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# How do Language Modalities Affect the Learners?

A Cognitive Account of Ogata Program Data

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Cognitive science has been developing rapidly and drastically in the last few decades, and so has cognitive linguistics as its sub-field. Theoretical advances are made as cognitive science has tried to incorporate brain science, or neurological findings in its theoretical components and architecture. This short article presents our re-analyses of some of the data we observed in Ogata Program from a cognitive point of view.

The rest of the paper proceeds as follows. In sections 1 and 2, we outline Ogata Program, and reiterate some of the major findings in Watanabe & Watanabe 2010. In Section 3, we discuss them from a cognitive point of view. Two theoretical notions pertaining to our analyses are also provided in Section 3. We argue that spoken modalities seem to facilitate learning while written modalities cause some difficulties. Section 4 makes some concluding remarks.

## 1. Ogata Program

Ogata Program is an English immersion program<sup>3</sup>, where the student learns English by participating in various activities in English such as Total Physical Response (TPR), *phonics*<sup>4</sup>, games, etc. The program has been offered at Ogata Elementary School in Ogata Village, Akita Prefecture, Japan. The program is the school's official "English Activities" class that is allowed within the current National Curriculum, and is run by a private company<sup>5</sup> on a contract with the village. The classes are offered once a week for 45 minutes for a total of 35 sessions in a year, from the 3<sup>rd</sup> grade through the 6<sup>th</sup>. So a student who completes the program will have had 140 sessions, or 105 hours of instruction, by the time s/he graduates the elementary school. The outsourced private sector provides the native English-speaking instructors, along with course designing, teaching materials, and coordination among

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<sup>3</sup> In our earlier papers, we called a similar program (administered in Iwaki district of Yuri Honjo City, Akita Prefecture, Japan), "pseudo"-immersion program because technically, an immersion program teaches other non-language subjects in English and this program didn't. Ogata Program is pseudo-immersion in the same way except that the program in Iwaki was a 6-year program while Ogata Program is a 4-year one (for the 3<sup>rd</sup> graders and above). However, we choose not to make the technical distinction in this paper.

<sup>4</sup> *Phonics* is an important component of Ogata Program. In *phonics*, students learn names and shapes of alphabets, sound(s) represented by each alphabet, sound patterns in English and their spelling conventions, etc.

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involved parties. The homeroom teacher attends all the sessions, and assists the language instructor.

Major components of the program are TPR (Total Physical Response), *phonics*, and games. No Japanese explanation is given on the word meanings or the grammatical structures of the utterances used in activities, and the class is conducted entirely in English. Thus, Ogata Program is different from “traditional” English courses offered in Japan<sup>6</sup>, with target expressions or grammar points explained in Japanese, and word-by-word explanation/translation occupying a major component in class. For more detailed descriptions of the programs developed by Ahlstrom and Associates Incorporated, including Ogata Program, see 渡部 (2006), Watanabe (2007), Watanabe & Watanabe (2007), and Watanabe & Watanabe (2010).

## 2. Some major findings from Watanabe & Watanabe (2010)

In Section 2, we reiterate some of the major findings first reported in our preceding paper. The findings are presented in the following three categories for the sake of simplicity: comprehension, English outputs, and implicit learning.

### 2.1 Comprehension

One of the most striking characteristics of Ogata Program is the students’ very high comprehension skills in spoken English. The English program is conducted 100% in English. Visitors may wonder if they really “understand” the instructor sufficiently. We believe they do<sup>7</sup>.

One claim that we put forward for the students’ high comprehension skills in our 2010 paper is top-down comprehension. Top-down comprehension is a type of understanding process that is achieved by assembling pieces of information from one’s pre-existing knowledge and physical environment/circumstances, along with linguistic information. Top-down comprehension is usually more intuitive than analytical.

In fact, top-down comprehension is encouraged, and facilitated in Ogata Program. A key teaching technique is to make the content “visible” when the instructor speaks. Typically, visible information such as physical objects and movements, pictures, and facial expressions is provided in the instruc-

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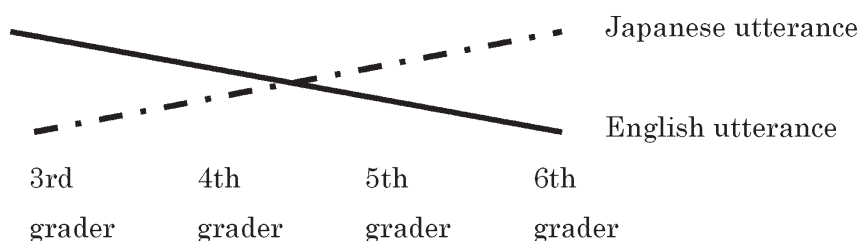
<sup>6</sup> Meysen Academy in Sendai City, Miyagi Prefecture, Japan, offers an English program that adopts similar objectives and teaching principles. The program emphasizes learning English through experience, not explanation in Japanese. The program is offered for kindergarten children, and is extended for elementary school students. For more information, contact Timothy Broman, the curriculum developer.

<sup>7</sup> We provide our analyses based on cognitive notions in the following section.

tion. Therefore, students successfully reach comprehension by looking at, as well as listening to, the instructor.

## 2.2 English outputs

English output manifests another interesting aspect of Ogata Program. The general tendency is that the students' Japanese utterances while playing the games outnumber English utterances as the grades go up. The general tendency is shown as in the following schematic figure presented in Watanabe & Watanabe (2010) :



We also noted then that spontaneous (i.e. unconscious) Japanese translation appears, and Japanese-accented English pronunciation increases as the grade levels go up. In other words, decreased English output, emergence of automatic Japanese translation, and increased Japanese-accented English pronunciation take place around the same time.

We speculated such tendencies are due to the development of Japanese. As the students proceed in grades and become older, their linguistic skills in Japanese develop accordingly. By the time they are the 6<sup>th</sup> graders, their command of Japanese exceeds their limited English, and they are smart enough to use Japanese to win a game. Interestingly, Japanese translation spontaneously uttered by Ogata students always correctly reflects the meaning of the corresponding English utterance of the instructor: word-by word translation, as often produced by learners of English in Japan, is never heard in Ogata Program.

## 2.3 Implicit learning

In Ogata Program, many skills pertaining to language acquisition seem to be learned by the students, while the program does not necessarily focus on such skills with explicit instructions. Phonological phrasing is one such skill. The 6<sup>th</sup> graders often repeat what the instructor says, and they repeat a phrase, such as “on the desk”, and even longer phrase such as “Don’t play with the card”, per-

fectly preserving their phonological structures. They stress so-called content words (such as *don't*, *play*, and *card*), and they don't put unnatural breaks between words<sup>8</sup>.

Word semantics and grammatical structures seem to be learned implicitly too. For example, in the TPR session of the 3<sup>rd</sup> graders' class, the instructor said, "Point to a boy (or a girl)" without any action. The students physically responded to the instruction quite naturally and correctly. They not only know the meanings of *point to*, *boy* and *girl*, but also know the phrase, *point to xxx*, is an imperative. In the TPR portion of the 4<sup>th</sup> graders class, the instructor said, "Touch the desk," and the students touched the desk, but when the instructor said, "Touch the ceiling," they laughed because they were ordered to do what is impossible. No grammatical explanation in Japanese, or Japanese translations of the word meanings are provided in the program.

### 3. The data and analyses

So, what do Ogata students learn, and how? In this section, we present more observation data, and discuss them from a cognitive linguistic point of view. We first provide two analytical tools for our analyses: *material anchor* and *frame*.

#### 3.1 Our analytical tools

Material anchor is a cognitive notion, and it refers to any cultural, and/or physical object that triggers or evokes a body of mutually-associated pieces of knowledge, or skills in our mind<sup>9</sup>. For example, clock is such an example. When we see a clock on a wall, it triggers/evokes a body of associated pieces of knowledge that a day is composed of 24 hours, that one hour is composed of 60 minutes, that a one minute is composed of 60 seconds, that the narrowest hand indicates seconds while the shortest hand indicates hours, and so on. So, by watching a clock face, we not only see those hands are moving, but also "read off" such concepts. Linguistic expressions are material anchors, too, as

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<sup>8</sup> We have found a similar phenomenon in a junior high school English class before. (The students at this school all learned English in a program similar to Ogata Program at the elementary school.) A female student was asked to stand up and read the text aloud. She stumbled at a prepositional phrase "in the park." The last word was blanked out in the sentence, so she had to recall it from her memory. After a few attempts, she remembered the word, and she repeated the entire prepositional phrase, not just the missing word. This indicates that this student has a rudiment grasp of phrase structure. Most Japanese learners of English would only say the missing word in a situation like this. Even when they read aloud after a model provided by the teacher or the CD, they tend to ignore the chunking and read word-by-word. For more descriptions of this phenomenon, see Watanabe & Watanabe (2007).

<sup>9</sup> Fauconnier and Turner (2001: 210-214) discuss watch, gauges, money, tombs, graves, ashes, cathedrals, and so on as examples of material anchors. Interested readers are invited to the original book.

such mutually-associated concepts will be triggered or evoked when one hears expressions like “It’s ten thirty now. Hurry up.”

Frame<sup>10</sup> is another cognitive notion that pertains to our analyses. It refers to a body of mutually-associated pieces of knowledge, or skills evoked in one’s mind<sup>11</sup>. For example, playing a game assumes a variety of mutually-associated pieces of knowledge of the game and its rules. The pieces of knowledge are intriguingly associated with one another, and compose a ‘game frame’ together. Skills that are manifested as motor movements are called frame, too. For example, the articulation of the English phoneme / p / is a ‘phonetic frame’ of the speaker: the speaker coordinates his/her oral and respiratory movements in order to articulate the speech sound.

## 3.2 Spoken English

Spoken language is an acoustically-represented language. In general, spoken language is an effective material anchor, and it triggers or evokes one’s frames very easily. This rather traditional view is confirmed in our data.

### 3.2.1 Comprehension

Spoken English evokes a very rich frame, and this is the most striking fact about Ogata program. The following data illustrates our point.

<Observation data 1> The instructor explains to the class how to play the game. One boy smiles and starts to *play out* some of the involved movements and actions in the game. He *plays out* his opponents’ roles too. The instructor, then, asks the class how to choose the winner in the game. The same boy *plays out* how to choose winner in the game, too. [3<sup>rd</sup> graders, February 26, 2010]

The above data clearly shows that the boy understands the instructor very well: The instructor’s English successfully triggers/evokes the student’s game frame, and his game frame is manifested by his gestures and movements in this case. In fact, the boy plays out his game frame as if he responds to the instructor’s words.

Students’ possession of good game frames is suggested by the following data as well, where the

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<sup>10</sup> Other terms such as *schema*, and *script* have been proposed in the literature to discuss similar concepts. We use the term *frame* in this paper, following Fillmore (1982), 金水 and 今仁 (2000: 167-168), 鎌田 and 渡部 (2010).

<sup>11</sup> This of course assumes neural activation patterns in our brain. Thus, frame is a set of neural activities, and has a neural substratum (i.e. firing and connecting of involved neurons) (Feldman 2006, Gibbs 2006). Hall (2010), for example, states that many different parts of brain are activated, and communicating to one another very actively, when one is involved in mental activities such as decision making, compassion, or patience. In this short article, however, we do not discuss the issue further.

instructor and the students negotiate the rule(s) of the game for the day.

<Observation data 2> The instructor announces to the class that he is going to add a new rule to the game : when the student loses his/her cards, he/she goes to the instructor to obtain a new card and continue playing the game. The students understand the new rule easily. [3<sup>rd</sup> graders, October 16, 2009]

<Observation data 3> Before beginning the *please* game<sup>12</sup>, the instructor asks the class to raise their hands and express preferences for some of the game rules. Some students verbally express their preferences too. [3<sup>rd</sup> graders, February 26, 2010]

<Observation data 4> At the beginning of the *ship* game<sup>13</sup>, the game rules of the day are negotiated and decided on between the instructor and the students. [5<sup>th</sup> graders, February 26, 2010]

<Observation data 5> At the end of a game, the instructor and the students count up their earned points to see who has won the highest points. The students clearly understand the counting system of the game. [6<sup>th</sup> graders, February 26, 2010]

<Observation data 6> In the *one left* game, the instructor goes around students' groups, and asks if they are in the first session or the second session of the game, saying "First round or the second round?". The students answer the question immediately. The instructor also asks who has won in the first round, saying "Who is the winner in the first game?" The students point to the winner immediately. [6<sup>th</sup> graders, September 3, 2010]

These pieces of data suggest that the students have acquired fairly firm game frames, because otherwise, they would not be able to negotiate details with the instructor. The students interact with the instructor in English, and this clearly shows that they understand what is being asked and what is being negotiated in English.

The students' high comprehension in spoken English is also observed in the classroom instructions<sup>14</sup>, as the students react to the instructions naturally and spontaneously. See below.

<Observation data 7> The instructor says "Relax" to the students, when the class becomes too noisy. The class becomes quiet. [3<sup>rd</sup> graders, February 26, 2010]

<Observation data 8> The instructor says "Volunteers?" to the class when he wants help with

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<sup>12</sup> The *please* game is a type of TPR activity. Students perform commanded actions only when the oral instruction, expressed in an imperative sentence, is started with the adverb *please*. They must not respond to a command without the initial *please*.

<sup>13</sup> The rules of the game are quite complicated. The authors were unable to understand the rules completely during their observation visits.

<sup>14</sup> This may seem trivial to some readers, but the authors have seen many university students fail to react to even a very simple English class instruction at times. This means that spoken English has not become their material anchors yet after years of formal English education.

handing out class materials. Some students stand up instantaneously, and help the instructor. [4<sup>th</sup> graders, February 26, 2010]

<Observation data 9> The instructor says to the class, “Please make groups.” The students immediately start moving their desks and chairs to form groups. [5<sup>th</sup> graders, February 26, 2010]

<Observation data 10> The instructor says to the class “Please make a group of four”. The students respond to the instruction immediately. [6<sup>th</sup> graders’ class on February 26, 2010]

TPR is a very important component in Ogata program, and these classroom instructions are considered as TPR activities in an extended sense. The students’ responses to these instructions are very natural and spontaneous<sup>15</sup>. The students’ high level of comprehension in spoken English is indicated in the following episode, too. The instructor’s monologue lasted about 30 seconds, and the students listened to him focused, nodding, and amazed.

<Observation data 11> The instructor notices, upon entering the classroom, that the class has had major seat assignment changes. The instructor points that out, and recalls verbally who was sitting here and there previously. The students confirm his memory, in some amazement. [4<sup>th</sup> graders, February 26, 2010]

### 3.2.2 Producing English sounds

Spoken language triggers/evokes a phonological frame very well, too. In the following data from a *phonics* exercise, the students react to the instructor’s spoken instruction very naturally.

<Observation data 12> In a *phonics* exercise, the instructor asks the class to name words that start with the consonant / s / or / k /. The students immediately response to the instructor, and say words such as spaghetti, spider man ; cup, coffee, café au lait, etc. spontaneously. Many of the words are not taught in the program. [3<sup>rd</sup> graders, February 26, 2010]

This data suggests that spoken triggers given by the instructor evoke students’ knowledge of English phonology successfully. Spoken English, i.e.) a stream of acoustic sounds, helps them name the words from their memory.

Interestingly, Japanese accented pronunciations are rarely heard in oral *phonics* sessions. We noted earlier (Watanabe & Watanabe 2010) that Japanese accented pronunciations are notable in upper graders’ classes, but this does not hold true when the students are engaged in sound-focused (as opposed to meaning-focused) activities like *phonics*. So, the following pieces of data seems to sug-

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<sup>15</sup> If we use a more technical word to describe the phenomenon, the students’ reactions are *reflexive*. The students react via a very fast, unconscious neural processing.

gest that spoken English is a better material anchor to trigger the English phonological frames, and, thus, contributes to controlling the learners' oral outcomes.

<Observation data 13> The instructor pronounces a set of words, and the students repeat the instructor. The set of words include English sounds / əɹ / as in *surfing*, *sunburn*, *bird*, *girl*, *flower*, *ladder*; / wɔɹ / as in *worm*, *world*; / ɑɹ / as in *car*, *arm*; / ɔɹ / as in *corn*, *cork*. No obvious Japanese pronunciations of the words are heard. [5<sup>th</sup> graders, February 26, 2010]

<Observation data 14> The instructor points to a card on which the names of the months are written in Japanese. The instructor pronounces the English names of the months, pointing to the Japanese names on the card. The students repeat the instructor's model pronunciation, and the English syllable structure such as /-rɪl-/ in *April* is well preserved. No obvious Japanese pronunciations are heard. [5<sup>th</sup> graders, February 26, 2010]

<Observation data 15> The instructor reviews the names of the months very quickly. The students repeat after the instructor. American English sounds such as low back vowel / ɑ / as in *October*, and the syllable structure /-rɪl-/ in *April* are preserved. English consonant / r / as in *four* is also heard. [6<sup>th</sup> graders, September 3, 2010]

These examples seem to suggest that spoken English triggers/evokes the students' English phonological frames better and successfully. This, of course, results in producing better English pronunciations.

Another good example of spoken English as better material anchor comes from the following data, in which English phonological structures appear to be learned implicitly<sup>16</sup> by the students. See the example below :

<Observation data 16> Some students repeat the instructor's English, preserving natural phonological structures such as *on the desk*, or *Don't play with the card* as a phonological unit. [6<sup>th</sup> graders, October 16, 2009]

<Observation data 17> In a class activity, an interrogative sentence such as *When is your birthday?* is produced with a natural prosodic break as in, / When is / (brief pause) / your birthday?/. [6<sup>th</sup> graders, September 3, 2010]

If these features are considered to be major properties of spoken language, spoken language is a good material anchor, and, thus, a good teaching tool for the learners' phonological acquisition processes.

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<sup>16</sup> No explicit instruction is given to the students in the program as to how to assign phonological structures (i.e. phonological phrasing) to a stream of English sounds.



### 3.3 Written English (reading and writing alphabets)

When compared to spoken language, written language, i.e. graphic representation of language, does not seem to be a very easy material anchor to beginning learners. In fact, learning English alphabets may take more than a few years<sup>17</sup>, and the learner's intensive learning efforts are necessary. This prominent nature of written language is witnessed in Ogata Program.

#### 3.3.1 Reading

Generally, students may need a few years of *phonics* training before they feel confident in associating English alphabets and their sounds. See below the progression over the years:

<Observation data 18> Some of the students fail to articulate the sounds that English alphabets represent by just looking at the physical shapes of the alphabets. [4<sup>th</sup> graders, February 26, 2010]

<Observation data 19> Diagraphs *wh* as in *whale*, *wheel*, *ck* as in *back*, *ph* as in *telephone*, *elephant*, *sh* as in *shoe*, *shirt*, *ch* as in *chair*, *chicken*, and *th* as in *throw* are correctly pronounced as / w /, / k /, / f /, / ʃ /, / tʃ /, and / θ / respectively. [5<sup>th</sup> graders, February 26, 2010]

<Observation data 20> The students look at words like *table*, *desk*, *chalk*, *tree*, *pencil*, *book*, *eraser*, *clouds*, *crayons*, *brush*, etc., and can pronounce the words from the spellings. [6<sup>th</sup> graders, February 26, 2010]

Reading off the English sounds from their spelling conventions does not seem to be an easy task for lower graders, and it requires a few years of *phonics* training in Ogata Program. So, in this sense, graphic symbols (i.e. alphabets) are not very easy material anchors to trigger/evoke one's phonological frames.

It is, thus, worthwhile to point out here that images (i.e. drawings or illustrations) help the students retrieve their phonological frames in English. The following observations illustrate this point:

<Observation data 21> The instructor shows the students a set of *big cards*<sup>18</sup>, and asks them to say English words such as *clouds*, *eraser*, *CD* etc. The students say the words very easily by looking at the drawings on the *big cards*. [6<sup>th</sup> graders, February 26, 2010]

<Observation data 22> The instructor shows the students a set of *big cards*, and asks them to say English words that contain *ck*, *ph*, *sh*, *ch*, *th*, and *wh* in the spellings. The students' response

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<sup>17</sup> The authors have noticed that some of their university students may have difficulty in reading and writing English alphabets. Their overall poor performances in English classes may stem from this problem left unnoticed and, thus, untreated for a long time.

<sup>18</sup> A *big card* is a board picture card with a target sound in spelling. For each card, a few words that contain the target sound are selected, and the referents of those words are presented visually. For example, the "ch" card may have drawings of a chicken and a piece of cheese on it.

is very quick, and smooth. Their pronunciations are accurate. [6<sup>th</sup> graders, February 26, 2010]

Generally, images facilitate more spontaneous and accurate articulation of English words by the students. The instructor usually keeps the *big cards* up on the blackboard when the students are playing in groups with small cards containing just the letters. That is because the students may still need image assistance in sound-letter correspondence. The students occasionally do turn their head and look at the *big cards* while playing<sup>19</sup>. Therefore, we believe that images may be better material anchors for the learners in early stages, although, of course, we need a series of controlled experiments to confirm the theory.

### 3.3.2 Writing

Generally, writing, i.e. associating sounds with their graphic symbols, requires much longer period of learning. It should be noted too that students in their early stages of learning may need much more processing time, or time to think.

<Observation data 23> The instructor produces the sound / z / to the class. The students recognize the sound very easily, and many mimic the sound orally, but it takes a while before they figure out which of the paired alphabets Z-z, or V-v represents the sound. [4<sup>th</sup> graders, February 26, 2010]

<Observation data 24> The instructor tells the students to write sounds they hear in the English alphabets. In order to perform the task, some students need to see and check the letters on *big cards*, which are placed on the blackboard for reference. [5<sup>th</sup> graders, February 26, 2010]

<Observation data 25> The instructor writes a number of *ap*'s in a column on the blackboard. He adds several different onset consonants to the *ap*'s in order to create English words like *map*, *sap*, *gap*, *zap*, etc. The instructor pronounces the words, and asks the students to copy the words to their notebooks. Some students take considerable time to write the English words that were pronounced by the instructor. [6<sup>th</sup> graders, February 26, 2010]

A more challenging task for the students in their early stages of writing training is to figure out how to combine a number of alphabets in order to represent a stream of English sounds. See below:

<Observation data 26> The instructor pronounces words like *slap*, *smap*, *clap*, etc., and asks the students to repeat the words verbally. The students do this very quickly, but many of them slow down considerably when they try to write out the words. They look around, and ask one another to see if they have spelled correctly. [6<sup>th</sup> graders, February 26, 2010]

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<sup>19</sup> Observation data 24 presents a similar behavior.

#### 4. Concluding remarks

Ogata Program seems to provide many useful insights for better understanding of language acquisition processes, and language education. One of the most important pieces of information that we learned from the data would be that Ogata data perfectly confirms to the widely accepted view on language modalities<sup>20</sup>: spoken language is learned easily, while written language is not.

It appears to be rather contradictory, then, that Ogata program, and other similar English language programs developed by the same contractor, emphasizes teaching *phonics* explicitly. In fact, it is not an overstatement that many of the class activities in the program are designed to improve and enhance the students' rudiment reading and writings skills through a series of *phonics* exercises. However, what we see here is that reading and writing skills take much more time and effort to learn even with explicit instruction, while oral-based comprehension and phonological phrasal structures are learned fairly easily and implicitly, without explicit instruction<sup>21</sup>.

Our analytical tools seem to shed light to this otherwise puzzling fact. Spoken language is simply a much better material anchor for human minds, and can trigger/evoke a very wide range of semantic/phonological frames. Written language, on the other hand, is not a very accessible anchor, so it demands much longer time and efforts for mastery<sup>22</sup>. Thus, we believe that there are significant differences in the natures of the two linguistic modalities from both cognitive and pedagogical points of view. They are not simply the two sides of one coin: they are two different languages.

As an endnote, we would like to remind the reader of the importance and difficulties of teaching reading and writing skills. We wonder if teaching reading and writing skills to young learners has been given enough attention and caution in the professional communities. As we have seen in the previous section, learning rudiment English reading and writing skills may take more than 2 years for young learners<sup>23</sup>, and sufficient exposure to spoken English prior to and/or during the instruction of

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<sup>20</sup> We do not know if similar characterization is applicable to other two possible modalities of language, namely sign, and braille.

<sup>21</sup> Second language learning theorists are divided on the issue of whether explicit knowledge of the target language will lead to implicit knowledge. Ellis (2011) gives a good overview of the differing positions. Ellis himself holds the position that explicit knowledge assists the development of implicit knowledge but with some limitations.

<sup>22</sup> From an evolutionary point of view, the appearance of written language has much shorter history than spoken language, which is assumed to have been in use since the emergence of modern humans, i.e. homo sapiens.

<sup>23</sup> This problem may continue into university. Some of the authors' students exhibit difficulties in reading and writing even simple English words. Their problems differ in qualities and levels from those of younger learners, but if the problems are not sporadic, it would be easy to guess how challenging their high school English courses would have been for them. This obviously is a good reason to believe their performances in high school English courses may not have been very satisfactory.

written language seems to be a pre-requisite for successful acquisition of the written mode. From our data, Ogata Program appears to succeed in providing sufficient oral inputs prior to and during the instruction of written English<sup>24</sup>. How we might secure such instructional progression in English education at Japanese schools is a question for curriculum designers.

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<sup>24</sup> The program has its limitations and room for improvement. Refer to Watanabe & Watanabe (2007) and Watanabe (2007), which discuss strengths and weaknesses of the graduates of the Iwaki program, a predecessor to Ogata Program.