Narrative Development in Bilingual Children

A case study

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This paper describes the initial results of an ongoing longitudinal case study examining the English narrative story-telling ability of two bilingual children (ages 10;7 and 8;2 at the start of the study) born and raised in Japan. English oral narrative samples were collected from the two sisters three times: at the beginning and end of one year spent living in Canada then a third time a year after returning to Japan. This data was analyzed in terms of narrative structures and linguistic features. Results indicate that narrative ability dramatically improved after 12 months of intensive exposure but attrition occurred in certain areas after the period of intensive exposure ended.

本稿では、日本で生まれ育った二人のバイリンガルの子どもたち（研究開始時、１０歳７ヶ月と８歳　２ヶ月）における英語の物語を語るナラティブ能力の縦断的なケーススタディの初期結果について述べる。２人の姉妹から英語の口頭のナラティブのサンプルを３回集めた。カナダに１年間滞在したその年の初めと終わりに１回ずつと、帰国してから１年後に１回と、合計３回である。これらのデータは、ナラティブの構造と言語的特徴の面から分析した。結果より、ナラティブ能力は１２ヶ月集中して英語に触れた後には大幅に向上したにもかかわらず、集中的に触れる機会がなくなった後にはある分野において喪失が起きたということがわかった。

Introduction

This paper describes the early findings of an ongoing longitudinal case study investigating the development and changes in English narrative storytelling ability in two Japanese-English bilingual children born and raised in Japan. At the start of the study they were aged 10;7 and 8;2. The participants told three versions of the same story based on the wordless picture book *Frog, Where are You?* (Mayer, 1969), both at the beginning and end of one year of intensive English exposure while living abroad, and then a third time one year after they returned to Japan. Analysis of the narrative samples is mainly descriptive and focuses on two separate yet equal elements of narrative ability; the command of overall narrative structure and the command of linguistic forms.

The study aims to help fill a gap in the research into the ways bilinguals produce narratives. Although there have been a number of recent studies examining English-Japanese bilinguals (Minami, 2005; Shirakawa, 2012; Taura & Taura, 2012), only Taura and Taura's (2012) case study followed a bilingual participant whose dominant language was Japanese. Their participant showed rapid improvement in several areas of narrative and overall linguistic ability after spending eight months in Australia, but also showed evidence of attrition in a data sample collected two years after returning to Japan.

This study attempts to replicate certain aspects of Taura and Taura's work, as well as that of other previously published studies that examine frog story narratives. The overarching aim is to determine if similar gains can be observed in the participants' command of narrative structure and linguistic ability after spending a year in Canada and whether a year spent back in Japan results in similar language attrition. There is something of a replication crisis currently shaking the fields of psychology (Spellman, 2015) and medicine, where a study by Begley and Ioannidis (2015) estimated results from 75% to 90% of published preclinical research studies could not be replicated, and this suggests that researchers in the field of language acquisition would also be grossly negligent not to make a greater effort to attempt to replicate previous studies.

Research Questions

This paper investigates the following two research questions:
1) After 12 months of intensive English exposure, what changes can be observed in terms of A) narrative structure and B) linguistic ability? In terms of narrative structure, this paper examines: a) the use of formulaic openings, b) the mention or absence of three, key plot structure elements, c) temporal anchoring through verb tense, d) the attribution of inner states and frames of mind to characters, and e) the use of connective devices. In terms of linguistic ability, the study examines: a) the total number of clauses, b) speaking fluency by measuring the number of words spoken per minute, c) mean length of utterances, and d) lexicon used. As an additional research question, the study also seeks to discover 2) What evidence of attrition can be observed in the narrative data following the children's return to a Japanese environment?

Following one year of living in an English environment, the focal participants showed evidence of improvement in terms of narrative structure and linguistic ability. However, there were also some noticeable differences in the narratives produced by this paper's participants compared to monolingual English speakers in terms of the attribution of character inner states, use of connective devices, and speaking speed. In these three areas, their narratives proved immature compared to those of monolinguals of equivalent age. Rather than a being a problem of development or of dominant language transfer or influence, the differences seem to derive from an overall lack of linguistic ability, a problem that was largely corrected by the end of the year. The data indicate the gains in linguistic features suffered more attrition than those of narrative structure one year after the participants left the intensive English environment.

Literature Review

One commonly accepted way to measure children's ability to tell a story is by having them provide a narrative for a wordless picture book. Berman and Slobin (1987; 1994) provide a detailed explanation of why the retelling of this particular book is an effective data collection tool. While much of the literature initially focused on the narratives produced by monolinguals, both Berman and Slobin (1994) and Strömqvist and Verhoeven (2004) list extensive bibliographies of researchers who have collected narrative data from participants retelling the *Frog, Where are You?* story. Researchers have also used it to examine narratives produced by bilinguals; see Verhoeven & Strömqvist (2001) for one collection of such bilingual studies. Despite the widespread use of the *Frog, Where are You?* story by researchers, under-examined areas remain. For example, Verhoeven and Strömqvist (2001) identified three main gaps in the existing literature, namely a lack of studies investigating: 1) the later development of language in bilingual children; 2) narrative development in bilingual children, and; 3) participants that are bilingual in typologically distant languages. Other researchers have identified similar gaps. According to De Houwer (2009), most of the research into bilingual first language acquisition (BFLA) has focused on very young children, up to age two or three. There is a lack of research into the development of the non-dominant language of school-aged bilingual first language children past the age of six.

Researchers have begun to address these gaps in the literature by examining *Frog, Where are You?* narratives produced by elementary school-aged Japanese-English bilingual participants. For example, Minami (2005) and Shirakawa (2012) examined English-Japanese participants living in the USA and New Zealand. Taura and Taura's (2012) longitudinal case study outlines the narrative development of the authors' Japanese-English bilingual daughter from age four to 19.

Taura and Taura (2012) collected frog narrative data seven times between the ages of 4;9 and 19;1. This data included one telling related at age 11;2 after eight months spent in Australia which the authors described as a major "turning point" in the participant's bilingual proficiency. The eight months in Australia led to a dramatic increase in speaking speed, an increased and more varied use of adverbial particles to connect events in the narrative, and a lexical surge. Their participant told the story again at age 13;0 after returning to Japan.

While Taura and Taura's participant showed a dramatic improvement after spending eight months in Australia, several clear signs of attrition could be observed in the narrative data collected at age 13;0 after two years back in Japan. The narrative sample contained evidence of attrition in terms of command of narrative structure and linguistic ability. In terms of narrative structure, the mention of character frames of mind, use of causal connectors, and a variety of connective devices all declined and showed signs of attrition. However, one aspect of narrative ability, the mentioning of key plot components, did not show any signs of attrition. The narrative sample also showed declines in speech rate, complexity, mean length of utterance, the total number of words used to tell the story, and type/token ratio (TTR) (Taura & Taura, 2012). These declines in both narrative structure and linguistic ability were reversed by age 15;9 when the

participant entered a bilingual high school. Unfortunately, Taura and Taura (2012) do not discuss this attrition, or even use the term at all in their paper. Therefore, the present study aims to explore whether its focal participants show similar gains and attrition during and following a year of intensive English exposure.

An additional issue raised in bilingual narrative studies concerns accounting for delays compared to monolingual participants. Some researchers have stressed that delays in narrative development should not be attributed to the participants' bilingualism but to a lack of exposure to narratives and literacy related tasks (e.g. Akinci, Jisa, & Kern, 2001). The delayed narrative development in one study that compared French-Turkish bilinguals to monolingual French children was attributed to a higher degree of exposure to bedtime stories and storybook reading in households with middle-class French parents compared to those with working-class, and sometimes illiterate, Turkish parents (Akinci, Jisa & Kern, 2001). However, in the current study the parents read to the children daily in both English and Japanese, so a lack of exposure to narrative examples would not appear to be directly relevant to the participants' narrative development.

Participants

The two focal participants who provided the narrative samples for this case study are the author's daughters. The children accompanied the author during a year-long research sabbatical spent in Ottawa, Canada. Participant one, Kate, was 10;7 at the beginning of the year abroad and participant two, Taylor, was 8;2. Both names are pseudonyms. Their language environment can be divided into four phases.

Phase one: One-parent-one-language.

Kate: birth to 8;0 Taylor: birth to 5;7. During this phase the Japanese mother spoke only Japanese to the children and the Canadian father spoke only English. Therefore, both children can be considered simultaneous bilinguals who experienced bilingual first language acquisition. However, their dominant language was Japanese. They went to Japanese kindergarten and school and all their friends were Japanese. The focal participants spoke Japanese to each other and with their mother. Kate spoke English to the father, but Taylor spoke as much Japanese as the father would allow.

During phase one, both participants received a nightly Japanese and English bedtime story read to them by their mother and father respectively.

Phase two: One English parent.

Kate: 8;0 to 10;7 Taylor: 5;7 to 8;2. After the children's mother passed away, the home environment changed to a single-parent household. The language environment also changed, as the father spoke only English in the home; however, the children ignored his attempts to introduce an English-only policy in the house, speaking almost entirely in Japanese to each other. During an average 14-hour waking day, participants were exposed to about two to three hours of English with their father before and after school and work.

While both children were raised in a similar language environment with English input provided primarily by interacting with the father and by listening to nightly bedtime English stories, their English proficiency levels were quite different. Before going to Canada, Kate was comfortable speaking and reading English, but had little opportunity to write in English. Taylor's English was weaker: typically, she could understand most of what her father or sister said, but nearly always replied using Japanese. Attempts to force her to speak English would lead to extended episodes of English-Japanese code-switching. In terms of her literacy level, Taylor could read simple books and mastered the English alphabet a few months before moving to Canada.

During phase two, both participants continued to listen to bedtime stories read by their father, comprising either a short storybook finished in a single evening or a book with chapters which took several days or weeks.

Phase three: English immersion

Kate: 10;7 to 11;7 Taylor: 8;2 to 9;2. At the very end of March, 2014 the father and the two children moved to Ottawa, Canada for one year. The girls attended regular English school and their friends were all English speakers. They also met regularly with their English-speaking

Canadian grandparents, uncle, and cousin.

The children increased their use of English with each other from the day they arrived in Canada. Three months after arriving, they spoke more English than Japanese with each other. Other researchers have found a similar change in children's speech patterns after living in an English country for three months (Namba, 2012; Yukawa, 1997). By September, Kate and Taylor communicated with each other virtually entirely in English.

Both participants showed gains in overall English proficiency during the year in Canada. For example, during a parent-teacher interview at the end of the year, Kate's homeroom teacher said that she was reading at her grade level, had speaking fluency equivalent to the other students in the class, and was about a year behind in terms of writing. Taylor's homeroom teacher said she was about a year behind her grade level for reading, writing, and speaking.

Phase four: Return to Japan.

Kate: 11;7 to present Taylor: 8;2 to present. After returning to Japan at the very end of March, 2015, Kate re-entered Japanese elementary school in Grade Six and Taylor in Grade Four. After a few weeks, Japanese re-emerged as the siblings' preferred language with each other; however, the participants currently speak exclusively in English with their father. At the dinner table, both girls speak English to each other and with their father. Other opportunities to use English are limited, since both failed to remain in contact with their English-speaking Canadian friends.

After returning to Japan, Kate no longer wanted a bedtime story read by her father, so instead she read an English book herself for approximately 20-30 minutes before bed. Taylor continued to receive a nightly reading out of a chapter book from her father, but she was also supposed to read an English book for approximately 20 minutes every afternoon as supplementary homework assigned by her elementary school's Assistant Language Teacher. For more information on the participants' language proficiency and time in Canada see McCrostie (2015; 2016).

Methodology

To collect the data for this study, the two participants were recorded telling a story based on the 24-page wordless picture book *Frog, Where are You?* (Mayer, 1969). The story is about a boy whose pet frog escapes one night. The boy and his dog embark on a quest to find the missing pet during which they encounter a number of setbacks, before discovering a family of frogs, one of which the boy takes home.

This paper followed the standard storytelling and data collecting procedures for *Frog, Where are You?* studies established in Berman and Slobin (1994). The participants were given time to look at all the pictures and familiarize themselves with the book. They then received instructions to tell the story, and not simply describe the pictures, while referring to the book's pictures. The narratives were audio- and video-recorded and then transcribed in the Codes for the Human Analysis of Transcripts (CHAT) format according to Child Language Data Exchange System (CHILDES) transcription standards (MacWhinney, 2000).

A week after arriving in Canada the participants told the story in English, and a week later they told the story in Japanese. Eleven-and-a-half months later, just before leaving Canada to return to Japan, they told the same story in English, and then a week later in Japanese. Then in April 2016, a year after returning to Japan, the participants told the story in English.

Results and Discussion

The story-telling data collected were examined for narrative structures and linguistic features. This paper only analyzes the English narratives, since a comparison of English and Japanese narratives lies beyond the scope of the present study.

Narrative Structure

The participants' stories were examined for five elements of narrative structure: 1) the use of formulaic openings, 2) the presence or absence of key plot elements, 3) the use of temporal anchoring through verb tense, 4) the mention of story character inner states of mind, and 5) the use of connective devices. In their study of monolingual children speaking five different languages, Berman and Slobin (1994) identified these five elements of narrative structure as significant for the *Frog, Where are You?* story.

Formulaic openings. Berman and Slobin (1994: 73) reported that nearly all the nine-year-old monolingual participants in their study used one of four formulaic openings to

begin their narratives: 1) *Once upon a time*, 2) *The boy finds /caught/owned a frog*, 3) *It's nighttime/ one day/ one night* 4) *It's a story about.*

Kate opened her first story with "In the night" and Taylor used the grammatically incorrect "The night the boy see the frog." While close, they were not what Berman and Slobin identified as standard formulaic openings. For her second telling, Kate used "One night" and Taylor again opened with "the night" beginning her story "The night there was a boy and a dog looking at the new frog." A year after leaving the English intensive environment Kate used "One time" and Taylor "One night" in their third versions.

Kate's failure to use a standard formulaic start in her first and third telling and Taylor's failure in her first two stories would appear to be a question of language proficiency rather than exposure to English narrative norms. While Akinci, Jisa and Kern (2001) identified a lack of exposure to narrative examples to account for the lower performance of Turkish-French bilinguals compared to French bilinguals, the daily exposure to English books and stories that this study's participants experienced from the time they were babies would seem to discount such an explanation.

Plot elements. Berman and Slobin (1994) also identified three key plot elements.

I. The onset of plot: The boy's realization the frog is gone. To be considered present, the first element required participants to make an explicit mention that the frog was missing and not simply that the frog's jar was empty.

II. The unfolding of the plot: The search for the missing frog. This second key plot element required an explicit mention of searching or calling for frog beyond the boy's bedroom.

III. Resolution of the plot: Finding the frog he lost (or one to take its place). The third key plot element required participants to describe the frog taken home by the boy as either the same frog or a substitute frog.

Berman and Slobin (1994) found that the presence or absence of these three plot structures could typically be used to identify the age of monolingual children, regardless of their native language. Table 1 below compares the results from Berman and Slobin (1994) with the current study's participants. The upper part of the table shows what percentage of participants (at ages three, five, nine, and as adults) mentioned the three key plot elements in Berman and Slobin's study. The lower part shows whether or not Kate and Taylor mentioned the plot elements in their first, second, and third telling of the story.

Table 1. *Mention of Key Plot Elements*

Plot Element	I. Frog is gone	II. Search for frog	III. Finding frog
Berman and Slobin, 1994			
Age 3	17%	15%	10%
Age 5	78%	52%	41%
Age 9	94%	98%	62%
Adult	100%	100%	92%
Current Study			
Kate 1, 10;7	Yes	Yes	No
Kate 2, 11;7	Yes	Yes	Yes
Kate 3, 12;7	Yes	Yes	Yes
Taylor, 1 8;2	No	No	No
Taylor 2, 9;2	Yes	Yes	Yes
Taylor 3, 10;2	Yes	Yes	Yes

Kate performed at a near age-appropriate level all three times she told the story. In her first telling, at age 10;7, she failed to explicitly mention the resolution of the plot by clearly stating whether the frog the boy took home was the same frog or a substitute. However, one-third of monolingual nine-year old children also failed to mention this plot structure (Berman & Slobin, 1994). In the second and third telling she mentioned all three key plot structures.

During her first telling, Taylor failed to explicitly mention any of the three key events, and as a result her narrative resembled that of a three-year old's recounting of the story. However, a year later she mentioned all three. Her third telling of the story also included mention of all three plot elements, demonstrating the absence of any attrition in this area of narrative ability after a year back in Japan.

Temporal anchoring. In terms of temporal anchoring, using a consistent verb tense to tell a story, the participants also showed improvement and a resistance to attrition (Table 2).

Table 2. *Temporal Anchoring*

Participant, Age	Tense Employed for Temporal Anchoring
K1, 10;7	No: switch between past & present
K2, 11;7	Yes: past
K3, 12;7	Yes: past
T1, 8;2	No: present & past
T2, 9;2	Yes: past
T3, 10;2	Yes: past

In her first telling, at age 10;7, Kate showed no sign of temporal anchoring and constantly switched back and forth between past and present tenses which is behavior typical of three and five-year old monolingual narrators (Berman & Slobin, 1994). A year later Kate anchored the story in past tense like a majority of monolingual nine-year old participants and one-third of adults. At age 8;2 Taylor told her first version of the story narrative using primarily the present tense but a year later she told it in the past tense like the majority of nine-year old participants in Berman and Slobin (1994). A year after leaving Canada and returning to Japan, Kate and Taylor both anchored the story in the past tense again for their third telling.

Previous researchers examining bilingual participants found the mixing of present and past tenses disappeared at an earlier age. Lanza (2001), looking at Norwegian-English bilingual participants found it disappeared by age 6;10 and Taura and Taura (2012) found it disappeared at age 7;9 in their single Japanese-English participant. However, another researcher claimed that in addition to age, proficiency level in bilingual participants was another factor in the delay of using the past tense for temporal anchoring (Kaufman, 2001: 336). Therefore, Kate and Taylor's introduction and maintenance of the past tense for temporal anchoring in their second and third versions provides not only solid evidence of increased English proficiency but also suggests it is resistant to attrition.

Inner states of mind. Berman and Slobin (1994) also found a clear division in the attribution of inner states or frames of mind to story characters according to participant age. They define inner states or frames of mind as descriptions of what a character felt, thought, or said.

All three times they told the story, both Kate and Taylor rarely attributed inner states or frames of mind to characters. The only time they did so was when a picture in the story made it obvious a character was angry or calling out, "Where are you?" to the frog. This matched the behaviour of monolingual five-year old participants in Berman and Slobin (1994), who typically only mentioned inner states at those same pictures. However, by the age of nine most monolingual children attribute a wider variety of inner states to more of the characters in the story (Berman & Slobin, 1994). This was something both participants in the present study failed to do in their English narratives.

Other studies looking at bilingual children found a similar lack of reference to character inner states. For example, the focal participant in Taura and Taura's study (2012) made few references to character frames of mind. Another study comparing frog stories told by French-Turkish bilinguals with French monolingual children also had similar results (Akinci, Jisa & Kern, 2001). The five, seven, and ten-year-old bilingual children all failed to mention inner states of characters while the French monolingual participants began describing the inner state of mind of characters as they got older (Akinci, Jisa & Kern, 2001: 198).

Taura and Taura (2012) failed to speculate on the reasons behind the absence of references to character frames of mind by their study's participant; however, Akinci, Jisa, and Kern (2001) stressed that the failure by their study's bilingual participants to describe inner states of mind and other deviations from monolingual produced narratives should not be blamed on bilingualism. Instead, the authors highlighted the fact that the monolingual French participants had received more exposure to bedtime stories and storybook reading. The bilingual Turkish-French participants, many with illiterate parents, had received less exposure reading at home and thus less exposure to narrative examples (Akinci, Jisa & Kern, 2001: 203). However, the participants in the current study did receive near daily exposure to English narratives in the form of bedtime stories and reading time in the home, as did the participant in Taura and Taura (2012). Furthermore, the Japanese frog story narrative data produced by this study's participants do contain multiple descriptions of what characters felt, thought, or said. Therefore, it seems likely that, despite previous claims (Akinci, Jisa, & Kern, 2001), describing character inner states of mind is in fact very difficult for bilinguals that are below a certain proficiency. As a result, the

absence of descriptions of inner states cannot simply be explained by a lack of exposure to narrative examples.

Connective Devices. In their use of connective devices such as temporal connectors used to advance the narrative, both children showed improvement but not necessarily to age appropriate levels (see Table 3).

Table 3. *Connective Devices*

Participant, Age	Total	Devices Used
K1, 10;7	2	and (2)
K2, 11;7	20	and(11); but(4); when(2); so(2); then(1)
K3, 12;7	5	and(1); but(1); when(1); so(1); then(1)
T1, 8;2	15	and(14); but(1)
T2, 9;2	10	and(3); but(6); when(1)
T3, 10;2	20	and(9); but(4); when(1); so(2); still (1); in night time (1); (in) morning(1); little bit after (1)

In their first telling of the story, both Kate and Taylor's use of temporal connectors resembled that of Berman and Slobin's three and five-year old English monolinguals (2001). Kate's first telling of the story used *and* only twice as the sole temporal connector. The lack of temporal connectors helps illustrate how her first telling of the story was in many ways more an unconnected description of pictures rather than a cohesive narrative.

After a year in Canada, Kate used a total of sixteen connectors, employing *and* 11 times, *when* and *so* two times each, and *then* once. The use of four different connectors was a marked improvement but a continued reliance on *and* was more typical of a five-year-old or perhaps nine-year-old. Kate's third telling showed a dramatic drop off in the use of temporal connectors. She used: *and*, *when*, *so*, and *then* a single time each for a total of four.

Taylor constantly used *and* as a connector in her first story telling beginning every utterance with it for a total of 14 times. A year later she reduced the number of connectors using *and* to only three times with one additional use of *when*. In her third telling of the story Taylor used a total of sixteen connectors: *and* nine times plus *when, so, still, in night time, in morning, little bit after* one time each. Even a year after leaving the English intensive environment, Taylor continued to develop a more sophisticated use of connectors both in terms of total frequency and also in the complexity in the connectors used. However, the return to an over-reliance on *and* could be interpreted as a sign of attrition. Similarly, Taura and Taura's (2012) participant showed a comparable reliance on *and* until she spent eight months living in Australia, after which there was an increase in the varieties of adverbs and conjunctions she used (p. 498).

Previous research reported that the English narratives produced by younger participants also relied heavily on the use of *and*, though in a slightly different way. For example, the most common connecting expression for five-year-olds was *and then* but its use as a connecting device tapers off with age and rarely appears in adult narratives (Berman & Slobin, 1994; Lanza, 2001). However, while this study's participants relied on *and*, they never made use of *and then*. The absence of this expression indicates that in many ways, the participants' English development followed patterns similar to monolingual speakers, with older storytellers abandoning the use of *and then*.

Berman and Slobin's (1994) older participants also began to employ more advanced temporal connectors such as *afterwards*, as well as more complex causal temporal connectors including *so* and *because*. Kate showed evidence of starting to use such connectors in her second narrative, at the age of 11;7. However, apart from a single use of *so*, the complexity and overall number of connective devices seemed to show evidence of attrition in her third story.

Taura and Taura (2012) made special note of their participant's frequent use of *but* along with a negative as such as *but…not/didn't* as a connecting device and both participants in the present study also frequently used *but* in a similar fashion. Kate used *but* four times in her first telling and one time each in her second and third telling. Taylor used *but* once in her first telling, seven times in her second and four times in her third. Similar to earlier findings (Taura & Taura, 2012), the present study's participants often combined *but* with a negative.

An argument could be made that these changes reflect an increased familiarity with the frog story. Admittedly, a learning effect for repeating the same narrative task is possible. However, an increased familiarity was minimized by placing the storytelling tasks a year apart. Furthermore, the children never heard the researcher or each other narrate the story. Therefore, the potential drawbacks of repeating the same story telling task are outweighed by the advantages

of using a repeated task that allows for a direct comparison of the data collected.

According to Taura and Taura (2012), their participant's use of *but* and negativity to introduce an unexpected event exerts "an effective impact on the listeners" (p. 498). However, in the present study Taylor's use of *but* combined with a negative appears to serve a slightly different purpose. For example, Taylor often used *but* in four places where the book's picture made it obvious the boy was calling. In her story, Taylor repeatedly said, "He said, "Where are you frog?" But the frog didn't answer." Therefore, it appears the use of *but* by the current paper's participants serves a slightly more basic rhetorical function.

Overall, the present study's participants showed similar patterns of language gain and attrition to those found by Taura and Taura (2012). A year in an English-speaking country resulted in dramatic gains in most areas of narrative structure. After returning to Japan, several elements of their command of narrative structures showed signs of attrition. However, both this study and that of Taura and Taura (2012) found that the mention of key plot elements and temporal anchoring proved resistant to attrition.

Linguistic Features

Number of Clauses. In Berman and Slobin's (1994) study, five-year-old monolingual children, regardless of their native language, produced an average of 41 clauses and nine-year-old participants produced an average of 45. At the beginning of their year in Canada, both Kate and Taylor produced narratives with far fewer clauses than later samples (see Table 4). Kate's first sample contained only 16. This was at the lower range for three and four-year-old monolingual storytellers (Berman & Slobin, 1994). At the end of the year in Canada, Kate's second story contained 38 clauses. Taylor also showed improvement; her first story had 29 clauses and the second 36. However, the number of clauses used to tell the story also appeared susceptible to attrition or at least stagnation. A year after leaving Canada's intensive English environment, Kate's third narrative had 22 clauses and Taylor produced 35.

Table 4. *Linguistic Features of Narratives*

Participant, Age	No. of Clauses	wpm	MLU	Types	Tokens	Vocd
K1, 10;7	16	52.3	9.7	55	116	21.77
K2, 11;7	38	84.2	12.7	105	254	35.08
K3, 12;7	22	90.1	6.9	55	103	31.35
T1, 8;2	29	60.4	8.3	57	158	16.20
T2, 9;2	36	85.1	11.4	97	251	29.23
T3, 10;2	35	77.0	8.3	77	192	28.53

While all three narratives produced by this study's participants contained fewer clauses than similarly aged monolinguals, they also had fewer than in stories recounted by similarly aged English-Japanese and Japanese-English bilinguals. Bilingual participants between the ages of nine and eleven from two studies produced English narratives containing between 42-101 clauses (Shirakawa, 2012; Taura & Taura, 2012).

Speaking speed. The speaking speed at which the participants told the story, measured in terms of words per minute (wpm), also showed improvement over the course of 12 months. Kate spoke 52.3 wpm in her first telling of the story and 84.2 wpm after a year in Canada. Taylor showed nearly the same level of improvement, speaking 60.4 wpm when telling the story for the first time and 85.1 wpm when telling it the second time. One year after returning to Japan, Kate told her third version of the story at 90.1 wpm. Taylor's speaking rate declined after a year back in Japan, with her third telling spoken at 77.0 wpm.

For comparison, one English-Japanese bilingual participant told the same frog story at 85.7 wpm at age nine, and 134.4 wpm at age 11 (Taura & Taura, 2012). While Taylor showed nearly identical results at the age of nine as participant "M", Kate was well below "M's" age 11 pace. "M" did suffer attrition in speaking speed after returning to Japan from Australia, thus demonstrating how gains in speaking speed appear particularly susceptible to attrition. Furthermore, the participants of this and Taura & Taura's (2012) study were slower at age nine than younger monolingual English speakers. One study of 73 six and seven-year old participants reported an average story telling speed of 90.8 wpm (Westerveld & Heilman, 2012).

Mean Length of Utterance. Computerized Language Analysis (CLAN) software calculated the mean length of utterance (MLU), the ratio of words to utterances, from transcriptions of this study's participants' narratives (see Table 4).

Previous studies of native English-speaking children found six and seven-year-old

American children had an MLU of 7.6 and New Zealand children 8.1 when telling the *Frog, Where are You?* story (Westerveld & Heilmann, 2012). Taura and Taura's (2012: 487.) longitudinal case study participant had an MLU at of 9.8 at age seven, 8.1 at age 9;1, 10.9 at age 11;2, and 8.7 at age 13;0.

Kate's first telling of the story produced an MLU of 9.7 and her second 12.7. Taylor also showed improvement after spending the year in Canada. Her first story produced an MLU of 8.3 and her second 11.4. However, both participants showed a dramatic drop in the MLU of their third version of the story. Kate's third telling of the story produced an MLU of 6.9. The MLU of Taylor's third story fell to 8.3, back to where it was before spending a year in Canada.

Lexicon. An examination of the lexical densities in the participants' narrative samples shows a dramatic gain followed by a process of attrition taking place during and after the year spent in Canada (see Table 4). Kate's first story used 55 unique words, or types, for a total of 116 words, or tokens. Her second telling showed improvement with 105 types and 254 tokens. However, data collected after a year back in Japan shows evidence of attrition with the story having 55 types and 103 tokens. Taylor's first story used 57 types and 158 tokens. Her second story showed improvement, with 97 types and 251 tokens. Evidence of attrition also exists in Taylor's third telling, with 77 types and 192 tokens.

Previous studies of elementary school aged Japanese-English bilinguals performing the same frog story task found participants employing a wider range in the number of types and tokens. For example, participant "M" in Taura and Taura's (2012: 482) case study used 110 types and 293 tokens at age 9;1 and 180 types and 550 tokens at age 11;2. Another study found that six to 12-year-old English-Japanese bilingual participants used an average of 89 types and 251 tokens (Minami, 2007 reported in Taura & Taura, 2012: 488).

CLAN software can also calculate a text's vocabulary density score (*vocd*). A *vocd* score is similar to a text's type/token ratio (TTR) but CLAN uses a formula that takes into account the length of the passage as well. It is a more sophisticated measure of lexical density and is better when comparing texts of different lengths. A text's TTR is a function of the number of tokens in a sample. Therefore, samples containing larger numbers of tokens give lower TTR values and samples with fewer tokens give higher TTR values. *Vocd* analyzes the probability of new tokens being introduced into longer samples and compares the formula to the actual data in the sample (Richards & Malvern, 2000). Table 2 shows that Kate's first narrative had a *vocd* score of 21.77 and her second 35.08. Taylor showed similar improvement, going from a *vocd* score of 16.20 on her first narrative to 29.23 on her second. After a year spent back in Japan, Kate's *vocd* score dropped slightly to 31.35 and Taylor's to 28.53. Other studies have shown similar rapid growth in the *vocd* scores of bilingual participants while receiving intensive exposure to the nondominant language and corresponding drops when the exposure ends (Taura & Taura, 2012: 488-489).

The rapid gains that took place in terms of speech rate, MLU, and type/token ratio for both the present study's participants and Taura and Taura's (2012) participant demonstrate the impact a year abroad can have on a bilingual child's non-dominant language after moving to a country where it is the first language.

Taura and Taura's (2012) participant also showed clear evidence of attrition in terms of speech rate, complexity, mean length of utterance, total words used in the story, and type/token ratio. The similarity in the declines that took place in this study's participants' speech rate, MLU, and type/token ratio suggest which areas will suffer the most after returning to the dominant language's country.

The difference in speech rate attrition in the current study's participants also deserves further elaboration. Compared to the participant in Taura and Taura (2012), Taylor showed a similar gain in speech rate after living in Canada for a year, as well as a similar decline after a year spent back in Japan. However, Kate's results need additional explanation. A year spent in Canada resulted in a similar increase in speaking speed. Yet, the narrative sample collected after a year spent back in Japan showed a faster speaking speed rather than a decline. Rather than serving as proof that no attrition in speaking speed took place, this is more likely an indication that Kate, who was reluctant to do the task again, wanted to end the data collection session as soon as possible, leading to an unnaturally fast speaking rate.

Conclusion

To return to the original research questions, namely, what changes can be observed in terms of A) narrative structure and B) linguistic ability, this study found both participants showed improvement after spending a year in an intensive English environment. After a year, both participants produced age appropriate narratives in terms of using formulaic openings,

mentioning key plot structures, temporal anchoring, and mean length of utterance. They also showed a dramatic improvement in terms of vocabulary reflected in an improvement in the total words used, and the texts' *vocd* score. Their narrative texts showed improvement to near age appropriate narratives in terms of temporal connectors, number of clauses and speaking speed measured in words per minute.

However, even after a year in an English environment, both participants failed to match their monolingual peers in terms of mentioning the inner state of characters.

The narrative data also indicated some features proved resistant to attrition, while others showed susceptibility to declines following the children's return to a Japanese environment. A year after returning to Japan, some elements of narrative structure, including the use of formulaic openings, mention of key plot structures, and temporal anchoring through verb tense, all proved resistant to attrition. However, the use of connective devices showed some signs of attrition. Furthermore, the elements of linguistic ability examined, including the number of clauses, speaking speed, MLU, and lexicon, also showed more noticeable signs of attrition.

This paper's data and analysis indicate that while English narratives produced by Japanese-English bilingual children are similar to those of their monolingual peers in several ways, there are also several noticeable differences. Further study, using larger numbers of participants, will be required to determine whether the differences result from individual differences or from bilingual language development. This will help both researchers and parents to better understand the effects of bilingual development and attrition that result from changing language environments.

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