

The Effects of Input on a Japanese-English Bilingual's Acquisition of Japanese Particles

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This study attempts to establish the relationship between the input data of a Japanese mother and the output data of an English-Japanese bilingual child by investigating the subjects' use of Japanese particles. The participants in this study were a bilingual child and her Japanese mother who were living in Australia. The data was collected from natural conversations between mother and child which were tape-recorded every four weeks when the child was between the ages of 5;01 and 6;08. Previous studies in child language acquisition suggest that a child's production of particles may be directly correlated to the mother's input. If the hypothesis that children's utterances are modeled on input from their parents is correct, then the child in this study should have particle usage patterns that are similar to her mother's. Although the data in this study does show strong correlations between the mother's input and the child's output, it reveals that parental input was not the only influence on the output of the child's Japanese. It was found that the child did not simply mimic the patterns of her mother; some of her particle usages were different from her mother's, both quantitatively and qualitatively. Moreover, the child used avoidance strategies such as omitting a particle or substituting a different particle in order to get around having to use particles that she had not fully acquired. The differences between the child's particle usage and her mother's appeared to be the result of a lack of input variation rather than her bilinguality, since she had learned Japanese mostly from conversations with her mother, in contrast to monolingual Japanese children, who have a greater variety of input sources.

親からのインプットと子どものアウトプットの関連

— 日本語と英語のバイリンガル話者の助詞の習得に関するケーススタディー

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子どもの言語発達研究において、親の言語使用は子どもの言語産出に直接影響を与えていると一般的に考えられている。本研究では、この仮説を、二言語（日本語・英語）を話すある子どもを対象に、日本人の母親の言語使用（インプット）と、その子どもの言語産出（アウトプット）の関連について、日本語の助詞習得に焦点をあてて検討した。オーストラリアに住むこの子どもの日本語使用は母親とだけに限られている。子どもが5歳1ヶ月から6歳8ヶ月までの間、四週間ごとに自然会話を録音し、それを分析した。その結果、助詞の産出において、親からのインプットが子どものアウトプットに及ぼす影響がかなりあることは否定できないが、それだけでは子どもの助詞産出の全てを説明できないということが判明した。子どもは単に親の言語を模倣しているわけではなく、頻度の面から見ても、助詞の種類の数から見ても、母親の助詞使用とは違いがあることが分かった。また、この子どもは自分にとって難しいと考えられる助詞に関しては助詞を省略する、あるいは他の助詞で代用するという回避戦略を使っていることが分かった。母親の助詞使用（インプット）と子どもの助詞産出（アウトプット）の差は、この子どもがバイリンガル話者であるから起こるというわけではなく、日本語が生活言語であるということ、また、日本語しか話さない言語環境にいる子どもや、多くの人から日本語のインプットを受ける子どもと比べて、言語環境がかなり違うことから起こるのではないかと考えられる。

INTRODUCTION

The relationship between parental input and children's output in both monolingual and bilingual child language acquisition has been discussed extensively in the literature (e.g., De Houwer, 1997; Döpke, 1986, 1998; Goodz, 1989; Lanza, 1997). One view is that parental input is the direct cause of a child's particular speech patterns (e.g., Döpke 1998; Nakamura, 1993). The two major hypotheses with respect to the effect of parental input relate to (1) the relationship between the quality of input and output (e.g., Döpke 1986, 1998; Goodz, 1994; Lanza, 1997; MacKeon, 1994), and (2) the relationship between the

quantity of input and output (e.g., De Houwer, 1987, 1997; Mayes and Ono, 1993). However, counter-arguments to these hypotheses have also been presented (e.g., Bowerman, 1990; Ito, 1996).

The current study was designed to contribute to this discussion by examining the relationship between parental input and a Japanese-English bilingual child's Japanese language acquisition, using Japanese particles as sample data. The two major hypotheses on the influence of parental input are considered by examining the influence of both the quality and the quantity of parental input on the child's output data, although the main focus of this paper is on the quantity of the input.

PREVIOUS RESEARCH

Relationship Between Quality of Input and Output

The quality of the linguistic input a child receives is believed to be an important factor in the child's acquisition of adult language. The focus of research in this area is on the types of input children receive from their parents and the kinds of interaction parents and children have. De Villiers and De Villiers (1979) stressed, "Language acquisition normally takes place in the context of a rich interaction between the child and his parents" (pp. 97 - 98).

One hypothesis related to the quality of parental input suggests that child-centered interaction is the key to a child's successful language acquisition. Döpke (1986) hypothesized that in an intermarried family, the greater the degree of child-centeredness in the interactional strategies of the parent who is the minority language speaker, the greater the chance that the child will become an active bilingual (pp. 504 - 505). Thus, as Lanza (1997) summarized it, "The overall idea is that *quality* is more important than *quantity* when it comes to interaction with the child." (pp. 250 - 251).

Other researchers who emphasized the importance of the quality of parental input focused on the form of conversation (e.g., Goodz, 1994, p. 78; Hoff-Ginsberg and Shatz, 1982, pp. 22 - 23; MacKeon, 1994, pp. 17 - 18). Lanza (1997, p. 251) indicated that free play engages children in child-centered speech, and thus is a good method to help children in bicultural families acquire or actively use the minority language.

There is, however, a counter argument that child-centeredness is not the only significant concern. The gist of this argument is that the importance of child-centeredness depends on the kind of grammatical structure the child is acquiring. For example, Oshima-Takane, Goodz and Derevensky (1996) hypothesized that in learning the correct meaning of first- and second-person pronouns, overheard speech is an important source of input for children, since a model for correct usage of these pronouns is not directly provided in speech that is addressed to them (p. 623). This research team noted that there are significantly more language interactions between mothers and older siblings than between mothers and younger children (p. 622). Therefore, if child-centeredness were the only significant variable, older children should have advantages in all aspects of language acquisition. To determine which hypothesis is true, Oshima-Takane's team decided to investigate whether second-born children benefit from overheard conversations between caregivers and older siblings in learning personal pronouns. They found that not only was there no indication that second-born children acquire their early language at a slower rate than

first-born children, but that second-born children were actually more advanced than first-born children in personal pronoun production (Oshima-Takane, et al. , 1996, p. 631).

Quality of input has also been proposed as a direct cause of certain aspects of children's output, such as language mixing by bilingual children (Arnberg and Arnberg, 1992, p. 477; Döpke, 1998, p. 106; Goodz, 1989; Haskell, 1998; Kasuya, 1998; Lanza, 1997; Takeuchi, 2000) and omission of Japanese particles (Nakamura, 1993). Lanza (1997) investigated the relationship between young children's language mixing and their parents' language choices and reactions to their children's mixing. She found that parental strategies do have an influence over their children's language choices, and therefore their mixing, which is a strong indication that parental input is a significant factor in children's linguistic output. Studies by Döpke (1998), Goodz (1989), Kasuya (1998) and Takeuchi (2000) on language mixing by young bilinguals offer further evidence of the importance of the quality of parental input. Nakamura's (1993) study of monolingual children's use of particles (postpositions) in Japanese also suggests the importance of the quality of parental input. Nakamura noted that, "much of the input the child(ren) received differed from standard adult speech, having the characteristics of child-directed speech" in which particles are often omitted (p. 89). Probably because their parent(s) tended not to use particles when talking to them, Nakamura's 3-year-old subjects were found to use hardly any particles.

Thus, there is evidence that the overall characteristics of parental language as well as specific aspects of parental input influence a child's linguistic output, although some question remains as to the extent of that influence.

Relationship Between Quantity of Input and Output

The quantity of input has also been shown by many researchers to be significant in terms of child language acquisition. In De Houwer's studies of past-tense verb forms (1997) and the Dutch gender system (1987) of a Dutch-English simultaneous bilingual child, a clear correlation between the frequency distributions in the input data and the child's output data was found. DeHouwer (1997) concluded that "The most frequently occurring adult usage patterns are the ones appropriately used by the child" (pp. 160 - 161).

De Houwer's finding is supported by Mayes and Ono's 1993 study of a child's acquisition of the subject marker *ga* in Japanese. Mayes and Ono found striking similarities between the child's usage and the adult input in terms of the frequency of the use of *ga* to mark different subject types (p. 245). Kasuya (1998) and Moerk (1980) also claimed that parental input frequency was related to the frequency of children's output, and in general terms, it has been found that a child who receives less frequent input is slower in language development.

However, evidence contradicting this theory can be found in Verhelst's (1999) study of second language vocabulary acquisition by young children (aged 2;05), which suggested that input frequency was not influential. Thus, the influence of parental input quantity on a child's output is another area that needs further exploration.

Acquisition of Particles by Monolingual Japanese Children

Many researchers agree that Japanese particles are generally acquired quite early by monolingual children¹. Basic grammatical particles such as *wa* (topic), *mo* (also) and the case particles *ga* (nominative), *no* (genitive), *de* (instrument), *ni* (locative/dative), *to* (comitative), *kara* (source), *e* (goal), and *o* (accusative) have been found to emerge between approximately 1;08 and 2;06 years of age (Clancy, 1985, p. 387). These particles are normally acquired within one to two months after they first emerge (Okubo, 1967, p. 107). Sentence-final particles have also been found to emerge early (Miyahara, 1974, p. 285; Okubo, 1967, pp. 84 - 85). Miyahara (1974) claimed that, "acquisition of most of the particles used in Japanese takes place mainly between 1;06 and 2;00" (p. 285), while Okubo (1967, p. 107) and Yokoyama (1998, pp. 132 - 133) asserted that the main particles are normally acquired by the age of 3 for monolingual Japanese children. However, individual differences have also been noted (Okubo, 1967, pp. 84 - 85).

Errors have also been found in particle acquisition by monolingual Japanese speakers. According to Yokoyama (1998, pp. 135 - 136), the most common were substitutions of one particle for another (78.0%), followed by attaching an unnecessary particle, such as the genitive case particle *no* (20.5%). Typical substitutions have been categorized by Ito (1996, p. 64) as falling into three main types:

- (1) Marking the first N(P) in the sentence using *ga* (nominative) instead of *wa* (topic);
- (2) Inserting *ni* in front of a verb;
- (3) Mixing up *ni* (to) and *kara* (from).

Ito (1996) also suggested possible reasons for these types of errors. The first type is thought to be due to overgeneralization. Children may tend to mark the first N(P) using the nominative case particle *ga* because many sentences start with a subject marked by *ga*. The second type of error is also probably due to overgeneralization, as many verbs are preceded by a particle *ni* (e.g., locative, dative, temporal, directional/goal and purpose). The third type of error may occur because children have misunderstood the directions (Ito, 1996, p. 64).

In terms of frequency, an adult-like usage of particles appears to develop some time after 3 years of age, depending upon the particle. For instance, monolingual Japanese children reach the adult frequency level of *ga* (nominative) use around the age of 4, but even 9 year-old children usually have not reached the adult frequency level of *wa* (topic) use (Nakamura, 1993, p. 87). Nakamura has suggested two possible reasons for this: (1) children's particle omissions are related to the input they have received, and (2) the children's cognitive level has not yet reached adult level; therefore, due to their small short-term memory capacity, children tend to leave out unimportant words, including particles (Nakamura, 1993, p. 87).

RESEARCH QUESTIONS

Building on the research summarized above, this study investigates the relationship between the input data of a Japanese mother and the output data of a Japanese-English bilingual child by examining their use of Japanese particles. Both the quality and quantity of the mother's input will be considered, but the main focus will be on aspects of quantity. Specific research questions include the following:

1. Are there any similarities between the mother's and the child's use of particles in terms of the variety of particles used?
2. Do frequently used particles in the mother's input data also appear frequently in the child's output data?
3. Do mother and child have similar particle omission patterns?

METHODOLOGY

The participants in this study were a Japanese-English bilingual girl, referred to as FB in this paper, and her mother. FB's father is Australian and her mother Japanese, and the family resides in Australia. Since FB's birth this family has adopted the "one parent - one language" approach.

The data collection procedure used in this study involved visiting the participants' home every four weeks over an 18-month period when FB was between 5;01 and 6;08 (five years and one month to six years and eight months old). To ensure that recordings were made in an environment in which it was natural for the child to speak Japanese, the data was collected while the father was absent. Conversations were tape-recorded while the mother, the child and the investigator were playing games or talking about various everyday issues. The tape recorder was not concealed at any stage of the project. Each visit lasted between one and two hours. There were a total of 21 visits, 19 of which were tape-recorded; the total recording time was approximately 19 hours. The tape recorder was also left with the participants to record more conversations between the mother and the child without having a visitor present.

The tapes were then transcribed and eight were selected for analysis. The data used in this paper was collected when FB was 5;01, 5;02, 5;05, 5;08, 5;11, 6;02, 6;06 and 6;08. Both the mother's and the child's data were examined. The rest of the tapes were also examined when clarification was necessary. Follow-up interviews were conducted with the mother and father when it was necessary to clarify some issues.

DATA ANALYSIS

The participants' utterances on the selected tapes were tabulated by the researcher according to whether particles were used correctly, omitted, or used incorrectly. The omission of particles is natural in Japanese conversation, so it is not considered a speech error. The issue of the correctness of particular particle omissions will not be discussed here, because there are individual differences in this matter; however, errors in particle use were eliminated from the analysis.

In the analyzed conversations, there were 1,060 points in the mother's utterances at which particles could have been expected. She used particles correctly in 779 of these cases (73.5%) and omitted them in 280 (26.4%). Only one case of speech error was found in her particle use in the analyzed utterances (0.1%). In FB's utterances, of the 909 points at which particles could have been expected, the child used them correctly in 584 cases (64.2%), omitted them in 282 (31.0%) and made errors in 43 (4.7%).

The particles used by the child in this study include:

(1)	<i>wa</i>	(topic marker particle)
(2)	<i>o</i>	(accusative case particle)
(3)	<i>ga</i>	(nominative case particle)
(4)	<i>to</i>	(quote marker particle)
(5)	<i>tte</i>	(conversational quote marker particle)
(6)	<i>no</i>	(genitive case particle)
(7)	<i>ni</i>	(locative, dative, temporal, directional/goal, purpose)
(8)	<i>de</i>	(locative, instrumental case marker)
(9)	<i>to</i>	(enumerative, comitative/joint action)
(10)	<i>mo</i>	(inclusive)
(11)	<i>made</i>	(ending point/terminal point)
(12)	<i>kara</i>	(starting point/source, reason).
(13)	<i>no</i>	(illocutionary particle)
(14)	<i>yo</i>	(illocutionary particle)
(15)	<i>ne</i>	(illocutionary particle)
(16)	<i>ka</i>	(question marker particle)

Phrasal expressions such as *ni naru* (to become) and *jibun de* (by oneself) were not included in the analysis.

RESULTS

Variety and Frequency of Particles Used

The recordings were first analyzed in terms of the particles that the mother and child used and the frequency of the participants' use of each particle. Although FB did not employ as many phrasal expressions as her mother, she did use all of the particles that her mother used. We can therefore say that the mother's input is reflected in FB's use of particles in terms of particle variety.

Of the 779 particles that FB's mother used correctly in the analyzed conversations, the five most frequently used particles constituted 487 (62.4%) of the total. Of the 584 particles that FB used correctly, the five most frequently used particles accounted for 438 (75.0%) of the total. The particles most frequently used by each participant and the frequency of their use are presented in Table 1.

Both the mother and the child used the illocutionary particle *no*, the genitive case particle *no* and the topic marker particle *wa* intensively. However, it was noted that the type of sentences in which they used these particles diverged. The illocutionary particle *no* and the topic marker particle *wa* can be used in both declarative sentences and questions. Analysis revealed that FB's mother used these particles frequently because she asked many questions, while FB used them mainly in declarative sentences.

TABLE 1: Five Most Frequently Used Particles

Order	Mother			Child		
	Particle	Number	Percent	Particle	Number	Percent
1	<i>no</i> (illocutionary)	173	(22.2%)	<i>no</i> (illocutionary)	154	(26.4%)
2	<i>no</i> (genitive)	93	(11.9%)	<i>yo</i> (illocutionary)	103	(17.6%)
3	<i>ne</i> (illocutionary)	89	(11.4%)	<i>wa</i> (topic)	91	(15.6%)
4	<i>tte</i> (quotation)	67	(8.6%)	<i>no</i> (genitive)	49	(8.4%)
5	<i>wa</i> (topic)	65	(8.3%)	<i>to</i> (enumerative)	41	(7.0%)
	Total	487	(62.4%)	Total	438	(75.0%)

This divergence of use is illustrated in the following examples. The first two show how FB's mother used these particles in questions. In Example 1, we see her use of *no* in this way.

Example 1: Age 5;02. Talking about a birthday present for FB's father.

Mother: *FB, nani ageru no, purezento.*

[What are you going to give (to Daddy), FB — (as a) present?]

FB: *N. Purezento, aru yo. Otosan, otosan no purezento. (5;02)*

[Yeah. I have a present. Daddy's ... a present for Daddy.]

Example 2 illustrates the mother's use of *wa* in a question.

Example 2: Age 5;02. Talking about Christmas presents.

Investigator: *Sakki wa, santa kurosu ga purezento kuretan dakedo, otosan to okasan wa purezento kurenakattatte. Ha ha ha.*

[Just now, she said that Santa Claus had given her a present, but her father and mother had not given her one. Ha ha ha.]

Mother: *Baionin wa, FB?*

[What about the violin, FB?]

FB: *Violin² kureta yo.*

[(They) gave me a violin.]

Examples 3 and 4 show how FB used the same particles in declarative sentences. First, we see her use of *no* in this way.

Example 3: Age 5;02. Talking about the card game "fish"

Mother: *Setsumei shite ne, FB. Setsumei shite. Pea no kaado ga attara...*

[Explain, FB. OK? Explain. If you have cards in a pair, (you)...]

FB: *Pea no kaado ga attara, dasu no.*

[If you have cards in a pair, you put them out.]

The next example shows how FB used *wa* in declarative sentences.

Example 4: Age 5;11. Playing at being a horse.

Investigator: *Uma-san yattemasu.*

[I am pretending to be a horse.]

FB: *Hiromi-nee-chan wa, are wa, okasan no uma-san de, ko yatte iku no.*

[You are... that's a mother horse, and (you) go like this.]

The breakdown of the participants use of the particles *no* (illocutionary) and *wa* (topic) according to whether they were used in declarative sentences or questions is presented in Table 2.

TABLE 2: Breakdown of *wa* and *no* Usage : Questions vs Declaratives

Particle	Mother		Child	
	Question	Declarative	Question	Declarative
<i>no</i> (illocutionary)	71.7%	28.3%	1.9%	98.0%
<i>wa</i> (topic)	63.1%	36.9%	6.6%	93.4%

As can be seen in the table above, 71.7% of the times FB's mother used the illocutionary particle *no*, it was in a question, whereas FB used *no* in questions a mere 1.9% of the time. Similarly, 63.1% of the times FB's mother used *wa*, it was in a question, while FB used *wa* in questions only 6.6% of the time. Thus, while the mother used these particles predominantly in questions, the child's use of them was overwhelmingly in declarative sentences.

The mother also made more use of the illocutionary particle *ne* than did FB. *Ne* indicates a request for confirmation or agreement from the listener about some shared knowledge (Makino and Tsutsui, 1992, p. 286), much like English tag questions. It is used to make communication sound rather harmonious and unselfish by sharing the agreed statement between the two parties. The mother's frequent use of *ne* indicates that she often sought agreement/confirmation/involvement from FB about

things which were shared between them. FB, on the other hand, used *ne* only 9 times (1.5%) in the data selected for analysis, and it was not among the top 10 of her most used particles. The following is an example of the use of the particle *ne* by FB's mother.

Example 5: Age 5;05. Talking about muffins that FB and her mother are eating.

Mother: *Sore, nani haitteru no.*

[What's in that one?]

FB: *Muffin, banana chocolate muffin³ mitai.*

[(It tastes) like a muffin, a banana chocolate muffin.]

Mother: *A, so da ne. Banana chokoreto chippu mafin mitai ne.*

[Yes, that's right. (It tastes) like a banana chocolate chip muffin.]

On the other hand, FB used the illocutionary particle *yo* much more frequently than her mother. *Yo* indicates the speaker's (fairly) strong conviction or assertion about something that is assumed to be known only to her (Makino and Tsutsui, 1992, p. 543). FB used *yo* frequently, but did not overuse it. She used it in talking about herself, her friends and what happened at school — that is, things which were not known to her mother or the investigator. This type of sentence content appears to be the reason for her more frequent use of *yo*. An example of this usage is shown below.

Example 6: Age 6;06. Talking about where FB had found Easter eggs.

FB: *Hitotsu wa koko ni atta no yo.*

[One was here.]

Omission of Particles

Unlike English prepositions, particles are often omitted in spoken Japanese; in fact, it is often more natural to omit certain particles than to use them. The available literature suggests that it is common for native speakers of Japanese to omit the nominative particle *ga* and the accusative particle *o* (Clancy, 1985, p. 387). In Miyazaki's study (cited in Clancy 1985, p. 387), *ga* was omitted 30% of the time in a mother's speech to a 2-year-old. Miyahara (1974, p. 285) and Hakuta (1982, p. 70) claim that *o* is frequently omitted or often optional in colloquial adult speech. Clancy (1985, p. 387) also listed the dative case marker *ni* among the particles which are optionally omitted.

There is also some evidence that rates of particle omission change over time as speakers of Japanese mature. Okubo (1967, p. 89) stated that the omission of *o* (accusative) is more frequent among children than adults. Omission of *ga* (nominative) also seems to decrease as a child grows older. In her study of monolingual Japanese children, Okubo (1967) found that after the age of 2;01, *ga* was used more often than *o* and even more than *wa* (topic). Clancy (1985) argues that in the case of monolingual children:

The typical course of acquisition is from failure to use a particle where appropriate to a gradually increasing rate of production until the child's frequency approximates adult usage.

This process is probably hindered by the optional omission of certain particles in casual conversation, especially the ones marking basic grammatical relations, such as *o* (direct object), *ga* (subject), and *ni* (indirect object/locative goal). (p. 387)

Analysis of the data in the present study therefore included examination of the use or omission of five particles (nominative *ga*, accusative *o*, topic *wa*, dative *ni* and directional [locative goal] *ni*) with reference to these earlier findings. In the recorded data, each point at which a particle would be expected in terms of grammar was examined, and use or omission of the appropriate particle was noted. The participants' omission rates for these five particles in the analyzed data are presented in Table 3.

TABLE 3: Omission⁴ of Frequently Dropped Particles

Particle	Mother		Child	
	Omitted	Used	Omitted	Used
<i>ga</i> (nominative)	58.8%	41.2%	97.3%	2.7%
<i>o</i> (accusative)	92.4%	7.6%	98.3%	1.7%
<i>wa</i> (topic)	61.3%	38.7%	59.2%	40.8%
<i>ni</i> (direction)	38.9%	61.1%	35.5%	64.5%
<i>ni</i> (dative)	0.0%	100.0%	25.0%	75.0%

As can be seen in the table above, the mother's and child's omission rates were comparable, with the exception of the nominative case particle *ga*, for which FB had a much higher omission rate.

Looking at the mother's omission of particles, we see that the results of this study confirm the findings of Miyahara (1974) and Hakuta (1982) on the tendency to omit the accusative case marker *o*; the mother's use of this particle was quite low (7.6%). The frequency of the mother's use of the nominative particle *ga* was also low (41.2%), her omission rate of 58.8% being higher than that reported by Miyazaki. In contrast, the dative case marker *ni* was never omitted in the mother's recorded samples, although Clancy (1985) listed it as one of the particles which are optionally omitted.

When we compare the omission rates of FB and her mother, we see that the girl omitted *o* more often than her mother did (98.3% vs 92.4%, respectively). This confirms Okubo's (1967) suggestion that children tend to omit the accusative case marker more often than adults, although the difference in the present study was not as great as that found in the Okubo study. In contrast, the tendency Okubo (1967)

found in her study of monolingual Japanese children to use *ga* more often than *o* or *wa* was not confirmed in this study, as FB did not use *ga* often at all (only twice in the eight selected tapes and a total of four times in 21 meetings).

It therefore seems that FB's acquisition of *ga* and *o* was delayed in comparison to monolingual children in Japan, since the latter are reported to start using *ga* and *o* at approximately 1;08 - 2;06, and normally acquire them by the age of 3;00 (Clancy, 1985, p. 387; Miyahara, 1974, p. 285; Okubo, 1967, p. 107). Although their use of particles may not be perfect, the literature does suggest that monolingual Japanese children use these particles reasonably well by age 3;00. In the case of FB, however, the particle *o* emerged for the first time in the adult form when she was 5;05, and her use of the nominative *ga* in the adult form was not found in the recordings before the age of 5;08.

To determine if FB's high omission rates for *ga* and *o* reflect her mother's input, the uses and omissions of these particles by each participant were compared. The numerical values and percentages are shown in Table 4. As revealed there, FB's usage rate for *ga* was much lower than her mother's. Her mother employed *ga* quite frequently (39 times) in the selected recordings, but FB rarely used it (only twice).

TABLE 4: Participants' Use of *ga*, *o* and *wa*

Particle	Mother		Child	
	Omitted Cases (Rate)	Used Cases (Rate)	Omitted Cases (Rate)	Used Cases (Rate)
<i>ga</i> (nominative)	45 (58.8%)	39 (41.2%)	67 (97.3%)	2 (2.7%)
<i>o</i> (accusative)	97 (92.4%)	8 (7.6%)	57 (98.3%)	1 (1.7%)
<i>wa</i> (topic)	103 (61.3%)	65 (38.7%)	132 (59.2%)	91 (40.8%)

In contrast, the child's use of the particle *o* reflected her mother's usage. FB did omit *o* most of the time, but then so did her mother. FB used the particle *o* correctly on only one occasion in the eight selected recordings, but this is not unexpected, given that her mother modeled use of this particle for her only eight times in the data.

For comparison, the participants' use and omission of the topic marker *wa* are also shown in Table 4. Although the child's usage rate was actually slightly higher than her mother's, FB's rate of omission of *wa* would seem to reflect her mother's pattern.

Thus, the most noticeable difference between the two participants in the selected data was in their use of the particle *ga*: FB's usage rate was much lower than that of her mother. Since FB's omission of

this particle cannot be attributed to a complete lack of modeling on her mother's part, we must consider other possible reasons why the child did not use it.

One explanation might lie in the fact that *ga* has two functions: marking a subject and marking an object. Moreover, both of these functions are also handled by other particles: The topic marker *wa* is often used with the subject of a sentence, while the accusative particle *o* generally serves as the object marker. However, when predicates are transitive adjectives or stative transitive verbs, the elements which correspond to the direct object in English are sometimes marked by the nominative case particle *ga* (Koizumi, 1993, pp. 197 - 198; Makino and Tsutsui, 1992, pp. 120).

To determine whether FB's omission of *ga* was related to the dual function of the particle, the participants' usage and omission of this particle in the selected data were analyzed in terms of the function of *ga* in the context. The results are presented in Table 5.

TABLE 5: Breakdown of Participants' Usage of *ga* by Function

Function	Mother		Child	
	Omitted Cases (Rate)	Used Cases (Rate)	Omitted Cases (Rate)	Used Cases (Rate)
Object marker	12 (92.3%)	1 (7.7%)	5 (100.0%)	0 (0.0%)
Subject marker	45 (53.6%)	39 (46.4%)	67 (97.1%)	2 (2.9%)

Table 5 reveals that FB's mother frequently used *ga* as a subject marker, but only rarely as an object marker. In fact, in the selected recordings she used it to mark an object only once. Unsurprisingly, FB used *ga* as a subject marker only. Moreover, she did this on only four occasions in the 21 times the researcher met with her. Those four uses of *ga* as a subject marker are presented in Examples 7 to 10 below.

Example 7: Age 5;08.

Waa, hebi ga kita.

[Ooh, the snake has come!]

Example 8: Age 5;11.

Are ga kore mo haku no.

[That one wears these (shoes), too.]

Example 9: Age 6;03.Tooth fairy *ga totte itchatta no.*

[The tooth fairy took it away.]

Example 10: Age 6;05.*Otosan ga kureta no.*

[Daddy gave it to me.]

Thus, analysis reveals that the output of the child did not always reflect the mother's input in terms of frequency. Although her mother used *ga* frequently as a subject marker, FB did not. Instead, FB used the particles she needed to express herself and did not confine her sentence patterns to those used by her mother. For example, even though her mother asked many questions, FB did not. However, FB did model her speech on her mother's in terms of the particles she used, employing all those included in her mother's data. Therefore, it could be said that a variety of input must have affected the output of the child, rather than the mother's alone.

Particle Omission Patterns

The mother's input did appear to influence the child's knowledge of which particles can be omitted and which ones are not normally dropped. The mother's particle omission patterns were mirrored in the child's speech, both in terms of the particles omitted most often and those which were rarely omitted. As shown in Table 6, the mother omitted the four most frequently dropped particles (*ga*, *o*, *wa* and *ni*) 66.7% of the time and FB omitted them 70.6% of the time. For particles other than these four, both the mother and daughter kept their omission rates low: 1.4% and 1.7%, respectively.

TABLE 6: Omission of Frequently Dropped Particles vs Infrequently Dropped Particles

Particle Type	Mother		Child	
	Omitted Cases (Rate)	Used Cases (Rate)	Omitted Cases (Rate)	Used Cases (Rate)
Most frequently omitted particles (<i>ga</i> , <i>o</i> , <i>wa</i> , <i>ni</i> [direction])	271 (66.7%)	135 (33.3%)	274 (70.6%)	114 (29.4%)
Other particles	9 (1.4%)	644 (98.6%)	8 (1.7%)	470 (98.3%)

Interestingly, FB appeared to apply this omission pattern as a strategy to avoid particles that she had not yet acquired, such as *o* and *ga*. Although her mother used *ga* frequently, FB did not. The child apparently preferred to use the topic marker *wa* in place of *ga* in order to avoid having to use the nominative particle⁵, as shown below.

Example 11: Age 6;08.

Mother: *Kyo ippai pati fudo tabeta kara, kore tottoko, ne. Ato, ne.*
[You had lots of party food today, so let's keep this, OK? (You can have it) later, OK?]

Investigator: *Pati fudo, tabeta no? Nan de?*
[Did you have some party food? Why?]

FB: *Ano, sensei wa*** iku no.*
[Um, (our) teacher is going (=leaving)].

Investigator: *Sensei..., a, sensei ga dokka itchau no?*
Teacher..., oh, your teacher's going somewhere?

*** (Should be *ga*)

The use of *ga* and *o* is highly significant in some sentences, since they are often the only keys to understanding the meaning of what is expressed. For instance, the meaning of the following sentence, which was used by FB, is unclear because she omitted a particle after the first word:

Otosan katta no.

[Daddy bought.]

This sentence could have the following three meanings, depending upon which particle was used after *Otosan*:

1. (With the nominative case particle *ga*) Daddy bought it.
2. (With the dative case particle *ni*) I bought it for Daddy .
3. (With the accusative case particle *o*) I bought Daddy.

Although semantics prevent the third reading in this case, omitting case particles can be confusing under some circumstances. Thus, it is sometimes necessary to include particles to adequately convey meaning.

The data in this study suggests that such necessity does not necessarily affect the acquisition order of particles. In other words, even though some particles are highly significant in terms of conveying the meaning of a sentence, they do not always seem to be the first ones to be acquired. In the present case, some particles might have been habitually left out of conversation between FB and her mother because the two had considerable shared knowledge and could therefore communicate with each other quite effectively without using them. Since her mother was the only person FB conversed in Japanese with,

the girl may not have encountered situations where the omission of a particle caused confusion.

Another possible reason for FB's tendency to frequently omit particles, especially case particles such as *ga* and *o*, may well be a lack of input from reading. Since her mother did not frequently use *o* or *ga* as an object marker in conversation, one may argue that the child's frequent omission of them is simply due to the lack of input from her mother. However, this pattern is most natural in spoken language. In contrast, particles are not omitted as often in written Japanese. Since FB did not often read Japanese books and her mother did not often read them to her, the girl lacked exposure to input that would include the correct usage of these particles. Thus, both the quantity and quality of input that FB received differentiates her from monolingual Japanese children who are brought up in Japan; they not only have more input sources, including other children, but they also have access to TV, Japanese songs and children's books. FB has more limited resources, which could be the primary reason for her failure to acquire the use of *ga* and *o* at the level of monolingual children her age.

DISCUSSION

The findings revealed that there were some correlations between the mother's input and the child's output. The two major similarities are: 1) the variety of particles in the input was reflected to a large extent in the output of the child, and 2) the omission rates of particles were similar between mother and child (i.e., for the four most omitted particles, *ga* [nominative], *o* [accusative], *wa* [topic] and *ni* [directional/goal]). One may argue that the child omitted the four particles because she had already discerned the Japanese rules that allow some particles, especially those marking basic grammatical relations, to be dropped. However, since the child had not received a significant amount of Japanese input from people other than her mother, it would be fair to judge that her generalization came from the mother's input only.

Although the quantity and type of input is undoubtedly important, it did not seem to be a major influence over the child's output in this study. The reason for this seems to be that conversational patterns were different for mother and child; for example, the child did not ask as many questions as the mother. Therefore, the child did not use the particles for asking questions as often as her mother did.

In fact, the quantity of input did not seem to be reflected in the child's output as much as the difficulty of the particles was. Some particles appeared to be more difficult for the child to acquire, regardless of the amount of input received. For instance, the child rarely used *ga*, even though her mother used it frequently. While her mother used it 41.2% of the time it was grammatically required, the child used it only 2.7% of the time. Thus, the quantity of the mother's input did not seem to be reflected in the child's output in the case of the particle *ga*. FB's strategies were to omit it or to replace it with the topic marker *wa*. The use of *ga*, as well as *o*, seemed to be difficult for the child, which does not appear to be the case for monolingual children.

In summary, input was highly significant for the child's output, and there were definite similarities between the mother's input and the child's output in terms of the variety of particles used and the overall particle omission patterns. However, the mother's input alone did not predict all aspects of the child's output. The most significant finding is that the child did not learn complex particles simply from the

amount of input. In FB's case, *ga* seemed to be difficult to acquire, and she therefore employed an avoidance strategy.

SUMMARY AND CONCLUSIONS

Although she grew up in Australia and acquired English and Japanese simultaneously, FB's use of Japanese particles was mostly natural and accurate, and she generally knew when and which particles could be omitted. It was found that her mother's input had a direct correlation to the child's output. However, the mother's input alone could not explain every aspect of the child's output.

One important difference in the acquisition of particles between FB and monolingual Japanese children is that FB has had much more difficulty in acquiring basic grammatical particles such as *ga* (nominative), *o* (accusative) and *wa* (topic), while monolingual Japanese children are reported not to have such problems. FB overuses *wa*, while monolingual children are reported to overuse *ga*. Past research suggests that bilingual children generally follow the patterns of language development observed in monolingual children (De Houwer, 1990, p. 50; Fantini, 1985, p. 128; Romaine, 1995, p. 235; Taeschner, 1983, p. 227), but this was not the case in FB's acquisition of some particles. It is suggested that this was primarily due to the type of input she received, lacking in exposure to written Japanese and limited to conversation with an interlocutor with whom FB shared a great deal of her knowledge and experience, as well as to the avoidance strategy FB employed to get around the difficulty she encountered in using these particles. The lack of input sources other than parental conversational input seems to be the primary reason for the delay in FB's acquisition of certain particles. This question should therefore be further tested in research with other bilingual children who receive input from a variety of sources.

NOTES

1. In the literature reviewed in this study, no author has specifically defined what "acquisition" means, such as whether it refers to a 100% accuracy level or not. It would be too restrictive to define the term "acquisition" as 100% accuracy, since some authors discuss the errors made by monolingual children as well (e.g., Clancy 1985). In this paper, the term "acquisition" will be used to signify adult-like usage, which does not have to be 100% accurate.
2. "Violin" was pronounced in English.
3. "Muffin, banana chocolate muffin" was pronounced in English.
4. In table 3, "omission" refers to the complete dropping of a particle, and "used" refers only to instances of correct use. Errors have been eliminated from these results.
5. The use of the particle *wa* in the place of *ga* is not the adult norm.

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