

Teaching Reading to a Developing Bilingual Baby: A Case Study in Three Stages

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This paper summarizes three stages of a case study of the literacy development of the author's English-Japanese bilingual child, which started when the baby was six months of age. In accordance with Cummins' (1989) interdependence principle, it was felt that learning literacy in the minority language (English) first would contribute to, not hinder, literacy in the majority language (Japanese), which would be learned in school later. It was felt that in order to teach literacy at home, the most effective approach would be to start as early as possible. Stage I of the study (0:6 - 1:3) focuses on Doman's (1964) method of teaching a pre-verbal infant to read English, although modifications were made to suit the subject. In Stage II (1:3 - 2:2), newer research from the U.S. Office of Education (Adams, 1990a, 1990b) and other reports (Wallace, 1988) provided the basis for revisions in teaching methods that placed more emphasis on context and meaning. With the subject's development of speech production, reading was verified orally for the first time. In Stage III (2:2 - 2:10), several milestones were seen, as 30 words read singly were combined to be read in phrases and simple sentences. Several two-word phrases were induced verbally through reading by combining words that had otherwise not yet been heard. In this stage, half of the Japanese *hiragana* syllabary was learned and the ability to read at least 10 words in combinations of those *kana* was demonstrated. Also, the ability to put *kana* blocks together to form words was shown.

<二言語習得過程にある幼児に対する読字教授:3段階(6ヵ月から34ヵ月)のケース・スタディ>

この論文は、本研究者の子どもである英語-日本語「潜在」バイリンガル幼児を被験者として、6ヵ月以降の読み書き能力の発達を3段階に分け、追跡したケース・スタディの報告である。カミンズ(1989)の「相互依存の原理」によると、先に少数言語(この場合、英語)の読み書きを学ぶことにより、後の学校における社会の主流言語(日本語)の読み書き学習が阻害されることなく、むしろ促進されるとされる。家庭で英語を教えるのに最も効果的な方法は、できるだけ早くこれを開始することであると考えられる。本研究の第1段階(0:6 - 1:3)では、前言語期にある幼児に母語としての英語の読み書きを教えるために開発されたグレン・ドマン(1964)法を、一部修正の上、使用した。第2段階(1:3 - 2:2)では、この方法に加え、米国教育局の新しい研究等の結果をもとに、文脈と意味の理解をより強調した方法も導入した。被験者がことばを話し始めてから、始めて声に出して読むことができたと確認されたのは、この段階にある2:1の時である。第3段階(2:2 - 2:10)では、英語については30の語を読むことができ、これらの語をいくつか組み合わせた句や簡単な文を読むこともできるようになるなど、著しい発達が観察された。日本語についても、ひらがなが約半数、またこれらのひらがなで書かれた語も少なくとも10語読めるようになった。加えて、この段階では、ひらがなが書かれたブロックを組み合わせ、語を作ることもできるようになった。

INTRODUCTION

Research indicates that for bilinguals, instruction in the minority language positively effects overall learning and development of the second (majority) language (Cummins & Swain, 1986; Cummins, 1989; Cummins, 1991; Goncz & Kodzopeljic, 1991; Verhoeven, 1991a; Cummins, 1994). While not specifically referring to home schooling, a considerable amount of evidence to support the interdependence principle has been presented by J. Cummins (1989), who argues:

... although the surface aspects (e.g. pronunciation, fluency, etc.) of different languages are clearly separate, there is an underlying cognitive/academic proficiency which is common across languages. This 'common underlying proficiency' makes possible the transfer of cognitive/academic or literacy-related skills across languages. Transfer is much more likely to occur from minority to majority language because of the greater exposure to literacy in the majority language outside of school and the strong social pressure to learn it (1989, p. 22).

Allister Cumming (1994) also points out that much research has revealed extensive, positive transfer of literacy knowledge from first to second languages.

If the minority language is not taught in the school, however, mixed-language and language minority families wishing to promote the overall learning and development of their bilingual children in two languages may be faced with the prospect of teaching the children literacy in the minority language at home. This, in fact, was true of the researcher, an American married to a Japanese and living in Japan.

The birth of our first child, a boy named Jonah (hereafter referred to simply as "J."), prompted an analysis of the situation. It was felt that J's mother tongue, the minority language (English), would be his L1, while the father's and the societal language would be his L2. Although J. was placed in a day care

center where only Japanese was spoken from 8 months of age, in the home, English was used with the mother while Japanese was used with the father. It was thought that by teaching English literacy at home first, the transfer later to Japanese literacy introduced in schools would have a more positive and successful result than allowing Japanese literacy to be taught first and then attempting to teach English at home at some later point in time during elementary school. Moreover, the researcher believed that getting a firm grounding in English literacy early—before being immersed in the majority language school system, which tends to be very demanding in terms of homework and other activities—would help in maintaining the minority language.

This paper culminates a case study in three stages following J's literacy development from six months to 2 years and ten months of age. The long-term goal was for the development of J's literacy in two languages, with the majority language literacy to be learned in school starting from first grade, and the minority language literacy education to commence in the home prior to first grade.

With the sequence of literacy acquisition (English literacy to precede Japanese literacy) thus decided, the question of how early to begin instruction had to be answered. Because it was thought that much time would be needed to work on English literacy before the start of first grade, it was felt the more time available, the better. The decision to start as early as possible was further supported by research indicating that children's receptivity to learning certain aspects of language is especially prime at an early age and tends to decline with age (Newport, 1988; Doman, 1964). Newport (1988) examines why young children are superior to older children and adults at language acquisition, while at the same time inferior in other cognitive tasks. She provides a general explanation for this through examination of acquisition of complex verbs in American Sign Language. She states:

. . .the research shows a striking tendency for children—and only children—to acquire language in a particular fashion. . . [one possible explanation is that] children have a special set of skills for language acquisition which declines with age. A second possibility is that the cognitive limitations of the child provide the basis on which the child's componential learning occurs, and that the expansion of these cognitive abilities with age is in part responsible for the decline in this type of learning (Newport, 1988, p.147).

Although the above refers more specifically to the verbal aspects of linguistic acquisition, in recent years more and more research has come to show the relationship of literacy development to the overall picture of language development (Wallace, 1988).

Pioneering research on the notion of teaching infants reading, preferably from birth, can be credited to Glenn Doman (1964). Doman's philosophy is that while talking and writing are motor abilities which require skills that babies have not yet acquired, reading is a sensory ability like hearing and is received through the visual pathway. Thus reading can be learned from birth, he argues.

The original purpose of this research was to test Doman's theory, but at the same time, not to sacrifice success at the expense of principle. Throughout this study, repeated revisions in literacy methodologies came about through an evolving process of experimentation and reading about research in the field. Research sponsored by the United States Office of Education (Adams, 1990a, 1990b) and other studies (Wallace, 1988) revealed problems in Doman's methods (see Stage II below). Nonetheless, while these newer studies are critical of Doman-type of methods, they do not specifically indicate an optimal time to begin literacy instruction, nor do they contain cautions of when not to begin. It was decided at the outset of this study to incorporate other newer methods along with Doman's method and to revise methodologies throughout the process according to the needs of and learning strategies incorporated by the subject, and to be flexible in regards to other unexpected occurrences and outcomes throughout the process. Thus it was decided to begin as early as possible because it seemed to not be in conflict with new research and also for the other above-mentioned reasons. In the case of J., the decision to start as early as possible meant starting at six months of age (explained below).

This paper presents an overview of J's literacy development in three stages. The divisions of the stages were determined arbitrarily on the basis of reporting deadlines for academic purposes. However, with the continuation of the project at the completion of Stages I and II, an opportunity to re-evaluate methods and incorporate revisions created the coincidence of meaningful divisions based on method changes. Stage I of the study, running from 6 through 15 months of age (0:6 - 1:3), was reported on at the 1992 JALT International Conference in Tokyo, and is presently in press (Kamada, forthcoming). It focuses on Doman's method of teaching reading to a pre-linguistic baby. Stage II (reported on at the 1993 JALT International Conference in Omiya), covered the period of 15 to 26 months of age (1:3 - 2:2). At this stage a great deal of experimentation in methodology was incorporated, with emphasis shifting away from

the question of the optimal age to begin and the possibility of teaching a preverbal baby to read English. Now the emphasis centered on finding the "best" method of teaching literacy to a young child. Based on newer research, revisions in methods were introduced and incorporated as the subject began to produce language orally. Correlations between the subject's initial speech and early reading instruction were examined. In Stage III, covering the period from 26 to 34 months of age (2:2 - 2:10), the influence of the unintended introduction of L2 literacy, reading Japanese *hiragana*, as well as the interdependence between the two languages, were briefly examined.

STAGE I (Age 0:6 to 1:3)

Stage I covered the period of teaching a bicultural, and potentially bilingual, baby to read English from 6 to 15 months of age. The original questions dealt with in this first stage of the study were whether or not it would be possible to teach an infant to read before speaking, and if so, what would be the optimum age to begin. The initial methods used in this study to teach J. to read were based on Doman's method (1964), with modifications (specified below) to meet our own specific needs and limitations.

Doman's basic philosophy is the sooner reading is taught, the better—preferably, it should be taught from birth. Doman uses a whole word approach—referred to elsewhere (Wallace, 1988) as the "look-say method"—in which he has mothers flash word cards without pictures in front of the baby while saying the words. The cards are shown in groups of five, each with a different word on it. There are five cards in a group, and five groups are to be shown three times a day each, making a total of 25 words shown in 15 sessions daily. Doman admonishes that at least 30 minutes should be allowed to elapse between each session, and that sessions should be held when both the baby and mother are relaxed and in a good mood. Mothers are to "retire" one word from each of the five groups and introduce one new word in its place every day. This means that five new words are to be inaugurated daily, with each word shown for five consecutive days. Thus, 35 new words are introduced weekly, for a total of 150 new words monthly. Doman also stresses the use of lower case letters, written in large size and red color at first, and then in later stages, reduced in size and changed to black. He also argues that the ABC's should not be taught at first.

In attempting to apply Doman's methods, the researcher encountered a number of problems which necessitated modifications in methodology. First, a number of logistic concerns involving the multifaceted needs of a newborn made it impractical to begin teaching reading from birth: it was deemed impossible to find 15 times a day, 30 minutes apart, when both mother and child were in a good enough mood to concentrate on reading. Even when the project began after the subject was already six months of age, a number of considerations necessitated considerable revision of Doman's methods.

In addition to the timing of the inception of the lessons, it was also felt advisable to alter the tone of the procedure. Rather than rigorously following Doman's system of constant and regular drilling of words, the researcher instead introduced and practiced the reading of words in an extremely low-key manner on opportune occasions when it was felt that the subject would be receptive. Thus the lessons took the form of a "word game" played with J. This activity was not something that J. and his mother (who holds a full time job) did every day; sometimes there would be intervals of weeks in which there was no reading at all. The word game was just another of the many things that were done together in play, along with such activities as playing with puzzles, taking walks, playing in the snow and watching videos. There was no pressure involved in the process of teaching J. to read; it was an easy-going, fun process of getting acquainted with and learning to enjoy words and their meanings and the stories that they tell us in books.

Perhaps the biggest problem encountered with Doman's system, however, was the lack of comprehended vocabulary in infants. As explained above, the Doman method entails showing groups of cards, each with a different word on it; new words are constantly introduced at a pace of 35 a week. Yet infants have few words they actually know. Moreover, the lack of the "naming insight" (McShane, 1980, Foster, 1990), which begins to develop near the end of the pre-linguistic stage at around two years of age, makes it difficult for babies to understand the way in which words represent objects and concepts. Babies begin to speak sometime soon after the development of this "naming insight" which Foster (1990) refers to as the point in which children come to fully understand the symbolic quality of words. A relationship between comprehension of words, the onset of production of words through speech, and the genesis of the ability to read those words was felt to be apparent throughout the process of Stage I. Yet Doman never addressed these issues, even though his work was revised several times over the years (the latest revision being published in 1986). The researcher, feeling that trying to teach a baby to read a word which he had not yet even comprehended would be a meaningless waste of time, decided that only words which were verified to be already comprehended, based on physical responses by J., would be used. This limited the number of words which could be introduced daily or weekly. Another problem that arose

with Doman's method was that of the time logistic; even after six months of age, it simply was not possible to daily conduct 15 sessions with 30 minute intervals while maintaining Doman's rule of only teaching when both mother and child were in good moods. The tremendous amount of time required to make the word cards also made it difficult to follow the Doman regimen. The combination of limitations in the subject's known vocabulary, as well as the need to create enough time during the day for repeated intervals of calm, happy moods for both subject and researcher, and the number of cards that could practically be produced, led to the decision to show only one group of six words several times daily.

At the completion of Stage I, when J. was 15 months old, it was not clear whether he had actually been reading words or not. The single empirical result was that when the "bellybutton" card was shown, J. touched his bellybutton on several occasions. It proved difficult to verify reading comprehension when the child was not able to give verbal feedback. However, it was felt that other positive results emerged from the project. The extra stimulus of repeated sessions of talking about words, objects and their meanings was felt to have influenced the subject's verbal aural and oral development, although it was not possible to verify this empirically. The concept that symbols carry meaning was introduced, and the subject gained exposure to alphabetic symbols. It was felt that the language-specific rules of written English, such as top-to-bottom and right-to-left reading scan, were internalized by the subject and could be verified by the way in which he manipulated word cards and books.

Research supports the positive effect of such early exposure to language and reading practices. Caplan and Caplan (1977) reported that toddlers who spent 15 minutes a day with their mothers labeling and identifying objects were more advanced in speech than those children who did not have such stimulation. The importance of the parents' role was further substantiated by Verhoeven (1991b), who demonstrated that the extent of the caretaker's interaction in the first language was positively related to the child's bilingual proficiency level. The procedure employed with J. in this study created opportunities for the subject to play word games other than reading, such as naming and recognizing objects. It appeared that such efforts positively affected speech development.

Martlew and Sorsby (1995) have reported that children with superior early metalinguistic skills, especially the ability to show representational abilities in tasks of graphic notation, later showed enhanced acquisition of literacy. In their study, a task to test metagraphic knowledge was used, requiring the differentiation of letters, words, pictures and numbers. With J., it was felt that in Stage I, even before the writing aspect of literacy was undertaken, a framework was laid toward the development of his early metalinguistic knowledge when J. demonstrated the ability to recognize the differences between words, letters, numbers and pictures.

At the end of Stage I, it was not determined if 6 to 15 months was the optimal age to begin teaching reading or not. It was concluded that Doman's method might not be "the only" or "the best" method for teaching infants to read, if any existed. Rather than starting to teach a baby to read from birth, it was felt that "reading readiness" is what should be started from day one, beginning with comprehension of words and production through speech—a process normally achieved unconsciously and naturally.

STAGE II (Age 1:3 to 2:2)

The second stage of this study covered the period from 15 to 26 months of age (1:3 - 2:2). Doman's method was reevaluated in light of more recent research on the process of learning to read. In particular, one study coming out of a United States Office of Education (USOE) funded project conducted by Marilyn J. Adams (1990a) and summarized again separately (Adams, 1990b) addressed many concerns neglected by Doman. For example, unlike Doman, Adams emphasized the concept of "reading readiness" or "prereading skills", including such skills as reciting ABC's, recognizing letters (capital and lower case), being able to print a few words, inventing spellings, and hours of being read to. I would add to this such activities as watching made-for-children videos and television programming such as Sesame Street, playing with magnetic letters, and word games. Adams (1990a, 1990b) points out that becoming aware of spoken words is important in preparing a child to read. Looking at how words are broken into syllables and examining words that rhyme are two examples of activities that enhance such awareness.

In marked contradiction to Doman's method, the USOE study on first graders found that the single best predictor of first-year reading achievement was prereaders' letter knowledge (Adams, 1990a, 1990b). Simply stated, this means learning the ABC's—which Doman feels should be left until later—contributes to reading achievement. Letter knowledge includes being able to recite the names of the letters of the alphabet, usually in the form of the ABC song, and then being able to recognize and say the letters, and finally knowing their phonetic sounds. It was determined that being able to recite the names of the letters before being able to recognize them gives children an advantage. "By thoroughly learning the names first, children have a peg to which their perceptions can be attached. More than that, they have a set of conceptual anchors with which to sort out relevant and irrelevant differences in the letter's appearances

(Adams, 1990b, p. 65)." Doman does not attend to this point, as he advocates teaching infants words on cards without any such pegs in place.

In the case of J., since Doman's method was used initially, 30 words were learned without any knowledge of the alphabet. Later, the ABCs were introduced, as further reading convinced the researcher that teaching the alphabet would help—not hinder—the process of reading. It would have been impossible to ignore the ABCs anyway, as they appear in most good children's television programming and videos. However, I feel that J.'s having learned his first 30 words before having any knowledge of the ABCs perhaps made some significant differences between him and children taught in the traditional manner, with introduction of letters (ABCs) first and then progression to words. J. learned a group of words first and then later came to notice individual letters making up those words, especially the initial letters. When he would notice a capital "D", for example, in a written word he did not know, like "Dangerous", he would point and say, "Daddy." To this, my response would be something like this: "Yes, that's right. Very good. That's Daddy's D, isn't it? The same D as in Daddy."

The above USOE study (Adams, 1990a, 1990b) revealed that for preschool children, teaching upper case letters first would probably be better to start with, as capital letters are visually easier to discriminate from one another. Lower case letters should be used later for older school age children. In contrast, Doman prefers lower case letters, since that is what most print consists of. It wasn't determined in the present study which would be more beneficial in the long run. As the Doman method was used from the start, throughout this study nearly all words written on cards were presented in lower case, except for the initial capital used in proper nouns. Later, more exercises with capital letters were incorporated. Most ABC books use capital letters and perhaps because of this, J. was able to recognize and name more capital letters in isolation earlier.

The USOE study found that the second best predictor for reading success was children's ability to discriminate between phonemes auditorily (Adams, 1990a, 1990b). Knowing individual letter-sound correspondences contributed to reading achievement. Phonics is another area which Doman leaves untouched. Sounding out words and word identification instruction which establish paths from the print to spelling, speech meaning and context, while basic in Adam's study (1990a, 1990b), are not mentioned by Doman.

Another positive factor cited by the Adams study was interactively reading aloud to children; this was shown to significantly increase the learning of word meaning. By reading to children, parents actively engage their attention so that the books are not merely being read, but being enjoyed together. Parent and child together can talk about and become aware of the content of the story, the layout, the print, the pictures and relevance to their own lives.

In another study, Catherine Wallace (1988) has us consider what really constitutes reading by asking the question, "What is 'learning words?'" She opposes the use of English phonics methods in the early stages because of its emphasis on decoding over understanding of meaning. Moreover, she also attacks the notion, assumed in the word-card "look-say method", that in the reading process words are learned first. Wallace states:

This puts the cart before the horse: we learn new words best through reading. We do not learn new words in order to read. . . In fact we cannot either 'know' or 'learn' words, only meanings. . . we have to consider, firstly, the range of meanings a single word may have. . . , and secondly, the context, which makes an item more or less predictable (1988, p.75).

This argument lends support for the point made earlier about the ineffectualness of trying to teach as-yet uncomprehended words to infants. Wallace seems to be making a direct attack on Doman by making reference to the "over-anxious Mum using a Teach Your Baby to Read Instruction Kit who continually walked around with 'Mummy' strapped to her head. . . (1988, p.91)". She points out the meaninglessness of not only the use of single words on cards, but also of labeling objects with whole sentences such as, "This is a table." Wallace states, "They may be whole sentences, but they have no message; they do not tell us anything. They are communicatively empty (1988, p. 91)."

In applying the results of the above research to the case study at hand, it was decided to try to teach written words in context with relevant meaning, not as isolated words on cards. After all, we don't teach a child to speak by repeating the word, "dog, dog, dog" in a loud voice while showing a picture of the animal. Instead, a child is more apt to learn the concept in a sentence coming out of an actual event with language such as, "Oh, look at these cute dogs. This is the mommy dog and this is the baby doggy (Kamada, in press)." The same concept would apply to the teaching of reading; reading is not best learned by drilling recognition of single words on cards, but by being able to make sense of stories in books.

Conveying Personal Meaning with Pictured Word Cards

Based on the above research, a new method was adopted from the beginning of Stage II. Word cards were constructed with pictures on the reverse side; cards without any pictures were now seldom used. Nine homemade books were constructed according to Doman's method, with five pages of short phrases or simple sentences, where the flip page featured pictures or photos corresponding to the written words. For example the book entitled *Doing Things* included the following five pages of text: "taking a bath", "reading a book", "brushing teeth", "drawing pictures", and "eating an apple". The book *Everybody Loves Me* included the sentences: "Lina loves Jonah.", "Aaron loves Jonah.", "Grandma loves Jonah.", "Sarah loves Jonah.", and "Mommy loves Jonah.". *Playing with Wataru* had the following phrases: "looking at monkeys", "going for a ride", "pointing at horses", "touching a goat", and "holding a rabbit". *Daily Life* featured: "shoveling snow", "Baby is crying.", "Jonah is sleeping.", "helping Mommy", and "Jonah is dancing.", and *Our bodies* included: "Lina's teeth", "Daddy's legs", "Mommy's hair", and "dirty face". Most of these books were made with photos of J. and his friends or family members in situations that he remembered with enthusiasm.

The procedure used with both the Stage II word cards and the picture books involved showing J. the printed page first, reading while pointing to the words, and then flipping the page to show the picture. Sometimes the process would involve asking questions while pointing to the words, such as, "Whose legs?" This would be followed by the correct answer, "Daddy's legs." Another technique that was used was to leave the last word of a sentence unread, for example, "Baby is . . .," then pausing, and finally going on to complete the phrase or sentence, i.e., "Baby is crying."

As soon as J. began speaking words clearly (about 24 months of age), another book called *My First Words* was made with five of J.'s first spoken words: "car", "banana", "doctor", "natto" (fermented soybeans), and "Mommy". It was decided to see if produced (spoken) words would be easier to read, and it was felt that at least comprehension could be verified on the basis of verbal response. This technique seemed to make a big difference, if for no other reason than that the first spoken words carried more emotional significance than those comprehended words which had not yet been produced orally. From that point on, new reading words were selected from J's most recent newly verbalized words. It was felt that this reading game triggered a spin-off effect, enhancing J's verbal skills, as many words heard even only once were immediately being drilled orally as well as visually as words on cards.

Using Initial Speech Production to Stimulate Early Reading

Up until this point, the main technique of trying to teach reading involved showing a word card, reading it verbally myself, showing a picture of its meaning, and occasionally asking questions to try to illicit some feedback from a pre-verbal baby. Usually there was little or no feedback, nor was feedback expected. The main goal had been to try to maintain J's attention and stimulate his interest and enthusiasm. However towards the end of Stage II, with the development of speech production, for the first time feedback could be stimulated and comprehension tested. The opportunity to seize upon this new approach was taken just after J.'s second birthday.

Previously, J. had pointed to his eye on several occasions when shown the "eye" card, but not consistently enough on every trial to verify that he was actually reading. This was at 1:5, before J. had spoken the word "eye". A few months later, J. began speaking and the "naming insight" was evident. Because of this earlier experience, it was decided that "eye" would be an easy reading word to "start over with", since the word itself almost looks like a pictograph of an eye, with the "e" as eyes on either side of the nose (the "y"). A card was made with the word "eye" written in black on one side, while on the back side, a picture was made with the eyebrows drawn over the e's of the word "eye" and a smile drawn in to make the meaning clear (see Figure 1).

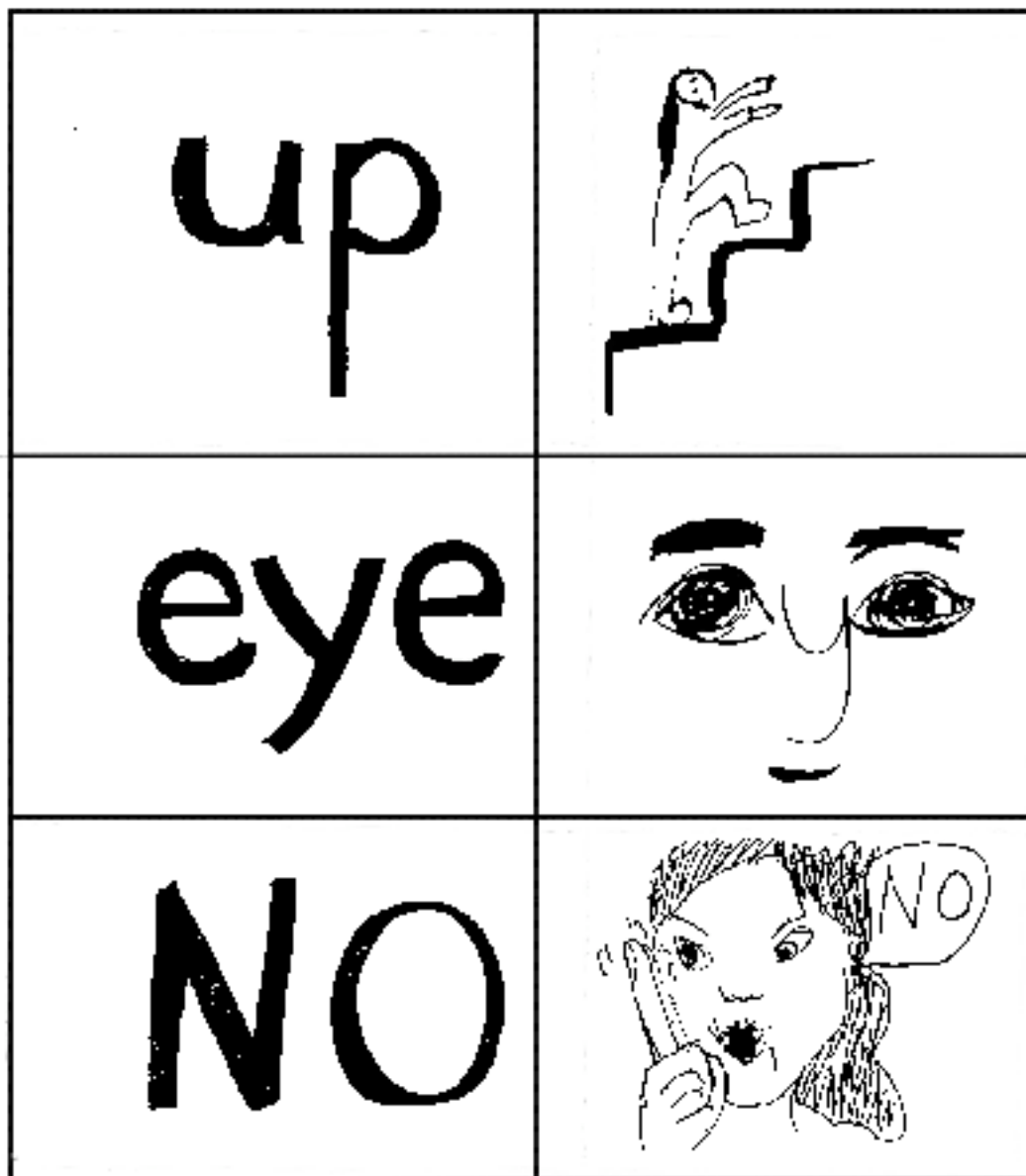
Another innovation adopted around this time involved the word "no". A Sesame Street video included the song "NO, NO, NO, NO" which J. liked very much. In the visual portion of this song, the word "NO" itself appears on the screen several times in red capital letters. I therefore made a card with the word "NO" in red capital letters on it and held it up to the TV screen when the video song was on. After this was done only one time, J. could recognize the word "NO".

I then wondered whether J. was able to read this card only because it was written in red, since the other cards that were being focused on at that time were all written in black. I therefore decided to make another word card in red. A word was chosen which J. had recently come to love to say as he climbed steps: the word "up" (see Figure 1). J. also learned to recognize this word in a matter of minutes. Thus, it was determined that the color of the letters was not the deciding factor in J.'s ability to read these words.

At 2:1, J. orally read his first three words from cards—"eye", "NO", and "up"—and was documented on video repeatedly orally reading these words, proving that it was possible to teach "reading" with the Doman method at this early age.

By the end of Stage II, apart from this breakthrough, it was also felt that basic pre-reading skills such as knowledge of some of the letter names had been acquired. The ABC song had also been introduced and partially memorized. Perhaps the best result coming out of Stage II, however, was J.'s enthusiasm born out of his love of books and being read to and the joy of playing the word games.

Figure 1: NO, eye and up are the first three words that J. learned to read at 2:1. On one side of the card the word is written. On the flip side is a corresponding picture.



STAGE III (Age 2:2 - 2:10)

Stage III covers the period from the age of 2:2 through 2:10. With surprisingly little effort and long recesses between practice sessions, further progress was made in reading English, while the main Japanese syllabary was also introduced-leading to the inception of biliteracy.

In this stage, the method of introducing new reading words was again revised slightly through spontaneous innovations on the researcher's part. Cards were folded in half like a greeting card, with the vocabulary word written on the outside leaf, and the card opening up to show a picture inside. Every word card from this point on was made in the presence of J. at a moment when the word to be written emerged

in conversation or games. A point was always made to choose words which first of all, J. had verbalized, and secondly, that he was enthusiastic about or that had special meaning for him. With J. watching, words would be written while each letter was voiced, usually with J. repeating thereafter. Then one of J.'s books would be selected in search of a picture of the word to aid in illustration of it, and finally, a picture would be drawn on the inside of the card.

At 2:2 and now into Stage III, although just a week or two after the successful reading of J.'s first three words at the end of Stage II, cards were made in the above style for three of J.'s favorite words: "bones" (picture of a skeleton), "key" and "bug". J. was able to read all of these after a few drills (about 10 minutes), while he also maintained the ability to read the three words he had previously learned—"NO", "eye" and "up"—for a total of six words. A few weeks later, still at 2:2, the following words were added to his reading vocabulary: "ball", "apple", "bird", "lion", "car", and "clock". At 2:2, J. was documented on video reading these 12 words repeatedly. A month later at 2:3, he was documented on video reading 30 words. As with the previous words, he was able to read most of these whether they were written on cards or written by hand on paper. At this time, he was also able to read some names of people and most of the symbols for the numbers 1 through 10. At 2:3, his newest reading words consisted of: "Mommy", "Daddy", "Lina", "Jonah", "spider", "airplane", "big", "little", "cat", "dog", "feet", "laughing", "crying", "dinosaur", "doctor", "banana", and "natto".

Preparation for a trip to the Japanese grandparents' house for the New Year's holiday prompted me to prepare some cards with the names of family members in *hiragana*. Four cards were prepared in *hiragana*: おばあちゃん (*Obaachan*—grandmother), おじいさん (*Ojisan*—grandfather), and two cousin's names: もも (Momo) and なおき (Naoki). Motivated in part by his strong adoration of his cousin Momo, J. was able to recognize the *kana* も (mo) almost immediately. The other new *hiragana* word cards were read correctly on occasion, but not consistently by New Year's. In much the same way that he was able to recognize initial letters attached to unknown English words as mentioned above, J. could pick も (mo) out of Japanese writing. and he would often point to this *kana* and exclaim with enthusiasm "mo."

Understanding and Producing New Language Through Reading

At about the same time, when J. was still 2:3, an interesting development occurred. Although he had already verbalized some two-word phrases, the researcher decided to induce him to produce different two-word phrases by placing two word cards beside one another to create expressions that we had not yet heard him say. Using the cards in this way, I was able to get him to produce a number of previously un verbalized phrases, including "big bone", "little bone", "big ball", and "little ball" (Kamada, in press).

Later, twelve short sentences or phrases which J. had already produced orally were written on cards as follows: 1) "Baby is crying.", 2) "Mommy's car", 3) "Daddy's key", 4) "kick ball", 5) "Daddy's kick ball", 6) "Jonah's kick ball", 7) "Jonah, do it.", 8) "Jonah's cracker", 9) "big ghost", 10) "big spider", 11) "Get up Daddy.", and 12) "Daddy's office." By 2:6 Jonah was able to read all of these cards and about half of the contents of the homemade books mentioned above. A month later, two more phrases taken from a book were learned: 13) "knock, knock, knock", and 14) "Heckedey Peg".

When the card "Get up Daddy." was shown, J. often read it as "Daddy get up." because the first word he noticed was "Daddy", and next he recognized the familiar word "up." From there he could complete the reading without even having learned the word "get", which he could not read in isolation, as it carried no meaning for him. J. always received positive praise for reading it backwards, with a subtle correction following: "That's right. Very good, 'Get up Daddy'." In actual conversational usage of the phrase, J. usually pronounced it as "Gup Daddy." However, seeing the familiar word "up" perhaps created a context in which reading enhanced speech.

For a while, J. was very enthusiastic about deciding what to write on the cards. According to his mood on a particular day, he chose phrases such as "Jonah's cracker" or "Jonah's kick ball." However, at one point, circumstances including illnesses led to a recess of nearly two months. I found that after that long break, J. showed less interest in reading words. I did not actually think he had forgotten the words, but it took much more prompting to get him to respond properly. On the other hand, with practice, he improved rapidly, indicating to me the importance of keeping up the lessons in order to prevent attrition.

Introducing Japanese Hiragana

At 2:5, I began working with J. on Japanese literacy more seriously. There were a number of reasons for diverging from my earlier plan to let J.'s Japanese literacy wait until he entered elementary school. First of all, after the New Year's experiment of introducing a few words in *hiragana*, it was decided that there would be no loss of English by also having fun with Japanese.

It was also felt that perhaps a vacuum might develop in regards to Japanese reading input and, as

mentioned above, since being read to is considered one of the most significant factors in acquiring early literacy, I wanted to fill this gap. The importance of being read to is summed up clearly in Adams' study: "The single most important activity for building the knowledge and skills eventually required for reading appears to be reading aloud to children regularly and interactively" (1990b, p. 124).

J. had a lot of Japanese books and magazines that he had received from cousins and friends that he liked very much and I started to occasionally read to him in Japanese at his request. At one time I had thought that I should only read to J. in English, as I was his source of English input, and that if I were going to deal with Japanese books at all, I should translate them into English as they were read. I never consciously rejected such consistent application of the one-person/one-language approach; the switch into my reading Japanese books in their original was more of a natural, spontaneous process in which it was found that sometimes with good Japanese books, the Japanese onomatopoeia were so wonderfully fun that it would be a disservice to attempt an English translation. Also it was felt that if a child can become bilingual by hearing two languages simultaneously in the environment, why wouldn't it also work for biliteracy? Some may argue that literacy in one language of a bilingual child should be achieved perfectly before moving on to the other. However, it was felt that since these early years are the most impressive for early imprinting, as demonstrated in the research by Newport (1988) cited above, pre-reading exercises should not be limited to English only.

Moreover, it was felt that Japanese instruction might actually contribute to J.'s understanding of English reading. Lockett (1994) lent support for this concept in his report on his bilingual child's reading development. The child was having trouble learning to read English, her L1, because of the difficulty of English phonics. While continuing to struggle with English decoding, she more quickly learned to read Japanese *kana*, with its simpler syllabic breakdown and one-to-one correspondence between symbol and sound. Her ability to read Japanese allowed her to internalize the concept of reading analysis. Later on, she was able to apply strategies similar to those used in reading *hiragana* to sounding out words in English. Thus, the introduction of literacy in her second language, far from hindering progress in her first language literacy, actually helped her overcome her problems in reading her L1.

Such arguments notwithstanding, the primary factor in my decision to start teaching Japanese literacy was the fact that J. showed a strong interest in *hiragana*, and Japanese reading could simply not be ignored. Much as English videos had started teaching J. the alphabet, Japanese children's television programming had already begun teaching him the basic Japanese syllabary, and he strongly desired to learn more. When I was reading Japanese children's books to him, J. would often point to those few *hiragana* that he knew and shout them out in glee, saying, "mo", "a", or "o". This also occurred with words that were seen outside of books, such as those printed on posters and signs.

Meanwhile, J. continued to also notice and point out letters of the alphabet and numbers. It was therefore decided to continue concentrating on English reading, but without prohibiting Japanese. An endeavor would be made to teach recognition of both the ABC's and *hiragana*, then we would move on primarily to reading English words and phrases while continuing with Japanese to a lesser extent.

Thus, there are now two charts displayed in our living room—one showing the ABC's and the other, Japanese *kana*. In addition, J. also has a *hiragana* block set. Some of the sample pictures that go with the *kana* on the wall chart were different from those on his blocks, and this caused some confusion. For example, on the blocks, a monkey (*saru*) was used to represent the *hiragana* さ (*sa*), but on the wall chart, the picture of the monkey was used for る (*ru*), as there is a paucity of Japanese words with an initial *ru* (る) sound. Another problem was that some of the things represented by pictures on the wall chart, such as *asagao* (morning glory), were unfamiliar to J. To ameliorate this problem, revisions were made by simply taping pictures over those on the wall chart, or sanding off and repainting the blocks, so that the two sets matched. There were a few extra blocks in the set, so on one じよな (*Jyona* = Jonah) was written in *hiragana* and a photo of him was taped on the reverse side. On another block, only じよ (*jyo*) was written. Thanks to these revisions, made with J. looking on and "helping", he was able to put these *hiragana* to memory almost immediately. By 2:6 J. could read at least the following 10 *hiragana*: あ、お、か、さ、じよ、な、ま、り、る、and ん (*a, o, ka, sa, jyo, na, ma, ri, ru, and n*).

Starting to Write

When J. was 2:8, he began using his knowledge of reading to develop writing skills. During a session of playing with English word cards, a few new cards were made with J. looking on as usual. Although I felt it was time to finish, J. indicated he wanted to do "more words". This time he wanted to write some of the words from one of his favorite videos. In which there is a line where the actor says, "Look at all the colors." He wanted the word "colors" written out, but for a change, he wanted to write it himself. Usually strictness was enforced about not letting J. destroy the cards, but this time it was thought

that he should be given a try. He was handed a card with only the lines drawn on it and on another piece of paper he was shown how to write the word letter by letter. Then once again, each letter was gone over slowly together with him. J. proceeded to accomplish letter by letter—be it imperfect, nevertheless—a milestone: the successful transcription of his first word, "colors". This led me to conclude that correlative to the finding that reading interactively to children will contribute to early literacy (Adams, 1990a, 1990b), demonstrating how letters and words are formed in this type of a playful manner might well also contribute positively to early writing proficiency.

A month later at 2:9, it was felt that another breakthrough had been reached, but this time with *hiragana*. J. could already read じょ (*jyo*), な (*na*) and り (*ri*) in *hiragana*, but now, by placing *hiragana* blocks side by side, he was able to form his name じよな (*Jyo-na* = Jonah) and his cousin's name りな (*Ri-na* = Lina) by himself—another milestone, this time in understanding how *kana* fit together to make words. By the end of Stage III, at 2:10, J could sound out and read Japanese words made up of the *hiragana* which he knew, which comprised about half of the *kana* syllabary. For example, he could read printed words such as おかあさん (*okaasan*—mother) and あか (*aka*—red). ありがとう (*arigatou*—thank you) was sounded out as ありかとう (*arikatou*) at first. This was due to the fact that J. had not practiced reading the voiced consonant-vowel combinations such as "ga" and thus he was attempting to read by decoding what he thought was written. Later he was able to combine decoding and whole-word, meaning-centered approaches to sound out words correctly. Although letters of the alphabet also fit together to make words, J. had not yet internalized the function of English phonics, as the breakdown in English of phonemes is more complex than the syllabic chunks of the Japanese *kana*. By the end of the experiment, then, J's English reading was still mainly based on sight reading techniques.

CONCLUSION

Although there was no clear image of what to expect at the outset of this study, it was hoped that reading ability would develop in the subject as early as possible. The philosophy maintained throughout was that learning and remembering would be achieved through positive emotional experiences. An endeavor was made throughout to create such experiences when teaching.

Some of the original questions asked at the outset of the study were left unanswered. The optimal age to begin teaching reading was not determined. Even if we do assume that the earlier one begins to teach reading, the better, it was not determined if any reading was actually taking place before the naming insight developed around the age of 2 years. For this reason, as well as others involving logistics and the advisability of teaching the alphabet first, many questions remained about the Doman method.

Nonetheless, it was with delight and surprise that success with the Doman method was first realized when the subject was heard reading his first three words shortly after his second birthday. This initial development was later reinforced when the subject demonstrated ability to read over 30 words by 2:3. Three months later, he could read at least 12 sentences or phrases and by the end of the experiment at 2:10, he could also read about half of the Japanese *hiragana* syllabary. He demonstrated analytic ability to sound out and read at least 10 Japanese words made up of combinations of those symbols. He also demonstrated the ability to put *hiragana* word blocks together to form words and names in a synthetic process, and had begun to learn to write English words as well.

According to definitions of what does or does not constitute reading (Wallace, 1988), it may be questionable as to whether or not the subject was actually "reading" by the end of the experiment. Nevertheless, it was felt that much progress was made before the age of three in the subject's reading readiness and metalinguistic development. Consideration of Adams's (1990a, 1990b) findings that letter knowledge and the ability to discriminate between phonemes in preschoolers contributes to their later reading success set the background for a revision to the approach towards methodologies used with J. in the later stages of this study. Use of ABC and *kana* wall charts, the spelling out of words and introduction of first letter names and beginning sounds was felt to positively contribute to metalinguistic development and reading readiness in the subject. This included not only being able to understand differences between words, letters and numbers, but also being able to understand that written words are symbols which carry meaning and represent real things. By 2:10, the subject was able to name the letters seen in written words and to identify through oral production a number of English words, phrases and simple sentences written on cards. The subject was then able to transfer this metalinguistic understanding to the learning of Japanese *hiragana*.

Aside from the above concrete results, it was also felt that the subject, through the process of this experiment, acquired an intrinsic interest and curiosity about words, books and stories that may well improve the prospects for his eventual biliteracy.

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