A Case Study on Parental Discourse Strategies and a Bilingual Child's Code-Mixing[*]

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The case study was conducted to examine the relationship between parental discourse strategies and the mixed-coding of language behavior of a 2-year-old Mandarin-English bilingual girl in interactions between the parents and the child. The parents were non-English native speakers and adopted the "one-person one-language" practice in the family, where the father spoke Chinese to the daughter and allowed the daughter to respond in either Chinese or English, while the mother used only English in the interaction with the daughter. Monthly recordings of the child's naturalistic interactions with both parents over one year revealed that the father was more tolerant of the child's mixed coding, and the mother was intolerant. The child used mixed Mandarin and English in interactions with her father frequently, but less frequently used the mixed coding with her mother. A series of correlation analyses shows that parents' discourse strategies in response to the child's mixed coding of language are positively and significantly correlated with the child's overall rates of using mixed-coding and the likelihood that the mixed-coding was used in the next round of conversation. It seems the child differentiated pragmatic strategies in her interactions with respective parents. She recognized the one-person-one-language rule in her interactions with her mother and eventually appliedit in her interactions with her father. The significance of findings of the study is to contribute partial empirical support for Parental Discourse Hypothesis through a mixed methodology.

KEY WORDS: case study, code-mixing, parental discourse strategies, simultaneous bilingual children, Taiwan

Recent research on simultaneous bilingual children's code-mixing, defined as "the use of two languages within a single unit of discourse regardless of whether or not the use was deliberate" (Nicoladis & Genesee, 1998, p. 85), has reached a general consensus that the ambient input (Genesee, 1989) may be one major factor. Some researchers thus have turned their attention to the influence of home language on bilingual children's code-mixing, especially the impact of parental input patterns (De Houwer, 2007; Pan, 1995). According to Comeau, Genesee, and Lapaquette (2003, p. 114), there are two approaches to examining the impact of parental input on bilingual children's code-mixing: One focuses

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on "statistical properties of parental input" and the other on "parental discourse features".

Studies on statistical properties of parental input have attempted to establish a significant and positive relationship between the rates of parental code-mixing and their children's. Findings along this line are equivocal. Some found significant correlations between the rates of parents' code-mixing and their children's among half of the cases observed (Goodz, 1989), in only two of the twelve cases (Nicoladis, 1995), or in older children between 3;0 and 3;6 (Nicoladis & Genesee, 1997). Others found little relationship (Mishina, 1999) or even a reverse modeling effect, with parents modeling after their children's code-mixing (Muranaka-Vuletich, 2002).

The foregoing focus on the influence of the rates of parental code-mixing overlooks other features of parental discourse styles (Comeau et al., 2003). Lanza (1992, 1997, 2001) argued that it is the discourse strategies parents employed *in response to* their children's code-mixing, rather than the modeling effect of their own code-mixing, that impact the rates of their children's. Convincing as this argument may sound, findings along this line are still mixed. Qualitative observational case studies documented noticeable influence of parental discourse strategies on children's code-mixing behavior (Christiansen, 1995; Juan-Garau & Perez-Vidal, 2001; Lanza; Mishina, 1997). But quantitative studies failed to find significant statistical evidence for this effect (Lanza, 1999; Nicoladis & Genese, 1998; Deuchar & Muntz, 2003). The present study, a response to Lanza's call (2001, p. 227) for more "quantitative as well as qualitative" work on this issue, intends to reconcile the discrepancies in previous findings and to expand the extant database of "family bilingualism" (Lanza, 1997) by examining the relationship between parental discourse strategies and a 2-year-old Mandarin-English bilingual girl's code-mixing behavior from both qualitative and quantitative perspectives.

LITERATURE REIVEW

Lanza (1992) is the first researcher that specifically examined the relationship between parental discourse strategies during parent/child interactions and children's subsequent language patterns. In her documentation of the language development of two 2-year-old Norwegian-English bilinguals, she found that they could "use their languages in contextually sensitive ways" (Lanza, 1992, p. 319). One of the children, Thomas, demonstrated a strong preference for Norwegian over English and mixed both languages frequently while addressing his American mother who did not employ discourse strategies to encourage him to use English. Consequently, Thomas felt that mixing languages was appropriate while interacting with his mother. On the other hand, the other child, Siri, though also dominant in Norwegian, did not mix languages with her mother as Thomas did with his due to her mother's constant employment of minimal grasp and expressed guess strategies in response to her code-mixing. Lanza argued that Siri's mother's choice of strategies contributed to Siri's low level of mixing with her.

The premise of Lanza's argument is that bilingual children's contextual sensitivity is related to their parent's discourse strategies. Parents who constantly employ minimal grasp or expressed guess strategies, either consciously or unconsciously, to respond to their children's code-mixing indicate their failure to understand their children's code-mixed utterances, thereby cueing their children to resort to the other language. These monolingual strategies provide the children with a unique discourse structure

which shares a similar function as negative input (Saxton, 1997), highlighting the contrast between the children's choice of language and their parents' and encouraging them to reject mixing. On the contrary, parents who reveal an understanding of their children's code-mixing by providing a translation equivalent or by code-switching indicate their implicit acceptance of this language as the appropriate communication medium during parent-child interactions.

Lanza (1992, p. 629) delineated five parental discourse strategies: Minimal Grasp, Expressed Guess, Adult Repetition, Move On, and Code-Switching. She argued that each conveyed a different message, thus producing a differential effect on bilingual children's code-mixing behavior. Minimal Grasp (henceforth MG) is the most monolingual strategy by which parents pretend that they do not understand the message and request the child to clarify the utterance in his/her language. The other monolingual strategy is Expressed Guess (henceforth EG). By using EG, parents attempt to reformulate the child's utterance in a yes/no question or simply ask "what" in their native language. The strategy that starts to gear toward a bilingual context is Adult Repetition (henceforth AR), given that it reveals parents' understanding of the child's utterance and their ability to repeat it in the other language. The fourth one, Move On Strategy (henceforth MO), not only indicates parents' comprehension of the child's utterance but also sends a message to the child that it is acceptable to use the other language or code-mixing. The most bilingual strategy is Code-Switching (henceforth CS) in which parents incorporate the language that the child is using into their own utterances, making it a mixed utterance or code-switching. The child would learn that the other language or code-switching is an appropriate means of communication.

Lanza's scheme of parental discourse strategies provides a testable framework for subsequent studies (Nicoladis & Genesee, 1998; Juan-Garau & Perez-Vidal, 2001; Mishina,, 1999). Despite the observed impact of parental discourse strategies on bilingual children's code-mixing behavior in these case studies, the effect or consequence of each parental strategy is still unclear (Mishina, 1999). Nicoladis and Genesee (1998) conducted a study to address this issue. They proposed the so-called Parental Discourse Hypothesis (henceforth PDH), arguing that the more monolingual the parental discourse strategies are, the lower rates of the child's code-mixing are. They examined the overall and immediate effects of particular parental responses to 5 children's code-mixing (age range 1;9 to 2;0)on their language choice in the next conversational turn in 5 different French-English bilingual families for 6 months (age range 2;4 to 2;7). The results did not support PDH. The focal children interacting with parents who used relatively more bilingual strategies did not codemix more than children interacting with parents adopting relatively more monolingual styles. Neither did the children continue to codemix more after relatively bilingual parental strategies than relatively monolingual strategies. Nicoladis and Genesee suggested that social, cognitive, and linguistic factors might have confounded the findings. They pointed out that the bilingual environment where their study took place is different from the monolilngual environment where Lanza's study was conducted; that the bilingual children in their study might not be cognitively ready to target their language as a source of communication breakdown in their interactions with their parents, and that the bilingual children's unbalanced proficiency in the two languages might offset their pragmatic sensitivity.

In response to Nicoladis and Genesee's (1998) findings, Lanza (2001) emphasized that the theoretical base of PDH (speech act theory) and their methodological approach (turn-by-turn analysis) were different from the interactional and developmental frameworks and the conversational analysis

approach she used in her study. By collapsing various developmental data sets from five different family milieus, Nicoladis and Genesee's quantitative approach failed to provide important information on "contextualization, interactional achievement, and sequentiality" between each parent-child dyad interaction (Lanza, p. 203). Comeau, Genesee, and Mendelson (2007, p. 161) also concurred with Lanza (1999) that "…mitigating factors… such as … language socialization with regards to the acceptability of code-mixing" may override the effect of "turn-by-turn patterns".

In spite of Lanza's and Comeau et. al's concern over the turn by turn analysis, Deuchar and Muntz (2003) followed Nicoladis and Genesee's quantification scheme in examining the relationship between an English-Spanish bilingual girl's code-mixing behavior in response to her parents' discourse strategies when she was between 1; 7 and 2;7. Similar to Nicoladis and Genesee's findings, Deuchar and Muntz did not find any "significant overall correlation between the child's mixing and the adult strategies" or "in the separate language contexts" (p. 170). In discussing their findings, Deuchar and Muntz also suggested the child's cognitive development as a possible factor for her mixing patterns. But unlike those cognitively less mature children reported in Nidoladis and Genesee, the child in Deuchar and Muntz's study demonstrated increasing self-awareness and gradual adaptation to adult norms of using languages.

Critique

Although Nicoladis and Genesee (1998) derived their PDH from Lanza's study (1992, 1997), their focus was on "the effects of the parental discourse strategies on the child" (p. 88). In their attempt to investigate the "speech act" effect of parental discourse strategies on children's code-mixing, Nicoladis and Genesee failed to examine the parent/child interactional pattern in each family, which is the underlying factor for the potential impact of parental discourse strategies on the children's code-mixing behavior in Lanza's original language socialization framework. According to Lanza (2001, 2007), if a child is socialized into a bilingual interactional mode through parental discourse strategies like AR, MO, CS, s/he tends to code-mix more. Given this family language socialization, parents' occasional use of monolingual strategies in response to the child's code-mixing is less likely to be perceived by the child as proposals for a negotiation of a more monolingual-like context to prompt him/her to switch to the monolingual mode.

The foregoing situation may be the case in Nicoladis and Genesee's study. A scrutiny of Nicoladis and Genesee's appendix (1998, p. 99) revealed that parents in the five families usually negotiated a bilingual context where they rarely employed monolingual strategies. The frequency counts of parental monolingual strategies in response to their children's code-mixing rank the lowest, indicating that those parents seldom created a monolingual environment where they insisted on eliciting the desired language from their children. The rare use of monolingual strategies may send a message to their children that both languages are acceptable, creating a more bilingual interactional pattern (Juan-Garau & Perez-Vidal, 2001; Lanza, 2001). This probably explains why the five children under focus did not target their parents' occasional minimal grasp strategy as a need to switch language and continued to codemix "almost 90% of the time" (Nicoladis & Genesee 1998, p. 95). It is thus unsurprising that Nicoladis and Genesee did not find any significant correlations between parental discourse strategies and bilingual children's

code-mixing behavior.

In addition to parent-child interaction patterns, another factor that may impact the relationships between parental discourse strategies and their children's code-mixing behavior is parental insistence on employing monolingual strategies regardless of context (Döpke, 1992). Siri's mother in Lanza's (1992, 1997) study employed a context- dependent monolingual strategy. Despite her insistence on negotiating a monolingual context by using English in response to Siri's code-mixing in mother-child dyadic interactions, she sometimes employed bilingual strategies such as AR and MO at the dinner table when her husband was present. Given her use of more bilingual strategies in interaction with Siri in triadic interactions, one would expect to find higher rates of code-mixing on Siri's part than in mother-child dyadic interaction where she constantly employed monolingual strategies.

To further complicate the situation, Lanza "used the sessions with both parents present to determine Siri's rates of codemixing but used the sessions with parents alone to analyze the family's language-negotiation strategies (cited in Nicoladis & Genesee, 1998, p. 89). She did not find any significant correlations between parental discourse strategy and Siri's code-mixing behavior (1999). The mother's use of bilingual discourse strategies in triadic interactions and Lanza's calculation of the child's code-mixing rates in triadic interactions might have played a role in the insignificant correlations. Had Siri's mother insisted on using monolingual discourse strategies in triadic interactions or had Lanza correlated the rates of Siri's code-mixing in respective *dyadic* interactions to each parent's discourse strategies, different results might have been generated.

Taken together, the foregoing analysis not only outlines a necessary condition for the PDH hypothesis but also points out the possible effect of parental consistency in employing monolingual/bilingual discourse strategies on bilingual children's code-mixing behavior. PDH must be approached from both "developmental and interactional perspectives" given that the interactive and developmental process of family language socialization involves shifting "parental beliefs and attitudes towards the child's developing language competence" (Lanza, 2001, p. 227, see also De Houwer, 1998; Juan-Garau & Perez-Vidal, 2001) and also coincides with the child's sociocognitive development (Deuchar & Muntz, 2003; Nicoladis & Genesee, 1998). Researchers need to ascertain parental response (interactional) patterns with which parents socialize their children (Lanza, 2001) before attempting quantitative analyses. In the meantime, researchers also need to take into account the effect of parental consistency in negotiating monolingual/bilingual contexts in dyadic and triadic interactions on the child's code-mixing behavior in subsequent quantification as well as linguistic signs suggesting children's increasing sociocognitive development.

More quantitative analyses are needed to examine the observed relationships between parental discourse strategies and bilingual children's code-mixing behavior in qualitative studies so that we can better understand the extent to which parental discourse strategies are associated with the child's code-mixing behavior. More attention should also be directed to the child's sociocognitive development to see how it interacts with parental discourse strategies and the child's codemixing. In response to Lanza's call for more quantitative and qualitative work on this issue, the researcher wished to expand current database by documenting the interactions between a Mandarin-English bilingual child and her parents and empirically examining the relationships between parental discourse strategies and the child's language behavior.

RESEARCH PURPOSES AND QUESTIONS

The purposes of this study are three fold. The researcher wanted to understand the parental discourse strategies in response to their daughter's codemixing as well as the impact of their discourse strategies on the overall rate of their child's codemixing and the child's language choice in the next conversational turn. In terms of the child's overall rate of codemixing, it is expected that the rate would be comparatively lower if her parents consistently use monolingual strategies to interact with her, and comparatively higher if her parents continuously employ bilingual strategies. In other words, the researcher expected to find a positive relationship between parental discourse strategies and their child's codemixing rate. The more monolingual strategies are used, the lower the child's rate of codemixing is; the more bilingual strategies are used, the higher the child's rate of codemixing is. In terms of the child's specific response to each parental discourse strategy after her codemixing, it is expected that the child would continue codemixing more when interacting with parents who consistently employed bilingual discourse strategies but stop codemixing when interacting with parents who consistently employ monolingual strategies.

The research questions are formulated as follows:

1) What are parental discourse strategies in response to the child's code-mixing?

2) What is the relationship between the parental discourse strategies and the child's overall rates of code-mixing?

3) What is the relationship between each parental discourse strategy and the child's language choice in the next conversational turn?

These questions cover both the qualitative discourse features (Question 1) and quantitative properties (Question 3) of parental input. They are refined versions of Nicoladis and Genesee's (1998) and Deuchar and Muntz's (2003) studies in that they incorporate qualitative perspectives--the interactional and developmental data in into the quantitative analysis. Inspired by Deuchar and Muntz, the researcher also looked in the child's language for linguistic evidence suggesting the child's sociocognitive development (e.g., self-repair, evaluative comments on the language norm) and took it into account while examining the impact of parental discourse strategies.

METHODOLOGY

Participants

The participants were from a Mandarin-English bilingual family in Taiwan. The focal child, HY (2; 01-3; 00), was the only child during the observation. HY's parents were native speakers of Mandarin and Southern Min (one of the dominant dialects in the local community) and foreign language speakers of English. Both had a university degree. The mother used to be a certified English teacher at a local public elementary school. She quit her job to continue studying for the MA degree at an evening graduate school during the observation period. She passed the 1st stage of the high intermediate level of the GEPT

test. The father's major was related to computers and worked for a local computer company to support the family. While the mother was attending class, HY was left to her Mandarin-speaking father or relatives.

Language Environment

The family lived in a mixed commercial-residential community where local residents speak mainly a mixture of Mandarin and Southern Min. The language strategy adopted by HY's parents is termed as the "artificial" or "non-native" strategy, employed by "committed families" that are determined "to bring up children bilingually by introducing two languages from birth and at home in the same way that two parents with different languages do" (Barron-Hauwaert, 2004, p. 177). The parents claimed to have consciously and consistently used a one-person-one-language rule to address her since HY's birth– the father used Mandarin and the mother English. They communicated with each other in mainly Mandarin and in Southern Min occasionally.

HY's mother realized that her daughter had sufficient exposure to Mandarin input from her father and close relatives but comparatively inadequate exposure to English. Thus she made an extra effort to increase HY's exposure to English at home. She started speaking English to HY when HY was born. In order to encourage HY's active use of English, she started to react negatively to HY's mixing at the age of 1;10. She would pretend unable to understand HY when HY addressed her in Mandarin and insisted on getting only English responses from her child. Given the focus of the mother-daughter's interaction on daily family lives involves using easy language and sentence patterns (e.g., WH-questions, commands, progressive aspects), HY's mother communicated in English fluently with her daughter. Besides speaking English to HY, she and HY played games, read books, listened to VCDs and watched DVDs in English together.

The Child's Language Dominance

Both sociolinguistic and linguistic criteria have been used to assess HY's language dominance. From a sociolinguistic perspective, HY was dominant in Mandarin by the following two interrelated criteria: "quantity of situational exposure and variety of contexts of use, and language preference.

Quantity of situational exposure and variety of contexts of use. Although HY's daily exposure time to English and Mandarin was quiet equal (5 hours with each parent and 2 hours with both parents), she received a greater quantity of situational exposure to Mandarin than to English and thus used it in a greater variety of contexts than English. Since Mandarin was the language used in the community, HY could get abundant exposure to Mandarin via many occasions outside the home like shopping in the market and playing with peers in the park. In contrast, she received much less variety of English input outside her home.

Language preference. HY preferred speaking Mandarin because people around her except her mother address her in Mandarin. Moreover, it is possible that HY sensed her mother was a bilingual,

since her mother often used Mandarin (sometimes Southern Min) when talking with others. Thus, she might feel a greater need to communicate with more people in Mandarin and preferred to use it. The fact she preferred to use Mandarin could be seen from her tendency to stop using English items after acquiring the corresponding terms in Mandarin before her mother consciously adopted monolingual discourse strategies. Only after then did HY (1;10) try to use English when interacting with her mother.

From the linguistic perspective, HY was also dominant in Mandarin in terms of MLU (w) and her language dominance score (Nicoladis & Genesee, 1996). Despite the shortcomings of MLU in comparing two languages with different inflectional systems (De Houwer, 1990; Genesee, Nicoladis, & Paradis, 1995),Yip and Matthews (2007, p. 76) contended that "it is still possible to use MLU differentials between a bilingual child's two languages to compare individual bilingual children with each other, and to chart changes in dominance patterns over time." They defined MLU differential as "the difference between MLU scores for a child's two languages at a given sampling point or (expressed as a mean) over a period of development" (Yip & Matthews, 2006a, p. 285) and used it as a measure of language dominance between two languages. They (2006b) considered children's Cantonese and English "isolating languages" given that inflectional morphology has yet to emerge in their English. They deemed "each morpheme ..a separate word, thus neutralizing the differences between morpheme and word measures" (2006a, p. 286). Since Mandarin is similar to Cantonese, the current researcher followed Yip and Matthews's method in calculating the bilingual child's MLUw in Mandarin and use the "MLU differential" as an indicator of the child's language dominance.
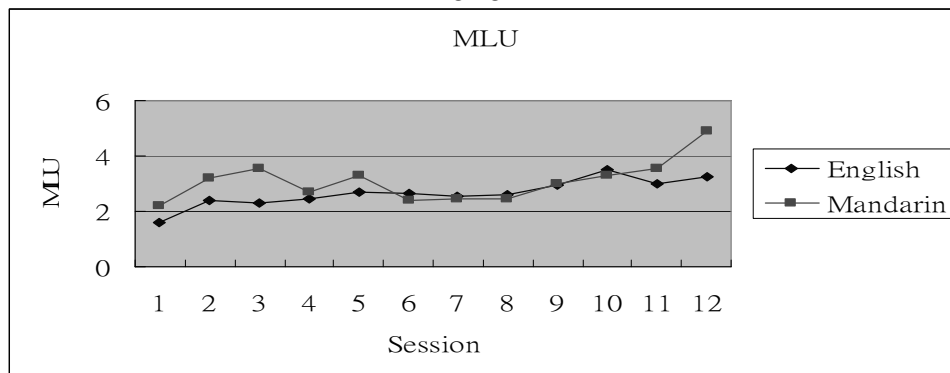

Figure 1　HY's MLU in English and Mandarin

A look at Figure 1 indicates that the MLU(w) of HY's Mandarin was longer than that of her English in most sessions (except sessions 6-10, see discussion of HY's dominance score below), and the mean MLU(w) for HY across 12 sessions was 2.685 in English and 3.010 in Mandarin.

In addition to calculating HY's MLU(w) in both languages, the researcher also employed Nicoladis and Genesee's (1996) dominance index which consisted of measures of word types and multiword utterances to calculate HY's relative proficiency. Two research assistants calculated word type subscores for HY as the percentage of different words in English and Mandarin out of the total of word types in both languages. In a similar vein, they calculated multiword subscores as the percentage of multiword utterances (defined as utterances consisting of more than 1 word) in English and Mandarin out of the total of multiword utterances in both languages. Then they averaged the subscores of word types and

multiword utterances in English to produce a single English dominance (or proficiency) score, and employed the same procedure to produce a single Mandarin dominance (proficiency) score.

Table 1   HY's Word Type, Multiword, and Dominance Scores in English and Mandarin

Session	Age	Word Type		Multiword		Dominance Score	
		Eng(%)	Chi(%)	Eng(%)	Chi(%)	Eng	Chi
1	2;1	70(56.91)	53(43.09)	59 (39.86)	89(60.14)	48.38	51.62
2	2;2	23(21.29)	85(78.71)	32(34.40)	61(65.60)	27.85	72.16
3	2;3	90(68.18)	42(31.82)	54(61.36)	34(38.64)	64.77	35.23
4	2;4	17(23.28)	56(76.72)	39(44.31)	49(55.69)	33.80	66.21
5	2;5	39(53.42)	34(46.58)	150(83.33)	30(16.67)	68.38	31.63
6	2;6	75(52.08)	69(47.92)	308(73.50)	111(26.50)	62.79	37.21
7	2;7	34(68.00)	16(32.00)	101(49.75)	102(50.25)	58.88	41.13
8	2;8	20(66.66)	10(33.34)	66(57.39)	49(42.61)	62.03	37.93
9	2;9	11(64.70)	6(35.30)	57(27.27)	15(72.73)	45.99	54.02
10	2;10	21(70.00)	9(30.00)	140(41.05)	201(58.95)	55.52	44.48
11	2;11	24(72.72)	9(27.28)	45(16.24)	232(83.76)	44.48	55.52
12	2;12	26(53.06)	23(46.94)	93(45.36)	112(54.64)	49.21	50.79

For example, during the first session, HY produced 70 different types of words in English and 53 types in Mandarin (Table 1). HY's subscore of English word type was thus 56.91 (70/70+53 = 56.91%) and her subscore of Mandarin word type was 43.09. With regard to multiword utterances, HY produced 59 multiword utterances in English and 89 in Mandarin. Her subscore of English multiword utterances was 39.86 (59/59+89 = 39.86%) and that of Mandarin multiword utterances was 60.14. As a result, her English dominance score for session 1, an average of her subscores of English word types and multiword utterances, was 48.38 ([56.91+39.86]/2 = 48.38%). On the other hand, her Mandarin dominance score for session 1, an average of her subscores of Mandarin word types and multiword utterances, was 51.62.

As revealed in HY's language dominance scores in Figure 2, HY's Mandarin dominance scores were higher than her English during the first four sessions except for the 3rd one. During the next four sessions, however, her English dominance scores were higher than her Mandarin ones. Finally, her dominance scores in both languages were more or less the same during the last four sessions. Given this developmental trend, one might interpret that HY was dominant in Mandarin at the beginning of the study. Then her English ability seemed to catch up because her English vocabulary outnumbered her Mandarin vocabulary in the middle of the study (from the 5th to 8th sessions). Towards the end of the study, HY appeared fairly balanced in both languages.
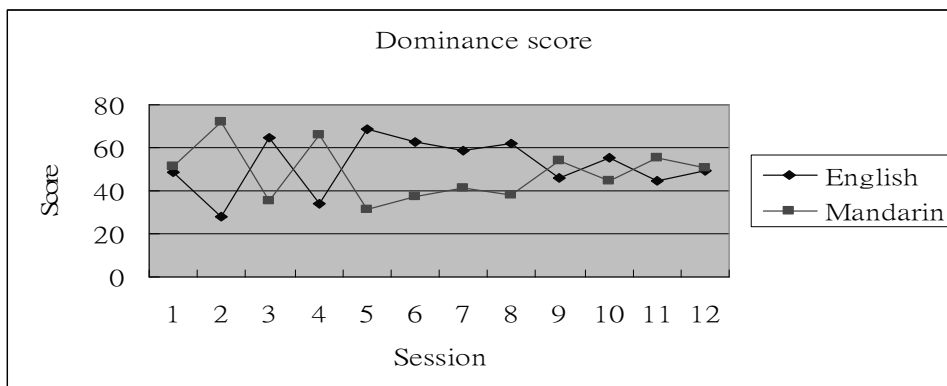
Figure 2　HY's Dominance scores in English and Mandarin

　　HY's dominance scores seemed to conflict with the previous analysis of MLU(w) and the sociolinguistic analysis that HY was dominant in Mandarin because the mean dominance score of Mandarin Chinese ($M = 48.13$) is lower than that of English ($M = 51.84$) although the difference is not significant ($t = -.512, p > .05$). A scrutiny of both the sociolinguistic context and the dominance measures might explain this discrepancy. During the five sessions (sessions 3, 5-8) when HY produced fewer word types and multiword utterances in Mandarin, HY's father was using his computer while talking to his daughter and did not interact with HY as much as the mother did. HY just played house on her own and repeated the same words and utterances mostly, rendering the number of word types less varied and fewer and multiwords more or less the same despite maintaining the average length of MLU. Had the father played with HY like he did in other sessions, the number of HY's word types and multiword utterances may have surged and the dominance scores of Mandarin may have been higher than those reported here. Given this, HY was considered dominant in Mandarin both from the sociolinguistic and linguistic analyses.

Data Collection Procedure

　　The data collection lasted one year when HY was between 2;1 and 2;12. These data consisted of audio recordings, field notes, and interviews, with the former two constituting the primary source of evidence.

　　The researcher and her assistant visited the family on a monthly basis and audio recorded parents-child interaction for approximately an hour during each visit. The parents were instructed to talk freely for the first 30 minutes and then engage in book reading for the latter 30 minutes. In the free conversation, the participants normally engaged in pretend play, TV watching, having meals, and so on. In the book reading part, the parents engaged in shared reading with their daughter by using various picture books without any text. One may argue that differential activities between father/daughter and mother/daughter free interactions might impact the rate of the child's code-mixing. Yet previous research points to the conversational participant as the earliest pragmatic constraint on language choice (Genishi,

1981; McClure, 1981), which may override the potential influence of various activities in the free conversation.

Observing the child interacting with both parents present could test the limits of the child's ability to use her languages differentially (Genesee et al., 1995). She may have to express ideas in one language she was accustomed to expressing in the other language (Volterra & Taeschner, 1978) due to the need to simultaneously interact with people speaking different languages. The situation requiring rapid switching from one language into another might otherwise permit or encourage the child to mix both languages indiscriminately. In addition, observing triadic interactions provided the researcher with an opportunity to compare and contrast parental discourse strategies in dyadic and triadic interactions and to further examine if there was any difference in parental interactional styles as noticed in Lanza (2001, 2005, 2007).

Data Transcription

The researcher assistant transcribed each audio recording verbatim within one week so that the details of each situation which might have been important for its interpretation were more easily recalled. The transcriptions contained both linguistic interactions and the relevant contexts. Speech in Mandarin was transcribed in Pinyin (e.g., "dui a" in Mandarin means "yes" in English). English phonetic transcriptions were used when HY's pronunciation deviated from adult pronunciation.

Coding

After the researcher assistant transcribed 2 sessions of data (2 hours), the researcher started the coding process. She employed Lanza's (1992) coding scheme for utterance and turn. According to Lanza (1992, p. 638), an utterance was "vocalization within a single intonation contour", and a turn was an utterance or group of consecutive utterances "bounded by a pause or by an utterance of another participant in the conversation." Each turn was coded for its addresser and addressee. For example, F-M stands for "Father speaking to Mother", H-F means "HY speaking to Father." When parents were talking, it was easy to identify the addressee. However, when the child was talking, it was not easy to figure out who was being addressed sometimes. Hence, a turn with no apparent addressee was coded as "?".

Given the focus of the study is on how the child used Mandarin and English, she coded an utterance including elements from Southern Min, a Taiwanese dialect, as Mandarin-only, while acknowledging that there are other interesting theoretical and empirical questions as to how bilingual children differentiate Mandarin and Southern Min. The language of an utterance was coded as English only if all the words in the utterance were from English. Following Nicoladis and Genesee (1998) and Deuchar and Muntz (2003), the researcher considered a mixed utterance as an utterance containing elements from more than one language (i.e., intra-utterance mix) or utterances from one language but used in the wrong context (i.e., inter-utterance mix). In other words, a mixed utterance in the interaction between HY and her father is defined as an utterance containing elements from English. As to the interaction between HY and her

mother, a mixed utterance is an utterance including elements from Mandarin. The classification of both categories of utterances as mixed is not uncommon among bilingual children in the one-word stage (Deuchar & Muntz; Nicoladis & Genesee). Owing to the fact that HY's codemixing often took the form of utterances in the inappropriate language of the interlocutor, exclusion of this category of utterances would eliminate most of HY's mixing.

Data Analysis

Regarding research question 1 that addressed parental discourse strategies in response to HY's code-mixing, the researcher conducted a qualitative analysis. She used a turn as the unit of analysis given that it "is an interactive unit of analysis with a focus on the dynamics of ongoing communication" (Lanza, 1992, p. 638), thereby better addressing the process of negotiation of language use in the context of conversation.   Only the turns in which the parents verbally or nonverbally responded to HY's code-mixing were included. After locating the turns in which parents responded to HY's code-mixing, she tried to identify and categorize their responding discourse strategies into one of the following five according to Lanza's classification system discussed previously in the literature--Minimal Grasp (MG), Expressed Guess (EG), Adult Repetition (AR), Move On (MO), and Code-Switching (CS). In the following exchanges between HY and her Mandarin-speaking father and English-speaking mother, English is capitalized.

(1)   HY (2;3) sat quietly to let her parents tie her hair.

    M-H: ASK DADDY TO CLOSE THE DOOR.

    H-F: DADDY, CLOSE THE DOOR.

    F-H: (Close the door without saying anything).

        Kaosu Mama Kuan hao le. (Tell Mom it's closed.)

    H-M: Kuan hao le. (It's closed.)

    M-H: WHAT?   I DON'T UNDERSTAND.

    H-M: IT..IT.. CLOSE.

In this exchange, the father's nonverbal response (closing the door) indicated his understanding of HY's code-mixing, which was coded as an MO. The mother's verbal response indicating a lack of comprehension of the child's code-mixing ("Kuan hao le.") was coded as an MG. Had the mother's response to HY's "Kuan hao le" been "IS IT CLOSED", it would have been coded as an "Expressed Guess" strategy. Had she replied "Hsieh hsieh", it would have been coded as a "CS" strategy.

Interrater Reliability

Two independent raters and the researcher coded the initial 20-minute transcription of one session for initial coding and then compared the results. If there was a difference in opinion on turns or parental strategies, the result would be the one shared by two raters. Then all would exchange opinions on how

they coded each turn and parental strategy to further calibrate their standards. After the "norming" session, they proceeded to code the remaining transcripts. There was no case in which each had a different opinion on a turn or strategy. Interrater reliability (based on the percentage of agreement) for turns was .95 and for parental strategies was .83.

Regarding the 2nd research question, the researcher conducted a correlation analysis. The purposes of this quantitative analysis are to triangulate the qualitative observation in ascertaining each parent's responding discourse style to the child's code-mixing and to further examine the relationship between parental discourse strategies and the child's rates of code-mixing. Given that "Lanza's earlier work has been interpreted as suggesting that the greater frequency of one strategy in comparison to another would play a role in determining the specific interaction style" (Deuchar & Muntz, 2003, p. 172), parental response styles are operationalized as the average of parental discourse strategy scores (henceforth PDS scores).

Following Nicoladis and Genesee's (1998) calculation of PDS score, the researcher assigned a score of 1 to 5 to each parental strategy in accordance with its monolingual or bilingual nature. The most monolingual strategy MG received 1 point, and the most bilingual type CS received 5 points. The intervening strategies EG, AR, and MO received scores of 2, 3, and 4 respectively.[1] She added up each parent's PDS scores and divided them by the total of each parent's responses to HY's code-mixing in every session to obtain each parent's average PDS score. The above formula yields a lower PDS score average if the parent used more monolingual strategies and a higher one if s/he used more bilingual ones. Then the researcher calculated HY's rates of code-mixing by dividing the number of her code-mixed utterances by the total number of his/her utterances for each month. To measure the strength of the association between each parent's PDS scores and the rates of HY's code-mixing, she used Pearson's correlation analysis and expected to find positive correlations (i.e. the PDS scores and the child's rates of code-mixing increase or decrease together).

Lanza (2001, 2005, 2007) cautioned that the nature of PDS score calculation could not capture the accumulative effect of parental monolingual discourse strategies (usually MG) on child code-mixing in parent-child interactions, especially when the child does not respond in the appropriate language until 3 or 4 turns of language negotiation as shown in (2).

(2) German-Italian-speaking Giulia (2; 4) addresses her German-speaking mother in Italian until the last reply (Taeschner, 1983, p. 201, cited in Lanza, 2007, p. 57).

G: Mami *aple*. ('Mommy *open*'.)

M: Wie bitte? ('What, please?")

G: Mami *aple*.

M: Wie bitte?

G: Mami *aple*.

M: Wie? M:

G: *APLEEEEEEE*!!!!

M: Wie bitte?

G: Aufmachen? ('Open"?)

In order to avoid underestimating the accumulative effect of parental discourse strategies, the researcher conducted a thorough search of similar instances in the present study. Yet no similar stretches

of language negotiation occurred. On most occasions HY would immediately switch to the appropriate language or use neutral fillers to respond to her mother's MG strategy. On other occasions where HY responded to her mother's MG strategy in the inappropriate language, she would change the subject in English in response to her mother's continued probe:

(3) HY (2;5) and her mother were going to race each other with their fingers.

M-H:　　READY? GO!

H-M:　　Yubei Kaishi. (Ready? Go!)

M-H:　　I DON'T UNDERSTAND.　WHAT DID YOU SAY?

H-M:　　(Saying each word more slowly and clearly) Yu-bei Kai-shi. (R-e-a-d-y? G-o!)

M-H:　　I DON'T UNDERSTAND.　WHAT DID YOU SAY?

H-M:　　RUN….

Similar cases like the above abounded in the data. "The effect of the repeated sequencing" (Lanza 2007, p. 57) of parental monolingual discourse strategies noted by Lanza is nonexistent in the present study. The unique nature of the current data set lends itself to a quantitative scheme proposed by Nicoladis and Genesee (1998).

With regard to the last research question, the researcher predicted that non code-mixing would follow monolingual parental discourse strategies such as MG and EG, and more code-mixing would follow bilingual parental discourse strategies such as MO and CS. She classified HY's language choices immediately following the parents' strategies into three categorizations—non code-mixing, code-neutral items (such as interjections and onomatopoeic words), and continued code-mixing.

For this analysis, the researcher ran a contingency correlation analysis between each parent's parental discourse strategies in response to HY's code-mixing (MG, EG, AR, MO, CS) and HY's language choice (non code-mixing, code-neutral, continued code-mixing) in the next conversation turn. She expected to find a positive relationship between each parent's discourse strategy and HY's language choice. That is, the more monolingual the parental strategy is (the lower the PDS score), the more non code-mixing (the lower the ranking) HY would use in the next conversational turn. Conversely, the more bilingual the parental strategy (the higher the PDS score), the more code-mixing (the higher the ranking) HY would use to interact with the parent.

RESULTS

An earlier investigation (Min & Chen, 2008) of the rates of parental code-mixing revealed that the parents did not strictly adhere to the OPOL rule as they had claimed despite the relatively low rate of code-mixing (less than 7%). A further examination of the relationship between the rates of respective parent's code-mixing and those of HY's code-mixing shows no significant correlation (Min & Chen). In the following section, the researcher reported findings on parental discourse strategies and their relationships with the rates of the child's code-mixing. She divided the whole observation period into two periods—Period I (2;1-2;6) and Period II (2;7-2;12) with an attempt to capture possible developmental changes in the child's code-mixing behavior (Deuchar & Muntz, 2003). The division of the one-year observation into two developmental periods is based on the onset of the age period when the researcher

first documented HY's explicit self-repair of her inappropriate language use (see example 7), suggesting her explicit awareness of the language norm in the family.

Parental Discourse Strategies

To categorize each parent's discourse strategies in response to the child's code-mixing, it is important to ascertain the number of turns in which HY code-mixed and that in which parents responded. The number of turns in which HY mixed language was 166 (63 with her father, and 103 with her mother). In 28 (17%) of these cases, the parent's responses could not be coded into any obvious parental discourse strategies because they laughed, spoke with each other, or were interrupted by their spouse in their next conversational turn. These 28 cases were dropped from the analysis, leaving 138 cases (48 with the father, and 90 with the mother) for further analysis of parental discourse patterns in response to HY's code-mixing[2].

A careful perusal of the conversational exchanges in these turns revealed different parental strategies in response to HY's code-mixing, thus forming differential parental responding styles. The father usually accepted HY's code-mixing through MO both in dyadic and triadic interactions.

(4) HY (2;2) played a vendor selling fruit to her father, the customer.

F-H: Wo yao yigen shiangjiao.   (I want a banana.)
H-F: Gei ni.   (Here you are.)
F-H: Gei ni ciancian. (Here's the money.)
H-F: THANK YOU.
F-H: Bukechi.   (You're welcome.)

In contrast, the mother usually used MG to request HY to use English to carry on the conversation in both dyadic and triadic interactions.

(5) The mother just answered a phone call. HY (2;4) was curious about the caller's identity.

H-M: Mama, shi shei?   (Who was it, mom?)
M-H: WHAT DID YOU SAY? I DON'T UNDERSTAND
H-M: WHO IS IT?
M-H: IT'S GRANDMA.

It is important to point out that the mother did not hide her bilingual identity because she conversed with her husband and other speakers in Mandarin in front of HY, who may be aware of her mother's bilingual identity. Given that the parents employed the same discourse strategies consistently in dyadic (e.g., examples 4 and 5) and triadic (e.g., example 1) interactions, the following discussion on the type and amount of parental discourse strategies is from both interactions.

Parental Discourse Strategies and Child's Overall Rate of Code-mixing

After identifying and categorizing each parent's responding style, the researcher began to calculate types and frequencies of strategies each parent employed. Table 2 shows the breakdown of each parent's

strategies in dyadic and triadic interactions. The father used more bilingual strategies, especially MO (60.6% in Period I and 73.3% in Period II), whereas the mother used more monolingual strategies, particularly MG (49.1% in Period I and 45.7% in Period II).

Table 2　Breakdown of Parental Discourse Strategies in Response to HY's Code-mixing

Interaction Type	Discourse Strategy	Period I		Period II	
		Father n (%)	Mother n (%)	Father n (%)	Mother n (%)
Dyadic (25.7)	MG	3 (9.1)	15 (27.3)	1 (6.7)	9
(5.7)	EG	1 (3.0)	4 (7.3)	0 (0)	2
(5.7)	AR	2 (6.1)	1 (1.8)	1 (6.7)	2
(11.4)	MO	12 (36.4)	11 (20.0)	6 (40.0)	4
	CS	2 (6.1)	0 (0)	1 (6.7)	1(2.9)
Triadic (20.0)	MG	2 (6.1)	12 (21.8)	0 (0)	7
(5.7)	EG	0 (0)	1 (1.8)	0 (0)	2
(8.6)	AR	2 (6.1)	2 (3.6)	1 (6.7)	3
(14.3)	MO	8 (24.2)	9 (16.4)	5 (33.3)	5
	CS	1 (3.0)	0 (0)	0 (0)	0 (0)

Note.　　　MG: minimal grasp　　　EG: expressed guess　　　AR: adult repetition

MO: move-on strategy　　CS: code-switching

The PDS scores further substantiated the previous observation. The father received a PDS score of 3.63 when HY was at 2;1. The average of the father's PDS scores was 3.78 in Period I and 3.64 in Period II. In contrast, the average of the mother's PDS score was 2.31 in Period I and 2.22 in Period II (see Table 3). These score averages demonstrated that the father was the more tolerant parent who negotiated a bilingual conversational context and accepted HY's code-mixing more frequently; whereas the mother was the less tolerant parent who usually negotiated a monolingual context and employed monolingual strategies (MG) to discourage HY from code-mixing. One might doubt if the mother could be deemed as using monolingual strategies, given her PDS scores for both periods were higher than 2. A look at the frequency distributions of maternal discourse strategies for both periods revealed that she employed monolingual strategies more often than she did bilingual strategies (58.1% versus 41.9% for Period I, 57.1% versus 42.9% for Period II). She thus could be considered using more monolingual discourse

strategies.

Table 3　Breakdown of Parental Discourse Strategy Score in response to HY's Code-mixing

Parent		Period I						Period II					
		2;1	2;2	2;3	2;4	2;5	2;6	2;7	2;8	2;9	2;10	2;11	2;12
Father	MG	1	0	2	2	0	0	0	0	0	0	1	0
	EG	0	0	0	0	0	1	0	0	0	0	0	0
	AR	1	0	1	1	0	1	0	1	1	0	0	0
	MO	5	2	6	7	0	0	4	4	3	0	0	0
	CS	1	0	1	0	1	0	0	0	0	0	1	0
	PDS	3.63	4	3.4	3.3	5	3.33	4	3.8	3.75	0	3	0
Mother	MG	5	5	2	5	4	6	2	2	4	2	4	2
	EG	2	1	0	1	0	1	1	0	0	1	2	0
	AR	1	0	0	1	0	1	1	0	1	1	1	1
	MO	4	4	2	3	3	4	1	1	2	2	2	1
	CS	0	0	0	0	0	0	0	0	1	0	0	0
	PDS	2.33	2.3	2.5	2.2	2.28	2.25	2.2	2.0	2.5	2.5	1.89	2.25

After obtaining the PDS scores for both parents, the researcher then calculated HY's rates of code-mixing for the 12 sessions. Table 4 shows that HY mixed languages for 9 sessions when addressing her father, and 12 sessions when addressing her mother. The average rate of her code-mixing with her father was slightly higher in Period I ($M = 7.22\%$) than that in Period II ($M = 3.14\%$), and the average rate of her code-mixing with her mother was also somewhat higher in Period I ($M = 9.07\%$) than that in Period II ($M = 5.19\%$)

Table 4　Rates of HY's Code-mixing

Code-mixing (%)	Period I				Period II			
	n[a]	Min (%)	Max (%)	M (%)	n	Min (%)	Max (%)	M
HY-Father	5	0	15.96	7.22	4	0	8.89	3.14
HY-Mother	6	1.43	17.59	9.07	6	2.47	8.25	5.19

[a]n means the number of sessions in which code-mixing appeared

The correlation analysis of the relationships between each parent's PDS scores and the rates of HY's code-mixing shows that the correlation coefficients between the mother's PDS scores and the rates of HY's code-mixing were positive and significant in both Period I ($r = .962$, $p < .01$) and Period II ($r = .950$, $p < .01$). The correlation coefficients between the father's PDS scores and the rates of HY's

code-mixing was positive yet nonsignificant in Period I ($r = .701$, $p > .05$). But the correlation in Period II was positive and significant ($r = .765$, $p < .05$). These results support the PDH in that parents' PDS scores and HY's rates of code-mixing decrease and increase together, although not always to a significant level (i.e., the relationship between HY's code-mixing and her father's discourse strategies in Period I).

Parental Discourse Strategies and Child's Language Choice in the Next Conversational Turn

Given the positive correlations between parental discourse strategies and HY's rates of code-mixing, it is interesting to further examine the immediate effect of these discourse strategies on the child's language choice in the next conversational turn. As previously pointed out, the number of turns in which both parents responded to HY's code-mixing was 138 ($F = 48$, $M = 90$). But HY responded to only 44 paternal strategies and to 86 maternal strategies. Table 5 shows that HY's language choice in response to the mother was predominantly non code-mixing (60.4%), followed by code-mixing (24.5%), and code-neutral (15.1%) in Period I. In contrast, her most frequent language choice in response to the father was code-mixing (43.3%), followed by non code-mixing (30.0%), and code-neutral (26.7%). In Period II, however, her most frequent language choice, regardless of each parent's level of tolerance of her mixing, was non code-mixing (57.6% to her mother, 57.1% to her father).

Table 5　Distribution of HY's Language Choice Responding to each Parent's Strategies in the Next Turn

	Period I		Period II	
	To Father	To Mother	To Father	To Mother
Non-code-mixing	9 (30.0)	32 (60.4)	8 (57.1)	19 (57.6)
Code-neutral	8 (26.7)	8 (15.1)	3 (21.4)	7 (21.2)
Code-mixing	13 (43.3)	13 (24.5)	3 (21.4)	7 (21.2)
Total	30 (100.0)	53 (100.0)	14 (100.0)	33 (100.0)

The above observation seemed to outline a picture that HY, after her own code-mixing, continued to code-mix more frequently in response to her father in Period I. In contrast, she more frequently switched to the other language (i.e., non code-mixing) in response to her mother. In Period II, however, she used non code-mixing in the next conversational turn regardless of each parent's level of acceptance.

A further examination of the correlation between each of the parent's discourse strategy use (MG, EG, AR, MO, CS) and HY's language choice in the next conversational turn (non code-mixing, code neutral, code-mixing) also reveals the same picture for both parents in Period I. There was a strongly positive and significant relationship between each of the parent's discourse strategy and HY's responding language choice in the next conversational turn (Table 6, for F-H, $\chi^2 = 35.132$, $p < .001$; for M-H, $\chi^2 = 47.234$, $p < .001$), indicating that HY used non code-mixing in response to maternal monolingual

discourse strategies (e.g., MG and EG). In contrast, she continued code-mixing when responding to paternal bilingual discourse strategies (e.g., MO). In Period II, there was again a positive and significant relationship between maternal discourse strategy and HY's responding language choice (χ^2 = 22.688, p < .01), demonstrating that HY collaborated with maternal discourse strategies by using non code-mixing more frequently. However, the positive correlation between paternal discourse strategy and HY's responding language choice failed to achieve significance (χ^2 = 6.358, p > .05), indicating that HY did not always respond to her father's bilingual strategies with code-mixing.

Table 6　Parents' Each Discourse Strategy and HY's Code-mixing

Period	Dyad	χ^2	Contingency Coefficient	Number	df
I	F-H	35.132***	.734***	30	6
	M-H	47.234***	.686***	53	8
II	F-H	6.358	.559	14	6
	M-H	22.688**	.638**	33	8

** p < .01, *** p < .001

As shown in Table 6, the results of Period I support parental discourse hypothesis (Nicoladis & Genesee, 1998). The mother's monolingual discourse strategies elicited more non code-mixing, and the father's bilingual strategies elicited more code-mixing from HY in the next conversational turn. But the picture changed in Period II. Although maternal monolingual discourse strategies were still positively and significantly associated with HY's non code-mixing, paternal bilingual strategies were not significantly associated with HY's continued code-mixing. Instead, HY used more non code-mixing in response to her father's bilingual discourse strategies.

One possible reason may be that HY has been socialized into the one-person-one-language rule from interacting with her mother and reconstructed this rule in interactions with her father during Period II. This understanding may have rendered HY more conscious of her language use with her mother. The following conversation reveals HY's search for an appropriate word in her developing English lexical repertoire. She did not switch to Mandarin even when she encountered difficulty in speaking English.

(6) The mother was cooking in the kitchen and asked her husband for some help.

But he did not respond. So she asked HY (2; 6) to find out what he was doing.

H-M: (figuring out how to describe it) DADDY…DADDY…DADDY…I DON'T KNOW.

M-H: YOU DON'T KNOW?

H-M: (still figuring out how to describe it) DADDY…

(translating literally from the Mandarin expression "da diannao" meaning typing on the computer) HIT COMPUTER.

(imitating Father typing) THIS ONE.

M-H: (laughing) DADDY'S TYPING ON THE COMPUTER.

H-M: TYPING COMPUTER.

Such awareness of the language norm with the mother, in turn, might have contributed to constructing her norm with the father despite his bilingual strategies in response to her code-mixing in

Period II.   In the following episode, the researcher first documented HY (2;7) displaying her self-monitoring mechanism and immediate self-repair from code-mixing to non code-mixing in response to her father's bilingual discourse strategy.

   (7) H-F: Baba, wo you lalade CANDY. (Daddy, I've got spicy CNADY.)

     F-H: Oh, ni yaogei baba lalade CANDY ma? (You want to give me the spicy CANDY?)

     H-F: Wo yao chi lalade CANDY...lalade tangtang. Wo yao chi lalade tangtang.

       (No, I want to eat the spicy CANDY.. spicy candy. I want to eat the spicy candy.)

  Nowhere is this rule more explicitly articulated than in the following conversation where HY (2; 09) countered her mother's Mandarin with her version of the language norm.

   (8) M-H: STOP PLAYING WITH YOUR FOOD! Kuai dian! (Hurry up!)

    H-M: YOU… YOU SAY… "Kuai dian". YOU SAY "Kuai dian". DADDY

      SAY "Kuai dian". DADDY SAY "Kuai dian".

      (You said "Kuai dian".　 It's Daddy that says "Kuai dian".)

    M-H: OK, HURRY UP. FINISH YOUR FOOD.

DISCUSSION

  The current study sought to examine the relationships between parental discourse strategies and a Mandarin-English bilingual child's language with a particular focus on parental discourse strategies in response to her code-mixing and her overall rates of mixing and her types of language choice in the next conversational turn. The qualitative conversational analysis revealed that the mother consciously negotiated a more monolingual context where she frequently employed MG in response to HY's code-mixing. In comparison, the father appeared to negotiate a bilingual context where he frequently employed MO in response to HY's code-mixing.

  The quantitative analyses revealed positive relationships between parental discourse strategies and the child's overall rate of codemixing, confirming the expectations that the more monolingual strategies are used, the lower the child's overall rate of codemixing is; the more bilingual strategies are used, the higher overall rate of codemixing, although not always to a significant level. Regarding the child's specific response to each parental discourse strategy after her codemixing, the expectations are partially fulfilled in that the mother's monolingual discourse strategies elicited more non code-mixing from her daughter in the next conversational turn in both periods, and the father's bilingual strategies encouraged more code-mixing from his daughter only in the first period. In Period II, HY used non code-mixing more frequently to respond to her father's bilingual strategies (57.1%).

Language Socialization

The findings of the current study mostly corroborated Lanza's prediction of parental language socialization of child code-mixing through consistent employment of various parental discourse strategies. The language socialization experiences of HY in the current study and Siri in Lanza's study (1992, 1997, 2001) were similar. Their mothers mainly employed monolingual strategies in response to their code-mixing, intending to prompt them to speak their less dominant language, English, despite the artificial nature of HY's mother discourse strategy. Their fathers, on the other hand, employed more bilingual strategies in response to their daughters' code-mixing, insisting less on the appropriate language use on their daughters' part (Mandarin for HY, and Norwegian for Siri). With similar socialization experiences with parental discourse strategies, it logically follows that HY's and Siri's code-mixing behavior in interactions with respective parents displayed a similar pattern. Both HY and Siri used the appropriate language in response to their mothers' monolingual strategies and continued code-mixing in response to their fathers' bilingual strategies. But HY did not seem to be influenced by her father's bilingual discourse strategies in Period II.

Sociocognitive Development

The fact that HY responded to her father's bilingual discourse strategies more frequently in Mandarin than in code-mixing in Period demonstrates the child's cognitive development at work during the socialization process. HY's frustrating experience in interactions with her mother, who often pretended not to understand her code-mixing by using MG, might have prompted her to attend to the problematic parts of her language to fix it, thereby enhancing her language awareness (Levelt, Sinclair, & Jarvella, 1978; McTear, 1985) and awareness of the standards of adults as well as motivation to conform to them (Kagan, 1981).

HY seemed to have advanced from what Vygotsky termed the interpsychological learning aspect in Period I to the intrapsychological learning aspect in Period II (Valsiner 1987, p. 67). During the transition from interpsychological to intrapsychological functioning, she seemed to have moved through stages of "other-regulation" to "self-regulation" (Wertsch 1979). In Period I, HY was scaffolded and socialized through her parents' discourse strategies (especially her mother's) into using appropriate language with each (i.e., English with her mother, Mandarin and code-mixing with her father), as demonstrated in examples (4) and (5). In Period II, however, she appeared to have demonstrated an awareness of each family member's appropriate language use, as revealed by her own self-repair in example (7) and explicit comments on her mother's violation of the language norm in example (8). She may have appropriated this new knowledge into her own individual consciousness, transformed it into her version of the one-person-one-language rule, thus responding to her father mostly in non code-mixing in Period II, despite his continued use of more bilingual strategies.

A similar case in which cognitive development mediates the effect of parental language

socialization is also documented in Deuchar and Muntz's (2003) study. The child's parents employed a context-dependent language strategy in interactions with her. They would speak Spanish to her at home but switch to English when a monolingual English speaker was present or when they were at school. In addition, the parents also responded to her code-mixing with bilingual strategies, as indicated by their PDS scores in Table 2 (Deuchar & Muntz, p. 166). Given the bilingual nature of parental discourse strategies, one would expect that this child would be socialized into using code-mixing and demonstrating a high rate of code-mixing. However, the child's rate of code-mixing was about 37%[3], lower than HY's 43% during the same period. Deuchar and Muntz (p. 187) explained that the girl's awareness of the context-dependent strategy gradually prompted her to conform to "adult norms of appropriateness in language choice," which is similar to HY's language use in response to her father's bilingual discourse strategies in Period II. The girl appeared to be quite precocious given that HY did not demonstrate similar awareness until she was 31 months old, whereas Siri in Lanza's study did not appear to show any sign of such awareness because she still functioned according to parental discourse strategies. Whether this developmental difference is related to the relative proficiency of the two developing languages (the girl in Deuchar and Muntz's study is a balanced bilingual, but HY is Mandarin dominant, Siri Norwegian dominant) or simply to individual variation needs further examination.

Significance

The significance of this study is threefold. It is the first study that empirically supports PDH proposed by Nicoladis and Genesee (1998). Despite the sound assumptions underlying Lanza's language socialization framework and Nicoladis and Genesee's PDS hypothesis, none of the previous research found supporting correlational evidence (Deuchar & Muntz, 2003; Lanza, 1999; Nicoladis & Genesee, 1998). The findings show that a child needs to be socialized into a particular interactional style with the parent before parental monolingual strategies are more likely to elicit the expected language from the child. When parents consistently employ monolingual discourse strategies in response to the mixing of their child who is dominant in the other language, these strategies are found to be significantly associated with less child code-mixing in the next conversational turn. However, when parents often use bilingual strategies to respond to their child's code-mixing, occasional monolingual strategies do not appear to be associated with less child code-mixing (Nicoladis & Genesee).

In addition to clarifying the prerequisite conditions for PDH, the current study also documented the overriding effect of more stringent parental strategies over lax ones on the child's awareness of the adult norm (i.e., one-person-one-language). Having learned from interacting with her mother that non code-mixing was the expected language, the child in the current study appeared to have reconstructed her language norm with her father based on this knowledge and used more non code-mixing in response to her father's bilingual strategies. Whether this ability is social (as suggested in the current study) or cognitive (as suggested in Deuchar & Muntz, 2003) in origin still needs more research.

In terms of methodology, this research is an improvement on previous studies which employed either a qualitative sociolinguistic discourse approach (Juan-Garau & Perez-Vidal, 2001; Mishina, 1999; Lanza 1992, 1997, 2001, 2007) or a quantitative correlation analysis (Deuchar & Muntz ,2003; Nicoladis

& Genesee, 1998). Each approach has it own merits and weaknesses. While a qualitative analysis helps researchers gain insight into the complex relationships of parents' responding discourse strategies and child code-mixing, claims of effect of parental responding strategies need to be further substantiated by quantification. Similarly, although a quantitative analysis can provide a more objective avenue to examining the relationships between parental discourse strategies and child code-mixing in a more systematic manner, such an examination must rest on the premise that parents were consistent in using certain discourse strategies in interactions with their bilingual child (Lanza, 2001). Without first ascertaining parental discourse strategies, quantitative correlation analyses can reveal very little about the relationships. By employing both the qualitative and quantitative approaches, this research not only presented an in-depth analysis of each parent's discourse strategy but also substantiated this observation with statistical evidence in support of the PDH (Nicoladis & Genesee).

CONCLUSION

This current study has attempted to reconcile findings of both qualitative and quantitative studies on parental discourse strategies and bilingual children's code-mixing and also pointed to a possible cognitive dimension to accounting for the complicated relationships. While the child adapted to the interactional norms through parental language socialization, she also actively contributed to reproducing the monolingual interactional style in interactions with her father, who primarily employed bilingual strategies, through her interpretation and construction of the adult norms (Corsaro, 1997). More future research needs to examine the effect of the interplay of parental discourse strategies and child sociocognitive development on child code-mixing behavior. The current investigation of parental discourse strategies and child code-mixing in a Mandarin-English bilingual family adds linguistic variety to this issue. Future research can focus on families where both parents are foreign language speakers but one employs an 'artificial' or 'non-native' strategy (Barron-Hauwaert, 2004) to bring up their child bilingually. The mother in the current study is conscious of her discourse strategies and very consistent in employing them despite numerous difficulties. Whether such consciousness and consistence are keys to the significant correlations between monolingual discourse strategies and less child code-mixing is worth further investigation.

Acknowledgement

Note.
    [1] Despite that CS does not fit conceptually with the other strategies on the continuum from a discoursal perspective owing to its unspecific nature--parents could use CS to move on, request clarification, express a guess, repeat what the child had said and so on—CS represents parents' overt role

as a bilingual speaker, which is in contrast to the covert bilingual role of parents when using MO.

[2]As stated on p. 14, during the first 30 minutes of sessions 2;3, 2;5, 2;6, 2;7, and 2;8, HY's father was using his computer while talking to his daughter and did not interact with HY as much as the mother did, which might have somewhat impacted the number of turns in which he responded to HY's code-mixing.

[3] I calculated this percentage by adding up parental responses to the child's code-mixing in all sessions first (7+2+12+23+3+6+1+1+1+6+1= 63) (see the last column of Table 2, Deuchar and Muntz 2003: 166). Then I calculated the child's responses which showed continued mixing (6+2+1+11+0+1+1+0+0+1+0= 23). Finally, I divided the total of the child's mixing responses by that of parental responses and obtained a ratio of 36.5%.

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父母言談策略與一個中、英雙語幼童語言轉換行為之個案研究

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此個案研究旨在檢視一雙語家庭中，非以英語為母語之雙親遵循【一人一語言】(one-person-one-language)之言談策略與其兩歲女童使用中、英語言轉換之關係。經為期一年之每月觀察親子互動記錄顯示：女童父親使用中文與其互動時，較容許女童雙使用中、英夾雜，且不堅持女童需使用中文與其互動；但女童母親則要求女童以英語與其互動。因此，女童使用中文或中、英夾雜方式與父親互動，與母親互動時，則多使用英文，較少中、英夾雜。一系列相關統計分析顯示：女童雙親因應女童中、英夾雜使用不同言談策略，而雙親不同之言談策略，與女童後續使用中、英夾雜之頻率，多呈正向顯著相關。證據亦顯示：女童在與雙親互動時，似習得不同語用知識，在觀察後期中，女童能明確說出家中【一人一語言】之模式，並糾正母親應使用英文與其互動。本研究之貢獻在於使用【質量混合】之研究方法，為【雙親言談策略假設】提供部份佐證 。

關鍵詞：父母言談策略、台灣、同時習得雙語之幼童、個案研究、語言轉換