used at last three stages consisted entirely of declaratives, we expected Haohao had enough growing on her question form at this stage. We would have a further discussion of the MLU 5 sentences in the following sessions.

Table 5.8 Comparison of Syntactic Development for Longitudinal and Cross- sectional data at 32 months

	Longitudinal Data	Cross-sectional Data
MLU	2.97	2.61 (Range 1.96-3.42)
MLU 5	7.0	6.06 (Range3.2-8.0)

Observation of Declarative forms

There was a within-type syntactic change found again in Haohao's speech acts during this observation. That is, syntactically, in familiar social interchange types, Haohao's use of a familiar speech type altered. As before, there was syntactic expanding that appeared when Haohao made a statement. However, the changes of sentence structure seemed no longer to only happen inside of discussion of joint focus. Instead, at this stage Haohao made a quite flexible statement cooperating with discussion of related to present, discussion of non- present, or direct mother's attention. For example, in talking with her mother, Haohao was proud to say " *wo3 shi4 ge piao4lian4 de xiao3 gu1niang4* (I am a pretty little girl)." This SVO declarative sentence had a NP in object position that contained a quantifier + adj. + noun. Another example came from talking about a bike in the situation. Haohao indicated "*zhe4 shi4 ge1ge1 de che1zi3* (this is brother's bike)." In comparison to what she said at last two stages, this SVO structure also included a NP for telling whose bike was. There was another example for discussion of non-present; Haohao

tried a verb phrase with"*zai*" to describe a event of "*die1jiao1 zai4 ren2xing2dao4 shang4* (fell down at sidewalk)".

We found the within-type change once more at other types, such as TXT: TX. Although this type does not count as spontaneous language, the syntactic change in using of this type can still tell us something. In this observation, Haohao applied some quite complex declaratives to recite an advertisement. For instance, she said "*ya2chi3 tong4 de li4hai4, yuan2lai2 shi4 ya2 xi4jun1 zai4 dao3luan4* (tooth is paining badly, because the teeth germ are making trouble). That coordinative sentence was new for Haohao. She used a verb phrase (Pain +*de*+ badly) to describe tooth ache; and sentence with a progressive aspect marker "*zai*" to state that was in continuing existence.

However, it is not always the case to find the syntactic changes using with emerged Social Interchanges. While the child had obviously syntactic development inside of Social Interchanges in discussion, we found some *DJF: ST* (discuss joint focus: statement) in a rather simpler format. For example, Haohao indicated "*wo3 de xie2zi3* (my shoe)" to her mother. Haohao also simply propose to negotiate an immediate activity "*zai4 zhe4bian1 chi1* (eat at here)."

At same time, another evidence continued from last stage comes from Haohao's use of pragmatics and syntax cooperation with emerging types of communicative acts. At the Social Interchange level, it seems that Haohao's syntactic practice in the newly emerging Social Interchanges was simpler than that when she was using already familiar types. The fewer utterances that Haohao used to talk in

DSS-*discussion of speaker's feeling* and SDS-self direct speech were all brief (see Example 32m-1 and 32m-3). And in NFA-negotiate future activity, syntactically the utterances that Haohao proposed to her father to buy her toy robot were longer, but simplifier than what she used to request to her mother in same topic （see Example 32m-2). Therefore, these examples suggest that, as we found at 26 months, pragmatically, children's talk is more complicated within familiar social interchange types, when they have the confidence to handle their experience.

As we found at last stage, the new types of Speech Acts were emerging together with syntactic change at 32 months. One example was *GR-give reason* (see the Example 32m-3). During this observation, Haohao explained the reason for calling her name "*ba4ba4 ma1ma1 dou1 jiao4 wo3 hao3hao3* (Daddy <and> Mammy all call me Haohao). Here the syntactic structure in this example was NP + adv + V + O1 + O2, containing one direct object and one indirect object. Another example was in talking related a blue phone, Haohao explained "*wo3 jiao4 ba4ba4 gei3 wo3 mai3 de* (I let Daddy bought it for me)." This GR utterance had a S + V1 + O1+ V2 + O2+ VP. In fact nor was Haohao's GR utterance at a lower syntactic level, so it may suggest that the speech acts emerge when children are ready in syntactic development.

In the end of this observation, we looked again at the *SA-answer to wh-question, AA-answer in affirmative to yes/no question* or *TA-answer to limited alternative question* speech acts. These stayed syntactically shorter and simpler in structure, whether Haohao used them to discuss a joint focus or negotiated an immediate activity. One interesting example came when her mother asked a question

of "what is your Shen1xiao1?"[4] Haohao answered with "baked-sweet-potato." She seemed interested more to eat a baked-sweet-potato than to discuss this topic with her mother. The observation to these speech acts added more information to the indication, that children learn pragmatic awareness at the same time as they pick up appropriate utterances to serve their conversational needs.

Observation of Negative forms

Haohao became a more fluent communicator in terms of expressing her negative opinions at 32 months, though she used a low proportion of negative forms. One example to show her acquisition of negative forms was a using of NIA: RD (*negotiation of immediate activity: refuse to do*). When her mother suggested her to tell another advertisement, after reciting the toothpaste one, she refused with "*wo3 bu2 hui4* (I can't do it)." Instead of saying "not do it," Haohao for the first time used the whole sentence" I can't do it" to code refusal.

Another example showed Haohao's syntactic development in negative forms as well. When her mother asked her whether the brother went away to the grandpa's place, Haohao did not respond yes or no. She jumped to give an explanation"*ta1 bu4 xiang3 zai4 zhe4bian1 zhu4* (He didn't want to stay over night here)." Here the child used a negative construction of S + bu +VP. This example showed her progress of syntactic development as well as of pragmatic development.

[4] *shen1xiao1* means any of the twelve animals, representing the twelve Earthly Branches, used to symbolize the year in which a person is born. For example, Haohao was born in the year of Snake.

Observation of Question forms

During this observation, Haohao used rare question forms in her conversation with her mother. However, once more, we found examples in which Haohao showed developmental change, both in syntax and in pragmatics.

In the first place, there was a tag yes/no question emerged in Haohao's conversation at 32 months when she asked a RQ to her mother. One might remember that Haohao's mother used several tag questions to propose something to Haohao before and in this same observation. As Tiee (1986) pointed, a typical Chinese tag yes/no question consists of two parts, which are a statement of presumed facts and question tag such as "*hao3 bu4 hao3* (good or not good = O.K.)." Haohao's RQ question contained these two parts: "*hua1 hao3duo1 qian2 gei3 wo3 mai3 ji1qi4ren2 (spend* a lot of money to buy me a toy robot) and " *hao3 bu4 hao3*? (O.K.)?" (See Example 32m-2). The tag yes/no question that asked about her mother's permission functionally served as a suggestion with polite meaning. Then the sentence she applied for the RQ was a VP+ V+ O +V +O + *hao3 bu4 hao3*. This higher level of question form showed Haohao's syntactic development. Pragmatically, as we have mentioned for yes/no question before, this RQ speech act required greater awareness on information content.

Besides, there were a few *QN-ask wh-question* in Haohao's talk at 32 months. When mother requested Haohao to tell an advertisement about little rabbit, she asked her mother "*na3 yi1 ge4 xiao3bai2tu4* (which one little rabbit)?" She asked information that is more specific from her mother. She had also used *QN-ask wh-*

question to direct her mother's attention. For example, she asked her mother "*zhe4ge4 shi4 shen2me* (what is this),"when her mother was talking about other things. The mother responded with telling her that was an eye-drop. Therefore, through this question, Haohao successfully moved her mother's attention to her interest.

Observation of other grammatical forms

During this observation, Haohao started to use a special Chinese form "*you*" sentence in discussion with related-to-present event. The verb "*you*", besides being used as a possessive verb meaning 'has/have' to express the possession of something, is even more often used as an existential verb meaning 'there is/are' for existential sentences (Tiee, 1986). When Haohao talked to her mother about a kind of Chinese cream, she claimed*"wo3 jia3 ye3 you3 bai1que4ling2* (My home has BaiQueLing cream too)." While she mentioned the bike, she said "*wo3men2 jia1 you3, tian1ge1ge1 jia1 ye3 you3* (our family has it, Brother Tian's family has it too". The later one shows an early form of coordinative structure.

5.5.3 Mother-child interaction at 32 months

During the 30-minute over the overview interaction, Haohao's mother produced nine types of Social Interchange, 15 types of Speech Act and 19 combinations. The number of this mother's communicative acts was similar as at the last two stages. This finding supported the results from the cross-sectional group. More specifically, the frequency of her use of Social Interchanges was changed, NIA-*negotiate immediate activity* had proportional occurrence at 31 %, DJF-*discuss joint*

focus remained to 29%, while DNP-*discuss non-present*, DRP-*discuss related-to-present*, and DRE-*discuss recent event* shared another 18 %. DCC-*discuss clarification of verbal communication* decreased to 7%, which meant that Haohao's mother still talked with her about the use of language itself, but not as much as before. There was 6% *NFA-negotiate future activity*. There was no MRK-*marking* found in her mother's talk at this observation under two-token measuring. At the Speech Act level, her mother asked many questions. With an increasing frequency of RQ-*ask yes/no question about hearer's wish, ability, and intentions,* the total proportional occurrence of questioning Speech Acts was over 52 %. RP-*propose/request* and *ST-statement* were the second and third most often used speech acts. This quantitative analysis, proved what we found at last two stages that the Chinese mother paid most attention to discussion in interacting with her child. This was same as her child grew to 32 months.

It was interesting to observe that the mother stepped back a little bit when her child became an active communicator. That is, the mother seemed more relaxed in the interaction and she followed Haohao's topic. However, the Chinese mother seemed always a Chinese mother, as she never forgot to get her child into discussion about something. In fact, she followed her child intentions to give more questions. For example, Haohao initiated that she had a blue phone at the beginning of this observation. Immediately her mother followed up to question her:" How come you have a blue phone?" " Daddy bought you the blue phone?" "Daddy likes you?" "Do you like Mom?" When Haohao asked to buy her a toy robot, the mother again raised several questions: " You want Mom to spend a lot of money to buy you a toy robot?" "You want to play with a toy robot?" "What kind of toy robot you want?" "Big one or

small one?" "Wait to your birthday to buy it, O.K.?" These questions with join dependency were searching information that was more detailed, therefore functionally the mother used this strategy to elicit her child exchange more information around the talking topic.

At her child 32 months, we found the Chinese mother used many of *RQ-ask yes/no questions about hearer's wish or intention* in the inteactional process. Sometimes the mother asked "*dao4 a2gong1 jia1 qu4 chi1 zao3fan4, hao3 bu4 hao3* (go to grandpa' place to eat breakfast, O.K.?" The other time the mother asked "*chi1 ge4 wu3xiang1 cha2ye4 dan4, yao4 bu2 yao4* (eat a tea egg, alright)?" She even discussed with her child for the preference to do something by using this kind of RQ question. For instance, she questioned Haohao first with a wh-question: "what should we do next?" Later she followed another RQ question: "*wo3men2 yao4 ba3 chuang1 pu1 yi2xia4, dui4 bu2 dui4* (we want to make our bed, right)?" Haohao answered the question in affirmative"dui4 (right)." As we have noted, RQ question served a different function from other question forms in communication. It often works as suggestion from the speaker towards the side. While the Chinese mother turned direct request or proposal into indirect suggestions, she had a sub-intention to discuss everything with her child. Therefore, the Chinese mother had a central emphasis in communication with her child; she tended to have more "DISCUSSION" with her child. Thought the observation over the study period, we found that the mother successfully fulfilled the task, because Haohao had become a very fluent discussant.

5.6 Summary

The main aim of this chapter was to ascertain the pattern of pragmatic development of a single child, at 14, 20, 26 and 32 months. The other aims were to provide an in-depth view of the developmental process of communicative acts, the relation between pragmatic development and syntactic development and a mother's influence on her child's communicative behaviors.

Firstly, a comparison of pragmatic measures between the single child and a group of children at each of the four stages shows a common pattern of development. The individual child's communicative acts increased over the study period, in type number and interpretability, to a level that was similar to her peer group at each stage. The differences between the longitudinal child and the group of children increased slightly over the study period, suggesting that individual differences in development may become more and more obvious as children master various ways to express their communicative intentions. There was also a significant connection, in pragmatic practice, between conversational situation, topic, and communicative acts. Further, a comparison of the syntactic measures of the longitudinal child and the group children showed a pattern similar to their MLU and MLU 5 measures. The individual child had higher scores both on MLU and on MLU 5 than the average of her peers at beginning of this study but the differences reduced in the developmental process.

Secondly, the observations of her emerging speech show some qualitative developments in the longitudinal child's communicative act. Alongside her expanding repertoire of communicative acts, Haohao gradually learned to use different Social

Interchanges, in a developmental sequence moving from focusing on a present, a concrete or a visualized situation, to a non-present, a more abstract or an inner-thought context. The emergence of various Speech Act types shows an acquisition process going from a response to active initiation, from talking from her own point of view to perceiving others' perspectives. With regard to the emergence of Pragmatic Flexibility, the observation reveals that the child increasingly combined familiar Social Interchange types with different Speech Acts so that her pragmatic use of language became more flexible. This observation supported the findings for the groups of children. That is, unlike what researchers found in American children, some types of communicative act were not common among Chinese children.

Thirdly, the observation of the relationship between two language domains shows a complex relationship between pragmatics and syntax in the development of children's communicative acts. It was true that Haohao started to communicate without mature language abilities. However, the observation at Social Interchange level showed that the child became skilled at each Social Interchange type only after practice and with enough support from syntactical expression. So there was a marked cooperation between a higher level of syntax and a familiar communicative context. At the Speech Act level, the observation found within-type syntactic changes, for example, Haohao's use of a familiar speech type altered syntactically in familiar social interchange types. Meanwhile, some new types of Speech Act and syntactic changes were emerging together, suggesting that these speech acts emerge when the children's syntactic development is ready. Some Speech Act types the child used remained syntactically shorter and simpler in structure, whether the child used them to discuss a joint focus or to negotiate an immediate activity. The occurrence of these

speech acts confirms that children learn pragmatic awareness at the same time as they pick up appropriate utterances to serve their conversational needs. Further, the observation of a few Speech Act types provided evidence to explain why Chinese children used these types late in comparison to American children. This research therefore demonstrates the influence of Chinese syntax on aspects of the children's development of communicative acts.

Finally, the observation of mother-child interaction supported the results of the quantitative analysis of the cross-sectional data. At all stages, the Chinese mother's focus in her interactions with her child was discussion. She used several strategies to get her child to exchange more information and she asked many questions to get her child to discuss different topics. We found that the mother was successful because, during the study period as a whole, the child gradually became a very fluent discussant.

Chapter 6

Discussion and conclusion

The final chapter of this thesis is devoted to interpreting the findings from this study of the communicative development of Mandarin speaking young children. We have seen that, when Chinese children are compared with each other or with American children, similar rates of pragmatic progress suggest a universal ability. Conversely, differences in the pattern of communicative intentions suggest specific contributions of Chinese linguistic and social factors.

6.1 Findings on the development of communicative acts

This study aimed to explore the pragmatic development of Mandarin speaking young children from the age of 14 to 32 months. The specific research issues concerned the interpretability of the children's communicative attempts, the range of communicative acts at the Social Interchange and Speech Act levels, and the Pragmatic Flexibility level that they acquired.

The results in this study show that INCA-A system (Ninio et al. 1991) is applicable to analyzing the development of communicative acts in Chinese culture and language context. It is clear that this system can capture children's developmental characteristics in cross-cultural and cross-linguistic studies.

There was a growth in the communicative repertoire over the study period. The communicative repertoire for the group of Chinese children as a whole expanded, with an increased number of types of speech acts used at the three levels of measurement and a decreased proportion of uninterpretable communicative attempts. The longitudinal observations of a single child at 14, 20, 26 and 32 months, confirmed the pattern of pragmatic development. Clearly, the results from the cross-sectional data, as well as from the longitudinal data, showed that there was a similar rate of pragmatic development, not only among Chinese children but also between Chinese children and American children. Meanwhile, these results demonstrated the utility of the INCA-A system for measuring children's pragmatic development across cultures.

Through the analyses of both longitudinal and cross-sectional data, we found three qualitative changes in children's acquisition of communicative acts. First, there was increased intelligibility of the children's communicative attempts. Snow and her colleagues pointed this out when they found a major development in the frequency and intelligibility of communicative attempts for the children in their study (Snow et al. 1996). The analyses carried out on the Chinese children in this study supported this view. Further, we observed that the children's communicative attempts were interpretable at two levels, the Social Interchange level and the Speech Act level, but the intelligibility varied between the two levels of communicative attempts at the earliest stage. The 14-month-old Chinese children tried to communicate with their mothers using relatively unclear utterances and their communicative attempts were less intelligible at the Speech Act than at the Social Interchange level. This told us that the children actually started with three kinds of communicative effort: (1) communicative attempts with expressive intentions; (2) communicative attempts with

nonverbal intentions; (3) communicative attempts with no specific intention. During the period under study, the intelligibility of the children's communicative attempts increased rapidly. The gap between their interpretability at the two levels narrowed. By 32 months, all the children in the study reached a similarly advanced level. Their communicative attempts became easily interpretable, not only at the social interchange level but also at the level of a speech act as well. This indicates that, by this age, children rely on verbal, rather than non-verbal, communication. It is clear that, as the intelligibility of the children's communicative attempts gradually improves, they are learning to be more intentional communicators.

The second qualitative change involves the emergence of new communicative acts. Many pragmatic-based theories have tried to identify the acquisition of communicative acts and have discussed a universal order of their emergence (Dore, 1975; Ninio & Well, 1985; Ninio & Snow, 1996; Snow et al. 1996). In this study, we undertook a qualitative analysis of Haohao's repertoire and constructed a complete picture of the emergence of communicative acts from 14 to 32 months (refer to Table 6.1 for a summary of the emergence at each stage). The analyses on cross-sectional data confirmed these findings.

Table 6.1 The emergence of Haohao's new communicative acts at four stages

	Social Interchange Types	Speech Act Types	Combination Types
14m	DHA DJF NIA YYY	AD CL RT SA ST YY	DHA: CL DJF: RT DJF: SA DJF: YY NIA: AD YYY: YY
20m	DFW DRP TXT	AA RD RP SI TX	DFW: ST DFW: YY DHA: ST DJF: AA DJF: ST DRP: ST NIA: RD NIA: RP NIA: SI TXT: TX
26m	DNP DRE	CS DC TA TQ	DFW: CS DJF: RP DNP: RP DNP: SA DRE: TQ DRP: TA NIA: DC
32m	DSS NFA SDS	CT GR RQ QN	DJF: CT DJF: GR DJF: QN DNP: ST DRE: GR DRP: ST DSS: AA NFA: RP NIA: CS SDS: ST

(1) At the Social Interchange level, Haohao started to use Direct Hearer's Attention, Negotiate Immediate Activity, and Discuss Joint Focus at 14 months. This core set of communicative intentions emerged as the earliest types in Haohao's interaction with her mother. Alongside the expanding repertoire of communicative acts, she gradually learned to use different Social Interchange types. Some new types emerged at 20 months: Discuss Fantasy World, Discuss Related to Present and Read aloud written TXT. At 26 months, Haohao learned to master Discuss Non-Present and Discuss Recent Event. Finally, she used Discuss Speaker's Self feeling and thinking, Negotiate Future Activity and Self-Direct Speech. In general, this developmental sequence shows a trend from focusing on a present, concrete or visualized situation, to focusing on a non-present, more abstract or an inner-thought context.

(2) At the Speech Act level, the emergence of various Speech Act types shows an acquisition process with developmental characteristics. First, this is a process going from a response to active initiation. Children started to use AD (*agree to do*) and SA (*answer to wh-question*) very early, but only mastered RP (*request*) and QN (*ask wh-question*) later. Second, this process develops from children talking from their own point of view to their awareness of others' perspectives. For example, the children acquired ST (*statement*) and SI (*state self-intent*) earlier than RQ (*ask other's wish*). Besides, considering that the children used RD (*refuse to do*) frequently at 20 months but CS (*counter suggestion, indirect refusal*) later, at 26 and 32 months, we may add this to the account of children's acquisition of Speech Acts: children learn direct expression much earlier than indirect expression.

(3) At the Combination level. With regard to the emergence of Pragmatic Flexibility, this study reveals that the Chinese children increasingly combined familiar Social Interchange types with different Speech Acts so that their pragmatic use of language became more flexible. These changes are obvious in some of the commonly used Social Interchange types, such as Discussion of Join Focus and Negotiate Immediate Activity. When the children manage to use certain strategies for mapping communicative intentions onto various expressions, they are learning to become better communicators.

Although these developmental patterns of communicative acts fit with previous research findings in other languages and other cultures, there are some noticeable differences in Chinese children's acquisition of communicative acts at all three levels. For example, it is not easy to identify some communicative acts, such as the Social Interchanges of Marking and Negotiate Mutual Attention, as emerging at a particular time because the Chinese children and their mothers used these types very little during their interactions. Some other communicative acts, such as the Speech Acts of YQ (*ask yes/no questions*), came late into the children's talk.

Third, the qualitative analysis of the repertoire of communicative intentions expressed by the Chinese children revealed an increase in joint attention in communication and therefore highlighted another qualitative characteristic of the acquisition of communicative acts. Interestingly, many pragmatic-based theories identify joint attention as the kernel of reciprocal social interactions because pragmatics largely imbeds in the creation of shared contexts and rule-governed transactions (Bates, 1976; Bruner, 1975, 1983; Ninio & Bruner, 1979; Ninio & Snow,

1988, 1996; Pan et al. 1996; Snow, 1979; Snow et al. 1996). Researchers have also reported that children who relied on regulatory intentions would not participate in reciprocal social communication and might never attain the reciprocity and mutuality of social communication needed to acquire other linguistic skills (Rollins, 1994).

A basic question arises here: what is the exact definition of "joint attention" compared to regulatory intentions in the whole category of communicative acts? According to Rollins (1994), two types of Social Interchange- Direct hearer's attention and Discuss a Joint Focus- related to the pragmatic ability to establish and maintain a joint focus of attention. If it is the case, one might expect that most children would show an increasing tendency on the use of Direct Hearer's Attention or Discuss Joint Focus. Yet, neither the American children nor the Chinese children who had a normal development sequence showed this pattern (also refer to Snow et al. 1996).

In this study, we found that the Chinese children keenly engaged in directing their hearer's attention at 14 months. They called their mother and used nonverbal sounds plus gestures to attract their mother's attention to objects or events. This using of Directing Hearer Attention gradually gave way, from 20 months, to Discuss Joint Focus, when the children had better pragmatic expression and linguistic capacity. At the later three stages, the children also tried to use statements or questions to direct their mother's attention. As we noted in analyzing the data, the Chinese children participated in Discussion of Joint Focus a lot in interaction with their mothers. They sustained a higher frequency and extended the range of their expressions in Discuss Joint Focus and there was an obvious increase in Discuss Related to Present, Discuss

Non- Present and Discuss Recent Event. In the light of these changes, it seems reasonable to argue that the ability to hold a joint focus should include these Discussion types. Whether or not the discussions engage children in a visualized joint present or in a non-present event, shared attention is always the first requirement for both sides in social communicative contexts.

6.2 Findings on the relationship between pragmatic development and syntactic development

The second major research question concerned the nature of the relationship between children's pragmatic and syntactic development. We analyzed the syntactic development of Chinese children quantitatively, by measuring the Mean Length of Utterance and Mean Length of five longest Utterances. Over the study period, the Chinese children showed a clearly increasing trend for both MLU and MLU 5. In examining the relationship between the children's communicative and syntactic development, MLU and MLU 5 correlated positively with Speech act repertoire and Pragmatic Flexibility at 14 months, 26 months and 32 months, but not at 20 months. Meanwhile, MLU and MLU 5 associate with number of Interchange types at 14 months, 20 months, and 26 months but at 32 months. This suggests a complicated, cross-domain relationship between aspects of pragmatic ability and syntactic knowledge, at particular periods of development.

Should we regard syntax or pragmatics as the bootstrap that pulls children along in their overall language development? Which of them constitutes that driving force? These questions concern not only how we view the issue of language

development in children in general but will also affect how we apply this knowledge to early childhood education. This prompted us to explore further the relationship of pragmatics and syntax in child language. We conducted a longitudinal observation of Haohao's communicative acts.

This study shows that the social context of communication is the source of child language development. The relationship between children's pragmatic and syntactic development is the subject of much discussion by researchers into language acquisition, particularly over the proposition that the development of children's communicative intentions is the source of children's language growth (e.g., Bates & MacWhinney, 1982; Ninio & Snow, 1988). Children develop language through interaction with others in a given social environment. The majority of language researchers have accepted this view. The evidence from this study is that children started to communicate successfully with very limited language abilities. Clearly, when Chinese children made their early communicative efforts at 14 months, nearly half of their speech acts were uninterpretable by their mothers. At this time, children remained at the single-word stage. Those intentions coded as DHA: YY, NIA: YY or DJF: YY showed that these young Chinese children wanted to direct their mother's attention to a certain thing, or to negotiate with their mothers to carry out an immediate activity, even to discuss with their mothers by making vocal sounds plus gestures. It was through these earliest communicative acts that the children hoped to win the response of their mothers and thus bring them the opportunities of developing language. Further evidence of this viewpoint comes from our observation of the emergence of Haohao's communicative acts. It was not difficult to detect that the appearance of each new social interchange type came after the initiation of the mother

and the child responded. For instance, at 20 months, Haohao could use DJF to discuss the toy, in context, with her mother. During this same observation, we found that her mother used DRP to ask Haohao about something related to the present time: "Do we have this toy at home?" The child answered, "Yes." At 26 months, the child became the frequent initiator of Discuss Related to Present. In addition this, we also found that the Chinese children used a type of speech act (RT), repeating their mothers' utterance, more frequently at 20 months than at the other stages. This showed that the children imitated naturally the mature language forms of the adults in the interaction process.

Our observation shows that both pragmatics and syntax played mutually supportive roles in the development of the children's communicative acts. This interaction added power to the children's capacity for verbal communication. Observation at the Social Interchange level showed that using new social interchange types afforded children different ways to use language information and enabled them to talk in different language formats. This could prompt the child to explore and master these new forms of language and to take note of the given rules of the form. At the Social Interchange level, the children became skilled at each Social Interchange type only after practice and with enough support from syntactical expression. For example, children's DFW (*discussion of fantasy world*) did not come into their talk until they started to use simple sentences and their initial use of DRP (*discuss related to-present*) came after they had mastered the use of the Chinese syntactic structure of SV with structure markers "ye" etc.

On the Speech Act level, we found that some new types emerged together with

new syntactic forms, such as RQ, ask a question about the hearer's wish or TQ, ask a limited alternative question. The evidence showed that the new types of speech acts and syntactic changes were emerging together, suggesting that these speech acts emerged when the children's syntactic development was ready. Meanwhile, there were continuing grammatical changes in certain types of speech act that were popularly used among Chinese children, such as ST of statement and RP of request/propose in the Discussion of Joint Focus and Negotiation of Immediate Activity. The within-type syntactic changes support our understanding that familiar speech types altered syntactically in familiar social interchange types, which suggested a marked cooperation between a higher level of syntax and a familiar communicative context. Thus we can state that children's syntactic skills assist the social use of language while, at the same time, their communicative acts plays a supportive role in the development of their pragmatic abilities.

In our discussion of the mutually reinforcing effects of the development of syntax and pragmatics, we need to re-examine their mutually limiting effects as well. From our observation, we have discovered that in the speech acts of the Chinese children, there were speech act types that were the first to emerge and frequently used. Some Speech Act types used by the children remained syntactically shorter and simpler in structure, whether the child used them to discuss a joint focus or to negotiate an immediate activity. The occurrence of these speech acts confirmed that children learn pragmatic awareness at the same time as they pick up appropriate utterances to serve their conversational needs. During the entire research process, children expressed these speech act types in very simple syntactic structures. Considering the children's use of some speech acts with a higher level of syntax, such

as ST of statement and RP of request, it seems that their limited use of syntax with certain other types of speech act may relate to their growing knowledge of pragmatic rules. In fact, we have found that, while the children learned to use different types of communicative acts, they were also developing sensitivities to different communicative contexts. Therefore, they began to understand what they should say in what situation. The pragmatic need drove them to choose appropriate syntactic forms to express their meanings.

While there are limitations imposed by pragmatics on the use of syntax, we have also found limitations imposed by syntax on the children's use of pragmatics in their development of communicative acts. This research has shown that a few types of speech acts emerged in Chinese children's talk later than in the American children studied in the Harvard study (Snow et al, 1996). YQ-*ask yes/no question* is a typical example. When other question forms such as QN-*ask wh-question* and TQ-*ask limited alternative question* emerged, YQ-*ask yes/no questions*, came late into the Chinese children's speech. As noted earlier, this constraint was the result of the particular linguistic structure of Mandarin Chinese. This observation provided evidence to explain why Chinese children used these types late in comparison to American children. The research therefore demonstrates the constraining relationship between syntactic and pragmatic development.

The qualitative analysis of the relationship between two language domains provides a complex model of the way in which pragmatics and syntax combine in the development of children's communicative acts. We have learned that children acquired communicative acts through daily social interactions. Focusing on

interaction may therefore not only be useful for the understanding of the development of communicative acts but also for our knowledge of child language development as a whole. Knowing how these two language domains interact and co-drive language development may facilitate a richer and more integrated approach to early language education. These findings come from analyses based on the longitudinal study of one child and data from small numbers of children studied in groups at each stage. Further research, involving more children, will be necessary to break out of this linguistic labyrinth to a clearer understanding of child development.

6.3 Findings on mother-child interactions

The third research question in this study asked whether Chinese mothers' communicative behaviors have an impact on their children's development of communicative acts. This aimed to explore how the social-cultural characteristics conveyed by the mothers affect their children's learning of communicative acts in their interactions with each other.

We have hypothesized that Chinese cultural and linguistic characteristics embedded in mother-child interactions may influence Chinese children's development of communicative acts. As has been pointed out before, communications between children and their caregivers function for the children as everyday lessons in how to carry out skilled and valued cultural activities (Rogoff, 1990). Because the particular skills and orientation that children develop are rooted in the specific historical and cultural activities of the community in which children and their companions interact,

Chinese children's acquisition of communicative acts may not be exceptional in reflecting cultural and mother tongue information learned from their interaction with their mothers.

In this study, we measured all the mother-child pairs for communicative acts. The quantitative findings revealed that Chinese mothers showed a simpler format in talking with their prelinguistic children of 14 months and that they sustained this pattern in their interactional efforts as the children's communicative skills increased. In comparison to the American mothers in the Harvard study, Chinese mothers had a smaller repertoire of communicative acts but they showed their intentions more clearly by their use of frequent of these limited types. A few types of communicative act that were popular among American mothers did not appear in the list for Chinese mothers and these types were rare in the Chinese children's communicative behavior. Analyses revealed strong correlations between the communicative acts of mothers and their children, significantly between speech acts and pragmatic flexibility at the later three stages. Frequently used interchange-speech act combinations resulted in considerable cohesion between both. These findings suggest that Chinese mothers have their own characteristic ways of communicating and transmitting cultural information in interaction with their children. Therefore, the mother's social behaviors influenced their children's development of communicative acts.

Quantitative results cannot present us with a full picture. Therefore, in this research, we used qualitative methods to analyze the data from our longitudinal observation of a mother-child pair. The observation of this mother-child interaction supported the results of the quantitative analysis of the cross-sectional data. At all

stages, the Chinese mother's focus in her interactions with her child was discussion, including: discuss a joint focus, discuss related-present, discuss non-present and discuss recent event. She used several strategies to get her child to exchange more information and she asked many questions to get her child to discuss different topics. We found that the mother was successful because, during the study period as a whole, the child gradually became a very fluent discussant. It is clear that the behavioral characteristics of the Chinese mother, which were different from that of the American mothers, constituted a special Chinese social context for the mother-child interaction and, therefore, these characteristics made an impact on the Chinese children's learning and using of communicative acts.

Closely related to this is the question of why we regard the behavioral differences as stemming from cultural influences. When one refers to cultural differences in interaction, differences in greeting and differences in the mode of expression come to mind. However, here, we propose a deeper cultural agenda for human communicative acts. This cultural agenda express through certain cultural emphases, that is, people's different cultural focus. We have found that the cultural focus for Chinese mothers during their interaction with their young children is on information exchange.

Other researchers have shown that Chinese mothers with a higher educational background often use the strategy of information exchange in their interaction with their children and that these Chinese mothers' strategies highly correlate to their children's behavior (Chen et al., 2000). From a linguistic usage point of view, this

research has again demonstrated this point. We want to say, therefore, that information exchange is a focus of Chinese mother-child interaction.

When Haohao's mother used all kinds of strategies to arouse, encourage, expand, challenge, and even wait for Haohao's participation in discussion, her focus was to mobilize her child into learning how to exchange information. The information exchange had become the central task for Haohao's mother and this was a cultural emphasis in the mother-child communication. This cultural emphasis brings special characteristics to children's development of communicative acts. Thus, we can explain why children's use of communicative acts aimed at discussion exceeds their expressed intention to other actions.

This result reflects an even deeper issue. That is, the consciousness of social role that stems from cultural tradition and its relationship to communicative acts. When we discovered that mothers attached more importance to information exchange in the interactional process, making interaction and discussion more important in the communicative act, we felt the need to unearth the cultural tradition behind this phenomenon. What makes the Chinese mothers attach so much importance to information exchange with their children? As described above, a related cross-cultural comparative study discovered that the role played by middle class Chinese mothers is that of a teacher (Le et al. 1997). The child is her student as well as her focal point of attention. Both mother and child pay a great deal of attention to the task and the aim of the mother is to transmit knowledge and skill to the child. The results from this study further support this conclusion from another angle. Chinese mothers enthusiastically threw themselves into the role of the child's first teachers. In their

interaction with the child, they actively exchanged knowledge and information about their surroundings with the child, teaching them all kinds of new concepts. In their conversation with their children, they placed an emphasis on serious topics and the transmission of knowledge, through Discussion of Joint Focus, Discussion of Related to Present, Discussion of Non-Present, and Discussion of Recent Event. Comparatively speaking, they seldom used Marking, Discussion of Hearer's feelings and Discussion of Speaker's feelings, which manifest and express feelings. Fifty-two percent of the language used by the mothers had to do with all kinds of questions, a relatively large part being explanatory statements in response. The implication is that Chinese mothers, whether consciously or sub-consciously, play the role of a teacher. This role consciousness stems from the Chinese cultural tradition that parents are the first teachers in a child's life.

Undoubtedly, the Chinese children in this interactional process gradually form the role consciousness of being a student. As the mother instigates her child's participation in serious discussions of various topics, the child has plenty of opportunity early in life to learn how to discuss a joint focus and less opportunity to use the Marking or Performance of play sounds. When the mother placed sufficient attention to guiding the child's interest, of course, the child then had more opportunity to Negotiate Immediate Activity, and would have no need to use Negotiation of Mature Attention to get mother's intentional response. Chinese children spent a large percentage of their time in SA answering the mother's wh-questions or in ST stating their views. By comparison, they asked few questions and made few objections, even if they acquired enough linguistic forms of questions and negations. This showed that in their interaction with their mothers, mother's guidance shaped Chinese children's

behaviors and Chinese children were increasingly acquiring the consciousness of their role as a student. A point worthy of our attention is whether the scarcity of questions in Chinese children leads to problems of any sort. This result may be related to the conclusions of the cross-cultural research referred to above, that is, that the middle class Chinese children may be lively in the interactional process, but lack creativity (Le et al., 1997).

It is necessary to point out that this kind of task-centered interactional process that is dominated by the Chinese mothers is different from the commonly known child-centered model or adult-centered model of learning. In the child-centered interactive model upheld by Western middle class culture, parents often adopt an "adult lowering" interaction strategy (Ochs & Schieffelin, 1984). In their interaction with children, the adults promote interaction by adopting the topics and activities of interest to the child (Pan et al.1996). Traditional Chinese parents more frequently adopt the maternal-authoritarian model of interaction, which closely related to the adult-centered teaching method. However, a recent research carried by Chen et al. (2000) revealed that Chinese mothers with a relatively higher level of education seldom use the authoritarian method in interaction with their children now. The research of Le et al. (1997) also mentions that, in the interaction between middle class Chinese mothers and their children, the children's attitudes are positive and lively. The mothers in this study, as we have reported the chapter of research design, were all Chinese middle class mothers. While our research results support the above-mentioned results, we wish to state that, given China's ongoing social development and changes, the interactive model of Chinese mothers with their children is neither the traditional adult-centered model nor the Western child-centered model. That is the

incomplete but dynamic picture presented by the results of this study. Further exploration of these ongoing changes in mother-child communication is therefore worth further research.

This study provides a foundation for investigating which aspects of children's pragmatic system related to child language development for normally developing Chinese young children. We conclude that Chinese children's communicative act development proceeds quantitatively with the increasing number of types and using frequency, and qualitatively with three indicating characters: degree of interpretability, emergence of new types and level of joint attention. We also look at the complexities of the relationship between pragmatic development and syntactic development and discuss an integration process of which these two sides of language work together to form the communicative acts. When we compare Chinese children with each other or with American children, similar rates of pragmatic progress suggest a common underlying ability. Conversely, differences in the pattern of communicative intentions suggest specific contributions of Chinese social and linguistic factors. They highlight, and provide a possible explanation for, that the cultural focus embedded in mother's communicative acts is delivering information in the process of mother-child interaction, and therefore it helps to fashion Chinese children into Chinese communicators.

The findings of this study have contributed to our understanding of the nature of pragmatic development in Chinese children and on the use of INCA-A system in the cross-cultural comparisons. However, we have found some inevitable limitations. First, due to the limited data size, background, and data age groups, we cannot

generate a full picture of Chinese children as whole. Further research is in need to verify the current results. Besides, we found that, as some researchers pointed before (Ninio & Snow, 1996), the INCA-A system is only able to capture children's pragmatic development on the level of communicative acts. Some other measures, focusing on child language use on the conversational level, may help to add more information to the study on pragmatic development. This type of conversational analysis will be particularly relevant as we move to extend these analyses to the study of Chinese children in preschool.

Appendix A

(Adapted from Ninio, Snow, Pan & Rollins, 1991)

Categories of Interchange Distinguished in the Current Study

Code	*Category*	*Function*
NCS	NEGOTIATE CO-PRESENCE AND SEPARATION	to manage the transition between co-presence and separation.
NMA	NEGOTIATE MUTUAL ATTENTION AND PROXIMITY	to establish mutual attentiveness and proximity or withdrawal.
SAT	SHOWING ATTENTIVENESS	to demonstrate that speaker is paying attention to hearer.
DHA	DIRECTING HEARER'S ATTENTION	to achieve joint focus of attention by directing hearer's attention to objects, persons and events in the environment.
DJF	DISCUSSING A JOINT FOCUS OF ATTENTION	to hold a conversation about something in the environment that both participants are attending to, e.g., objects; persons; ongoing actions of hearer and speaker; ongoing events.
DRP	DISCUSSING THE RELATED-TO-PRESENT	to discuss non-observable attributes of objects or persons present in the environment or to discuss past or future events related to those referents.
DRE	DISCUSSING A RECENT EVENT	to hold a conversation about immediately past actions and events.
DNP	DISCUSSING THE NON-PRESENT	to hold a conversation about topics which are not observable in the environment, e.g., past and future events and actions, distant objects and persons, abstract matters. (Excluding conversations about hearer's and speaker's inner states.)
DHS	DISCUSSING HEARER'S THOUGHTS AND FEELINGS	to hold a conversation about hearer's non-observable thoughts and feelings.
DSS	DISCUSSING SPEAKER'S THOUGHTS AND FEELINGS	to hold a conversation about speaker's non-observable thoughts and feelings.
PSS	NEGOTIATING POSSESSION OF OBJECTS	to determine or discuss who is the possessor of an object.

NIA	NEGOTIATING THE IMMEDIATE ACTIVITY	to negotiate the initiation, continuation, ending and stopping of activities and acts; to direct hearer's and speaker's acts; to allocate roles, moves, and turns in joint activities; to evaluate speaker's and hearer's act as correct or incorrect; or as desirable or undesirable.
NFA	NEGOTIATING AND ACTIVITY IN THE FUTURE	to negotiate actions and activities in the far future.
PRO	PERFORMING VERBAL MOVES IN AN ACTIVITY	to perform moves in a game or other activity by uttering the appropriate verbal forms.
MRK	MARKING	to express socially expected sentiments on specific occasions such as thanking, apologizing, etc. or to mark some event.
CMO	COMFORTING	to comfort hearer, to express sympathy for misfortune.
DCC	DISCUSSING CLARIFICATION OF VERBAL COMMUNICATION	to discuss clarification of hearer's ambiguous verbal communication, or a confirmation of speaker's understanding of it.
DCA	DISCUSSING CLARIFICATION OF ACTION	to discuss clarification of hearer's nonverbal communicative acts.
TXT	READ WRITTEN TEXT	to read or recite written text aloud.
OOO	UNINTELLIGIBLE UTTERANCES	unknown function.
YYY	UNINTERPRETABLE UTTERANCES	unknown function.

Categories of Illocutionary Force Distinguished in the Proposed System

Code	*Function*
Directives and responses	
RP	Request/proposes/suggest action for hearer, or for hearer and speaker.
RQ	Yes/no question about hearer's wishes and intentions which functions as a suggestion.
DR	Dare or challenge hearer to perform action.
WD	Warn of danger.
CL	Call attention to hearer by name or by substitute exclamations.
SS	Signal to start performing an act, e.g., to run or roll a ball. Pace performance of acts by hearer.
AD	Agree to carry out act requested or proposed by other.
AL	Agree to do for the last time.
RD	Refuse to carry out act requested or proposed by other.
CS	Counter-suggestion; an indirect refusal.
GI	Give in; accept other's insistence or refusal.

AC	Answer calls; show attentiveness to communications.
GR	Give reason; justify a request for action, refusal or prohibition.
EX	Elicit completion of role-learned text.
RT	Repeat/imitate other's utterance.
SC	Complete statement or other utterance in compliance with request eliciting completion.
CX	Complete text if so demanded.
EA	Elicit onomatopoeic or animal sounds.
Commitments and responses	
SI	State intent to carry out act by speaker; description of one's own on-going activity.
FP	Ask for permission to carry out act.
PD	Promise.
TD	Threaten to do.
PA	Permit hearer to perform act.
PF	Prohibit/forbid/protest hearer's performance of an act.
Declarations and responses	
DC	Create a new state of affairs by declaration.
DP	Declare make-believe reality.
YD	Agree to a declaration.
ND	Disagree with a declaration.
Markings and responses	
MK	Mark occurrence of event (i.e. thank, greet, apologize, congratulate, mark ending of an action, etc.)
TO	Mark transfer of object to hearer.
CM	Commiserate, express sympathy for hearer's distress.
EM	Exclaim in discuss, pain.
EN	Express positive emotion.
ES	Express surprise
XA	Exhibit attentiveness to hearer.
Statements and responses	
ST	State or make a declarative statement.
AP	Agree with proposition expressed by previous speaker.
DW	Disagree with proposition expressed by previous speaker.
WS	Express a wish.
CN	Count.
Questions and responses	
QN	Ask a product-question (wh-question)
YQ	Ask a yes/no question.
TQ	Ask a limited-alternative yes/no question.
EQ	Eliciting question (e.g. hmmm?)
AQ	Aggravated question, expression of disapproval by restating a question.

SA	Answer a wh-question by a statement.
AA	Answer in the affirmation to yes/no question.
AN	Answer in the negative to yes/no question
QA	Answer a question with a wh-question
YA	Answer a question with a yes/no question
TA	Answer a limited-alternative question
NA	Intentionally non-satisfying answer to question
RA	Refuse to answer.
Performances	
PR	Perform verbal move in game
TX	Read or recite written text aloud.
Evaluations	
PM	Praise for motor acts, i.e. for nonverbal behavior.
ET	Exclaim in surprise or enthusiasm, express enthusiasm for hearer' s performance.
CR	Criticize or point out error in nonverbal behavior.
AB	Approve of appropriate behavior. Express positive evaluation of hearer' s or speaker' s acts.
DS	Disapprove, scold, and protest disruptive behavior. Express negative evaluation of hearer' s or speaker' s behavior as inappropriate.
ED	Exclaim in disapproval.
Demands for clarification	
RR	Request to repeat utterance
Text editing	
CT	Correct, provide correct verbal form in place of erroneous one.
Vocalizations	
YY	Utter a word-like utterance without clear function
OO	Unintelligible vocalization.

Appendix B

Criteria and Examples of Chinese MLU Computing Input Unit

(Adapt from Cheung, H. 1997)

Types	Examples	Unit of MLU Utterance
1. Verb + Verb (independent)	进来 （come in); 出去 (go out)	1
2. Verb + Verb (attached)	忘记 (forget); 知道 (know)	1
3.Verb + Noun (free)	看书 (reading book); 买菜 (buy food)	2
4. Verb + Noun (limited)	跳舞 (dance); 跑步 (running)	1
5. Noun (name)	长裤 (trousers); 茶杯 (cup)	1
6. Noun (location A)	桌子上 (on the table) 房间里 (in the house)	1
7. Noun (location B)	上面 (above); 这里 (here)	1
8. Quantifier + Classifier	一个（one thing); 两片 (two piece)	2
9. Determiner + Classifier	这个 (this one); 那只(that one)	1
10. Pronoun (1)	我 （I); 自己 (myself); 他们 (they)	1
11. Adjectives	漂亮 (beautiful); 黑黑 (black)	1
12. Adverb of Negation	不/不要 (not/not want) 没/没有 (no/not have)	1
13. General Adverbs	非常/很 (very); 已经 (already)	1
14. Adverb of Time	今天 (today); 天天 (everyday)	1
15. Adverb of Conjunctions	可是 (but); 因为 (because)	1
16. Grammatical Aspect	的;了; 着; 过	1

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