Second Language Acquisition: Research into Reading Processes and Reading Difficulties

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1. Introduction
1.1 Introduction

What is “reading”? “Why do we read?” Many people would agree that the purpose of reading is to understand or obtain meaning and information from written materials, strings of letters that make up phrases, sentences, paragraphs, pages and books. Rudolf Flesch defined reading as “getting meaning from certain combinations of letters” (cited in Stauffer, 1969, p.5).

Why do we read? In most countries, people are surrounded by words and cannot live without reading. In recent decades, due to the remarkable developments in information technology, masses of written information are distributed much more easily and speedily. Also, we have more opportunities to obtain information from other countries, and reading in a foreign language (L2) is now more necessary than before. As Alderson has said, “In many parts of the world reading knowledge of a foreign language is often important to academic studies, professional success, and personal development” (1986, p.1). As evidence of this, research into reading in a large number of second or foreign languages has been published, for example German (Peters, Hulstijn, Sercu, and Lutjeharms, 2009), Chinese (Lee-Thompson, 2008), Japanese (Terauchi, 2004) and so on. The majority of reports however are about reading in English, which, according to Alderson (1986) is particularly important.

Since the beginning, L2 reading researchers have focused on finding the reasons for reading difficulties and developing more effective teaching methods. Many researchers have reported that knowing only vocabulary is a sufficient condition, or
that schema knowledge, or cognitive and background knowledge, are prerequisites for reading (Stauffer, 1969; Temma, 2008; Evans, 2008; Peters et al., 2009).

In addition, as the need for reading in a foreign language has increased, there has also been an increase in the number of teaching methods and textbooks and a drastic change in the ‘environment’, with a wider variety of types of dictionary available (most Japanese students use electronic dictionaries nowadays), and there are more opportunities to read in an L2. However, in Japanese education, I feel that teaching methods have changed little since I was a school student, around 1990.

I have been teaching Japanese as a second language (L2) for about ten years and have been part of a research group exploring new reading methods and materials for four years. The research group’s first questions were, “What is reading and understanding?” and “Why are there good readers and poor readers?”

The Japanese language uses three writing scripts, including kanji, or ideographs. It is easy to think that kanji hinders students’ reading. However, there are many Chinese students and students from other countries that use kanji who complain, “All the vocabulary is known, but the text is not understandable.” In contrast, some students whose first languages do not have kanji show surprisingly good reading comprehension. This suggests that problems with vocabulary and script are just part of the reason for L2 reading problems. Since English has only one script and no kanji, it could be said reading difficulties should be much less than for learners of Japanese whose first languages do not have kanji.

Also, as a learner, I sometimes struggle to read in English despite using a dictionary and my grammar knowledge. In contrast, I sometimes find it easier to read when the topic is familiar or known in my L1. In other words, background and schema knowledge may help comprehension. However, if these top-down skills alone are sufficient for reading, readers will not be able to gain new information from L2 texts and will need to learn it in the L1. I believe there must be other factors behind reading difficulties in addition to vocabulary and background knowledge and that overcoming these problems will lead to an improvement in reading skills.

Returning to the question at the beginning of this paper, “What is reading and understanding”; Temma (2008) gave an example of how to evaluate L1 and L2
reading comprehension using a text and three questions to find if readers knew the main vocabulary and phrases, and were able to answer simple questions about the content of the text as well as be able to summarize or recreate it in their own words. Summarizing what was read in the reader’s own words shows what they have understood of the content. When readers create different stories, it shows they do not understand the content of the reading, even when they can answer the vocabulary questions and simple questions correctly. Tono (2004) also feels that summarizing is better for gaining insights into reading comprehension difficulties and misunderstandings than multiple choice questions.

1.2 Literature Review
1.2.1 Reading Processes

When we read, we get information by following the words. It seems a very simple process, but there seem to be different ways to reach comprehension. Bransford, Stein, Vye, Franks, Auble, Mezynski and Perfetto (1982) observed the L1 reading processes of fourth grade students. The subjects discussed the topics of passages they were going to read later in class and were taught the pronunciations and meanings of the words in the passages. After reading, they answered questions about the passage. They found that successful readers spent more time on learning activities such as introspective action, recreating what they understood. In contrast, unsuccessful students showed little interest, and their learning seemed to be more passive. Another experiment looked at differences in reading comprehension using two passages about a robot: one describing its structure and parts, and the other explaining the relationship between structure and function. Both groups of students were able to remember and retell the first passage. However, the unsuccessful subjects were much less successful at retelling the second one, whereas the successful subjects were equally good with it. They also showed that they had made an effort to arbitrate the story actively. Bransford et al. inferred from this that there were differences between successful and unsuccessful readers in spontaneous action and the potential of arbitrating. Haynes (1993) also found that longer sentences require a greater ability to integrate content, and this causes lower proficiency students to
fail. These studies show how important attitudes and potential to think about content are.

1.2.2 Reading skills

As discussed above, reading skills are influenced by a number of complex factors; for example understanding vocabulary, inference skill, schema, and background knowledge, which with other factors combine to help reading comprehension. When a reading text about the weather is given without a title, such as “weather forecast”, readers may have difficulty with the technical words and have less confidence in their understanding, whereas when the title of the text, “weather forecast” is also supplied, readers may find it easier to understand even though many of the words may not be known. This is because the title gives the reader a hint that draws out their experience with weather forecasts in the L1 or in an easy L2 version. This could then lead the L2 reader to infer the meanings of the unknown words correctly.

Lee-Thompson (2008) researched the reading strategies used by American learners of Chinese as a foreign language. He classified them into twelve bottom-up strategies and fourteen top-down strategies and investigated how his subjects used the strategies. The results showed that bottom-up skills were effective in solving problems such as understanding vocabulary at the lower level of reading and comprehension at the text level. On the other hand, top-down skills were effective for understanding large portions of text or entire stories.

Peters et al. (2009) researched L1 Dutch learners of L2 German when reading. Since vocabulary is important for reading, this research produced a very interesting result. In the study, Peters et al. provided a target vocabulary list and announced that there would be a post-reading test to some of their subjects. After the reading, all the subjects took a vocabulary test. The results showed the subjects given the vocabulary list and advance notice of a test learned the vocabulary better.

Palama (2009) conducted reading tests with upper intermediate L1 Italian learners of L2 Japanese and found a relationship between vocabulary inferencing ability and reading comprehension. Her research showed that better inferencing of kanji idioms is related to better reading comprehension. Interestingly, she also found that because
information in readers’ memory is sometimes not sufficient or wrong, learners occasionally failed to understand the text.

1.2.3 Think Aloud

Bransford (1983), Lee-Thompson (2008) and Palama (2009) and many other researchers have used think aloud protocols to collect research data and vocabulary tests to check if learners inferences are correct or not. Briefly, the think aloud method is a method for collecting data by ‘listening’ to subjects’ thinking processes. Subjects are asked to verbalize whatever comes into their mind as they carry out tasks, and their speech is recorded. The researcher transcribes the verbalizations and then categorizes and/or analyzes it (Imai and Kawamura, 2009). Since reading is a complex skill, collecting think aloud protocols is very useful. Through these data, researchers can ‘see’ readers’ processes, what obstacles there are, and how readers monitors themselves. Because of these merits, think aloud methods are an effective technique for investigating what is happening in readers’ minds.

1.2.4 Dictionaries

Dictionaries are essential for foreign language learners, but there have been claims that they have harmful effects on reading such as making it take longer and making the reader suspend the reading activity, so there is a tendency for learners not to use a dictionary when reading. A study by Bensoussan and Laufer (1984) (cited in Tono, 2004) suggested that using a dictionary did not influence performance on a reading comprehension test. Studies by others and Tono (2004) however found the opposite, leading Tono to advocate the use of dictionaries for reading. Tono gave two reasons for the difference in the results of his and Bensoussan et al’s research. First, the length of the reading materials may have affected the results. The passages in Bensoussan et al’s study were about 600 words, whereas he used passages of 100–250 words. Second, the studies had a different working definition of “effect”. Tono suggests that dictionaries are effective for understanding at the time of reading, but do not ensure an effect for long-term vocabulary retention.
1.3 Research Questions

In this study, I will observe how the Japanese L1 learners of L2 English read in
English and try to find the characteristics of good and poor readers, and investigate
the causes of reading difficulties.

1. How do Japanese L1 learners of L2 English read in English?
2. What difficulties do Japanese L1 learners of L2 English have when reading in
   English?

2. Subjects and Methods
2.1 Subjects

The subjects were sixteen third and fourth year female Japanese university
students who had received their English education in Japan. All had completed the
two-year compulsory English reading classes at Tokyo Woman’s Christian Univer-
sity. They were divided into two groups: a Non-Dictionary Group and a Dictionary
Group.

2.2 Materials

A story, The Ghetto, by Danny Falkner from Forgotten Voices of the Holocaust
(Smith, 2006) was used as the reading material. The text is authentic and consists
of four short paragraphs that tell a complete story from introduction to conclusion.
The first paragraph explains the background to the event and gives some details.
The story develops in the second and third paragraphs, and the writer’s opinion and
thoughts on the consequences of the events in the story are in the fourth paragraph.
The structure seemed very conventional and should not have been new to any of the
subjects.

2.3 Procedure

A think aloud technique was employed to investigate the subjects’ reading proces-
ses and identify their reading difficulties. Before the subjects did the task, they were
given a demonstration of the think aloud task by the researcher. They were also told
to read as they usually do, that there was no time limit and that they would be asked
to retell the story after they had finished reading and be interviewed in order to help the researcher get a fuller understanding of what they thought about the reading passage (e.g. did they feel it was difficult or easy, or what words they did not know). The subjects in the Dictionary Group were also told that they could use a dictionary whenever they wanted. All the sessions were carried out on a one-to-one basis with the researcher and recorded.

2.4 Analysis

The recorded data was transcribed. To ensure consistency, the researcher created an observation sheet. The observation sheet consisted of a part for describing the reading process and a part for the interview data. In the reading process part, there were sections for recording the reading time, the number of times the text was read, differences in the reading process when they read the text more than twice, and any marks or translations made while reading. In the interview part, there were sections for recording how they felt about text difficulty, the parts they found difficult or easy, difficult words, comments about their background knowledge and other comments.

To find differences in the reading processes of good readers and poor readers, the degree of comprehension was measured using a comprehension check sheet. The sheet consisted of six outline questions and ten detailed questions. All the questions were checked by English native speaker teachers and a Japanese reading teacher at Tokyo Woman’s Christian University.

3. Results

3.1 Think aloud

3.1.1 Reading time and process

The shortest time taken to read the passage was about seven minutes and the longest was 29 minutes. Both subjects were in the Dictionary Group. The average time in the Non-Dictionary Group was about 14 minutes, and in the Dictionary Group about 16 minutes. Most of the subjects in the Non-Dictionary Group read the passage two or three times and repeated reading certain parts. In contrast, half of the other
subjects in the Dictionary Group read the passage only once. Three subjects in the Non-Dictionary Group repeatedly read certain parts, but the amount of repeat reading was much less than in the Dictionary Group.

No obvious relationship between reading time and comprehension level could be seen in the data, however, it was found that very poor readers, defined as those who got 5 to 7 out of the total of 32 for comprehension, spent less time reading the text and hardly repeated or stopped to think about what they were reading. It seemed that they just concentrated on the words, especially the known words. Good readers, defined as those who got 5 outline questions correct, took more time. During the reading, they made an effort to understand through attempting translations, self checking or rereading difficult parts.

3.1.2 Reading problems

According to the think aloud protocols and the interviews, most subjects had difficulty with the first and second lines of the first and fourth paragraphs and, with a few exceptions, felt that the second and third paragraphs were easier. The difficulty with the first lines of the first and fourth paragraphs tended to result in failure to understand the whole paragraphs (Figure 1). According to some subjects, the reason for the difficulty of these sentences was length. As Figure 1 shows, the length of the sentences could be a reason for the reading problem. However, a careful analysis of these sentences reveals that these sentences each contain three difficult words (defined as words which were reported as difficult by most subjects). In P1–L2 (Paragraph 1–Line 2), the difficult words were pause, forceful and elimination, and in P4–L1, they were elate, immune and exerted. This suggests that sentence length is not the only possible explanation for the difficulty, and that multiple difficult words in a sentence may be a more reasonable explanation.
P1-L1 The first sign of the Resistance was when the chief of the Jewish police was murdered in the ghetto. (19 words)

P1-L2 This was a sign that seemed to be recognized by the Germans because there was a three-month pause in the forceful elimination of Jews-October, November, December, and no actions. (30 words)

P4-L1 I felt elated that the Jews had fired the first shots; we could see that the Germans were not immune to violence, that violence could be exerted against them as well. (31 words)

□ = difficult words

Figure 1: Examples of difficulties in the first two lines of P1 and P4

To investigate this further, other difficult sentences in the second and third paragraphs were analysed (Figure 2). These sentences are not long, but, P2-L8 has two difficult words; prominent and intellectual in a short sentence, and P3-L7 has three difficult words, subdue, eliminate and ghetto. These difficult words may have caused the reading problems, but subjects in the Dictionary Group also reported difficulty understanding this part, indicating that using a dictionary or knowing word meanings did not help. This implies that sentence length or word difficulty may not be the main reasons for the reading problems. One other thing these sentences have in common is they have an SVC pattern with very short subjects (S) and very long complements (C). This may have been the main cause of reading difficulty.

P2-L7: I said ‘It’s upon your conscience to do something to hide the people whom you are sheltering.’

P2-L8: These were prominent intellectuals and personalities given ‘jobs’ there.

P3-L7 This was the first attempt of the Germans to subdue and eliminate the ghetto.

□ = difficult words

Figure 2: Examples of difficult sentences in the first two lines of Paragraph 2 and 3

To identify easy sentences and difficult sentences more clearly, I probed more deeply into the sentences that most subjects said were easy. The sentences all had an
SVO pattern (like P1-L4 in Figure 3). This suggests that the subjects were more comfortable reading SVO sentences even though they were long. In addition, SVC sentences (P2-L2 and P4-L2) did not cause reading problems as they are probably very simple and like the SVC sentences the subjects met at junior high school (Figure 3). This adds support to the idea that sentence length may not be the main reason for reading difficulty.

P1-L4: One evening after curfew, a young man, who we knew worked with the Gestapo, came and said, 'I can't give you any details but I'm warning you to be careful tonight, something might happen.' (34 words)

P2-L1: I was walking up and down the room wondering what to do with this information. In the same street, there was a temporary Jewish hospital and the director was a friend of mine. (33 words)

P4-L2: Of course we knew it was an impossibility to conquer or resist them completely. (14 words)

Figure 3: Examples of Easy Sentences

With SVO sentences, readers appeared to feel that the story was easy to read and understand because it was ‘moving’ or developing. Many subjects were able to explain why they thought that the second and third paragraphs were easier. A reference to a time or place at the beginning of sentences especially seemed to help readers use their top-down skills and imagine the story. Subjects in the Dictionary Group who looked up curfew said that knowing the meaning helped their imagination. I did not see curfew as a keyword, but it illustrates how important capturing the background of the story is.

3.2 Comparisons

3.2.1 Reading process: good readers vs. poor readers

As I mentioned in 3.1.1, good readers reread, checked themselves or translated to help increase comprehension. Good readers made a lot of effort to decode the sentences through translation and repetition. Even though their translations were not complete, they were able to retell the story. Furthermore, the best reader very
frequently attempted to match what she was reading with information that she already had. These reading processes were only observed in good readers.

3.2.2 Comprehension of good readers vs. poor readers

The story summaries of good readers were more complete than those of poor readers and showed how well they had understood the story. Poor readers summaries were very short, very abstract and without detail, for example, “It is about a war.” Another characteristic of poor readers was that they failed to catch the position of the writer, who did what and who did what to whom. The problem can be said to be fatal to reading.

Since summarizing and retelling stories well needs other skills, for instance translation skill or long term memory, I probed further with questions like “Do you remember more?”, and “Can you tell more about the second paragraph?”, or sometimes asked if they realized who was fighting, etc. when a summary was very short or very incomplete. Even with these prompts, poor readers were not able to elaborate. In contrast, middle level readers were able to answer to some of these questions, which raised their comprehension scores. Yet, when told the correct story, they were surprised that their understanding was different. It seems they really did not read and understand the story, just picked appropriate answers.

3.3 Comprehension and difficult words

I hypothesized that comprehension and the number of words found difficult would be closely related. Surprisingly, they do not seem to be related (Table 1). This is very important evidence that vocabulary is not the only factor in successful reading comprehension. It shows that reading and comprehension processes are complex. Other findings suggest that learning techniques for deciphering long sentences and strategies for reading SVC sentences would be helpful for improving comprehension.
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### 3.4 Top-down errors

Background knowledge and schema are well known as important for second language comprehension, including reading comprehension (Temma, 2008; Anderson, 1984). As I mentioned in 3.1.2, knowing the meaning of the word *curfew* and the help that this gave to some readers’ imagination is a good example of this. Also, successfully using top-down skills to relate the words *ghetto* and *Jews* to the word *German*, lead readers to assume correctly that the story was related to the persecution of Jews by Germans in the Second World War. In the post-reading interviews, most subjects reported that these words helped their imagination. This is a positive example of readers using prior knowledge to help comprehension.

The study also found that the relying on top-down skills sometimes lead to misunderstandings and errors. For instance, one subject pronounced “Ghetto” as [dʒeɪt], and consequently misunderstood the story as being about a jet airplane. Mismatches in guessing (Haynes 1993), such as mistaking *ghetto* for *jet* happened at all levels. For example, one middle level reader mistook the word *resistance* for *residence* and one good reader pronounced the word *fire* as *fear*. As good readers and middle level readers self-check or translate more frequently during reading compared than poor readers do, their guessing errors did not cause misunderstanding of the entire story. Bottom-up skills could help in avoiding this kind of error.

In another example, even though one subject knew that the Japanese equivalent for the word *Jew* was *yudayajin, yuda* for her was closely related to Judah in the Bible. She imagined that the story was about religion, and thought the story must have been about principals opposed to killing people. The most common error was related to the words *Jews, Ghetto* and *German*, which led good and middle level readers to believe that the story was about Germans killing Jews, in spite of clear
evidence in the text to the contrary, for example, “I learned that the first shots were fired in Mila Street where a unit of Jewish Resistance attacked the troops. They felt the first signs of victory as German soldiers were killed”. In other words, some of the content of the text was ‘dropped’ from the story they understood because of their background knowledge. Another consequence was that, “I felt elated that the Jews had fired the first shots; we could see that the Germans were not immune to violence, that violence could be exerted against them as well” in the next paragraph was not understood by most subjects. As a result, the writer’s strong message did not get through to most readers.

4. Discussion

Using a think aloud task for the careful observation of the reading process revealed several issues related to reading and comprehension. Initially, I believed that good readers would read faster and come across fewer unknown or difficult words than poor readers; however, through observation of the reading process, no correspondence was found between reading comprehension and reading time, nor between reading comprehension and the number of difficult words.

Good readers read actively using repetition or translation even though it took time. They ‘worked’ to understand the story and succeeded in retelling it. The others were passive. The poor or middle level readers whose comprehension scores did not reach 50% did not make an effort. It seemed that they gave up. Some of them reported that they could not concentrate on the passage once they started to find it difficult and gave up trying to understand it. This could be a reason that there was no apparent relationship between comprehension and the number of difficult words. As the poor readers or middle level readers read very cursorily, they constructed a story using their background knowledge and the known words. This means they may have skipped the difficult words and consequently under-reported them.

Perhaps, the most important finding of this study is the negative consequences of using top-down skills. Poor readers rely too much on top-down skills, trying to comprehend using known words and their background knowledge, and it may be that this is the only way they can complete reading tasks like this. Top-down related
errors were however also seen in most subjects, even at higher levels, but, as middle-level and good readers self-check or translate more, the degree of misunderstanding is less. In any case, it would appear that bottom-up skills would be very helpful for avoiding this kind of error.

When checking comprehension, some of the subjects were not able to retell the story even though they were able to answer questions about the content. Their answers however seemed not to be based on actual understanding of the passage, but were given simply in order to answer the questions. This suggests that they can use techniques to give correct answers, as in reading examinations, but do not have sufficient reading ability to understand reading passages without the help of questions.

A definite reading problem found in this research was that the subjects found it difficult to understand SVC sentences, especially, when the subject (S) is short and compliment (C) long. Focusing on this kind of sentence will probably be useful for teaching reading skills.

5. Conclusion

This research has produced two important findings. Both, I believe, will be useful pedagogically.

First, too much emphasis on speed reading and top down strategies for low level learners is a peril since too much reliance on the guessing can lead to misunderstanding. When faced with reading difficulty, low level learners will probably quickly stop reading carefully and attempt to guess the content based on their background knowledge and the known words in the text. This is no longer ‘reading’ as they are not getting their information from the reading materials. Good readers in this study used bottom-up skills effectively. Bottom-up skills are also important and should not be ignored.

Secondly, summarizing practice is likely to be useful for improving L2 reading skills. The quality of summaries in this study appeared to be related to the degree of text comprehension. In Japan, English learners are usually intensively trained to answer questions. As a result, in reading examinations, they can find the correct
answers to questions without actually comprehending the text. If learners do not understand the text, it indicates that they cannot really read. It should be borne in mind though that this study probably provides insufficient evidence that good readers always summarize well, and it is therefore necessary to investigate the relationship in greater depth.

The conclusion that bottom-up strategies and summarizing skills would be useful for teaching reading goes against recent trends, but this research indicates that these things cannot be ignored. In short, basic language skills are needed for L2 reading. It is my hope that well-balanced training with both top-down and bottom-up strategies will improve L2 reading skills.

References


要旨

この情報化社会において、読まないということは不可能で、さらには外国語の情報、特に、英語の情報を積極的に取り入れることは私たちの将来、社会発展のためには欠かせない活動である。

必要性は理解しているからも、「英語の文章を読むことは難しい。」「英語を読むのは苦手。」などと英語学習者が訴えることがよくある。そこで、本研究では、東京女子大学の大学3、4年生16人を対象に、思考発話法（Think aloud method）を用いて、英文読解プロセスの観察実験をし、Good readerとPoor readerの読解プロセスの違い、読みの困難の分析を行った。

その結果、Good readerは、ボトムアップスキルをより有効に用いていること、逆にPoor readerはトップダウンスキルに偏重し、エラーを起こしているという特徴が見られた。そして、全被験者において、SVC型の文章の解読に困難を感じていることもわかった。さらに、Good readerは読んだ内容の再生、つまり要約をうまくできるということもわかった。

これららの研究の方法、結果、そして最後に考察、結論を述べる。