

# Descriptive Analysis of the Performance of Two English Proficiency Groups on Inferential and Literal Questions

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**Abstract :** The present study investigated the relationship between English language proficiency (including reading comprehension) and inferential ability. Inferential ability was measured by the Inferential Ability Test which consisted of two types of questions. One type involved literal questions which required only a surface level understanding of texts. The other type, inferential questions, demanded a deeper level understanding of the texts. The subjects were divided into two groups (15 each of skilled and less-skilled readers) based on the English Proficiency Test (EPT). The results of the experiment showed that the subjects were better able to answer literal questions than inferential questions, and that the performance of the skilled group on the inferential questions was better than that of the less-skilled group, whereas there was no difference between the performances of the two groups on the literal questions. Further analysis showed that the correlation between the EPT and the inferential questions was higher for the skilled group than for the less-skilled group, whereas the correlation between the EPT and the literal questions was higher for the less-skilled group than for the skilled group.

## 1. INTRODUCTION

Relatively little research has investigated the relationship between

levels of English language proficiency and the ability to understand not only the surface level meaning of a text but also the deeper significance of the text. It will be necessary to discover how readers with different levels of English language proficiency understand a text and, what is more important, how they differ in the way in which they process a passage.

### **1.1. The level of English Language Proficiency and the Ability to Integrate Information in a Passage**

L1 (first language) research (Chapman, 1979 ; Cohen, Glasman, Rosenbaum, Ferrara & Fine, 1979) claimed that unlike skilled readers, less-skilled readers tend to read 'locally' in the sense that they often have difficulty in synthesizing information at the intra- and inter-sentential level, as well as across paragraphs.<sup>1</sup>

Yet, why should less-skilled readers differ from skilled readers in integrating the information in a passage? A study by Stanovich (1980) suggests that less-skilled readers have not acquired automatic decoding skills and therefore need more time to process words. This consequently uses up their limited working space needed for higher levels of text processing, such as making inferences. As Smith (1975, p. 70) argues, the slow word recognition might also make it difficult for less-skilled readers to integrate the previous information in the text with what comes later because of the rapid loss of information from their short-term memory stores.

Just and Carpenter (1980), however, argue that the less-skilled readers often fail to integrate information in a text because they have little working space. Their research suggests that readers with a large working memory should be able to retain more of the text in their memory while processing

new text, so they can integrate the information more completely (also Daneman & Carpenter, 1980).

Similarly, Oakhill & Garnham (1988) state that less-skilled readers suffer from a relatively low 'working memory' capacity (according to their definition of the term) compared with skilled readers, and this could be a source of their comprehension problems: if the immediately preceding text cannot be remembered, it may be difficult to integrate the ideas in the text to comprehend its overall meaning. Thus, either slow recognition of words or low capacity of working memory may explain why less-skilled readers are inferior to skilled readers in integrating information, which is critical for understanding a text.

## **1.2. The Level of English Language Proficiency and the Ability to Make Inferences**

Only a limited amount of working memory is available for text processing. Yet, the less-skilled readers do not have much cognitive working space, probably due to either their slow word recognition or their physically low working memory capacity. Since making inferences, which is important for understanding a text, demands integration of the ideas from various sentences in a text and the retrieval and utilization of background knowledge<sup>2</sup> from the long term memory, the less-skilled readers are expected to be inferior to the skilled readers in this area.

The study by Oakhill (1984) investigated the 7-8 year-olds' use of implicit inferences in understanding stories. In the experiment, 12 skilled and 12 less-skilled comprehenders read four short stories. Following each story, they were asked four literal questions which could be answered directly from the text, and four inferential questions which demanded that

they infer what was not explicitly stated. First, the subjects had to answer both types of questions without referring back to the text. Then they were allowed to look at the story and the questions were repeated. The result of the experiment showed that when they could not see the text, the skilled readers were better at answering both types of questions. However, when the text was made available, the skilled and less-skilled L1 children did not differ in answering literal questions, but the less-skilled comprehenders were inferior to the skilled comprehenders in answering inferential questions<sup>3</sup>.

### 1.3. The Role of Inferences in Reading Comprehension

Making inferences can be considered to be one of the key cognitive processes in constructing the meaning of a text. The importance of inference to the comprehension of even a simple text has been demonstrated in L1 reading research (Anderson & Pearson, 1984 ; Van Dijk & Kintsch 1983). Making inferences is sometimes thought to be reflective, but it can occur as the reader reads the words of the text. In the study by Just and Carpenter (1987, p. 177), the subjects were presented with a pair of sentences such as the following.

- 1a *The maid diligently cleaned the floor until it was spotless.*
- 1b *The broom had been worn down by her excessive zeal.*

In order to investigate whether the subjects had inferred the broom was used as a tool when they read the first sentence (1a), the reading times for these sentences were compared with those for the following two sentences.

- 2a *The maid diligently swept the floor until it was spotless.*  
2b *The broom had been worn down by her excessive zeal.*

In both pairs of sentences, the second sentences (1b and 2b) are the same. Yet, sentence 2b was read 500 ms faster than sentence 1b. It is possible that since the subjects had already inferred that the broom was used to clean the floor when they read 2a, less time was necessary to read sentence 2b than 1b. Thus, the result of the experiment indicates that readers are able to make inferences on-line as they read a text.

#### **1.4. The Purpose of the Present Study**

The primary purpose of the present study was to investigate the relationship between the ability to make inferences<sup>4</sup> and the level of English language proficiency. In the present study, the subjects were instructed to read several passages. Following each passage, they were asked two major types of questions. One type consisted of literal questions which required the readers to understand only the information which was explicit in the text. The other type involved inferential questions which required the readers to go a step beyond what was explicitly written in the text. Since inference is considered to demand the integration of the ideas in a text and the utilization of experience or background knowledge, the authors expected, as the previous research by Oakhill (1984) indicates, that skilled ESL readers would perform better in inferential questions (INF) than less-skilled readers. We also expected that the difference between the skilled and less-skilled readers might diminish in literal questions which asked for only a surface level understanding of sentences (LIT).

However, it should be noted that L1 research findings (e. g., Oakhill,

1982, 1984 ; Oakhill, Yuill & Parkin, 1986) cannot always be applicable to Japanese university students. For example, the subjects in L1 research (e. g., Oakhill, 1984) were at the age of 7 to 8. Also, the subjects in L1 studies acquire their first language in a natural setting, whereas Japanese students learn English as a foreign language in a classroom setting. In addition, Japanese students usually start their English study at the age of 12.

In some cases, the materials were inappropriately short : except for the study by Oakhill (1984), where each passage consisted of 8-9 sentences (100-120 words), each story in other experiments (e. g., Oakhill, 1982 ; Oakhill et al., 1986) consisted of only three sentences, later followed by four recognition test sentences.

*Story No. 3*

The car crashed into the bus.

The bus was near the crossroads.

The car skidded on the ice.

(quoted from Oakhill et al., 1986, p. 90)

*Recognition Test No. 3*

The car crashed into the bus.

The bus was near the crossroads.

The car was near the crossroads.

The bus skidded on the ice.

(quoted from Oakhill et al., 1986, p. 91)

The current study also investigated the relations between language proficiency and inferential ability, but in this case the authors used natural passages such as the older version of those employed by Oakhill (1984).

Due to the nature of the present study, the main emphasis was put on

describing the relationships between the students' proficiency levels and their performance on the two different types of questions (i. e., INF and LIT) rather than on seeking the causes of the less-skilled readers' comprehension failures.

## 2. METHOD

### *Subjects*

Using an English Proficiency Test (EPT) produced by the authors, 15 subjects with higher English proficiency, and 15 subjects with lower English proficiency (overall, 4 males and 26 females) were selected from 45 volunteer university students at Matsuyama University.

The result of the English Proficiency Test was 27.93 with a standard deviation of 4.84 ;  $M = 22.73$  with  $SD = 3.69$  for the low-proficiency students, and  $M = 32.53$  with  $SD = 2.56$  for the high-proficiency students. The means of the English Proficiency Test performed by the students with high and low English proficiency in the present study were adequately far apart from each other.

### *Stimuli and Procedure*

The English Proficiency Test consisted of six subsections. They were designed to measure what roughly corresponds to phonological knowledge (pronunciation) (C1), the ability to understand short dialogues (C2), the knowledge of vocabulary (idioms) (C3), the knowledge of syntax (C4), reading comprehension (C5), and reading comprehension (C6) (see Appendix A).

Stimuli for the English Proficiency Test were selected from among the questions in the STEP (Society for Testing English Proficiency) test (high

school level), except for test subsection No.2. The stimuli for test subsection No.2 were adopted from a listening textbook. The questions in the EPT were therefore considered to be easy enough for university students to comprehend.

Inferential ability was measured by a test in which students read 7 passages and then answered two types of true-or-false questions. One type of the question was literal (LIT) and could be directly answered from the text. The other consisted of inferential questions (INF) which required the readers to infer what was not explicitly stated in the text. Literal questions were subdivided into false literal questions (FL) and valid literal questions (VL): Negative answers were accurate in FL and positive answers were correct in VL. In the same way, the inferential questions were subdivided into false inferential questions (FI) and valid inferential questions (VI): Negative answers were appropriate in FI and positive answers were regarded as correct in VI. The total number of each type of question (FL, FI, VL, VI) are equal. The passages used for the test were taken from reading textbooks by L. A. Hill (1980a, 1980b, 1988).

The two tests were given to the university students as part of regular classroom instruction.

### 3. RESULTS

#### *Overall Analysis of the English Proficiency Test*

The overall means of the English Proficiency Test for 45 subjects was 27.93 with a standard deviation of 4.84. The means and standard deviations of the English Proficiency Test (including the statistics on the test subsections) are shown in Table 1. The analysis of the variance of each subsection of the EPT is shown in Table 2.



Table 1 The Means and Standard Deviations of the English Proficiency Test (EPT)

Var	All			Skilled			Less-Skilled		
	N	Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev
C1	45	5.02	1.89	15	6.13	2.10	15	3.67	1.05
C2	45	6.16	1.83	15	6.67	1.23	15	5.00	1.77
C3	45	4.18	1.97	15	5.67	1.84	15	2.87	1.55
C4	45	5.13	1.39	15	5.80	1.15	15	4.33	1.63
C5	45	3.07	1.19	15	3.67	1.05	15	2.60	0.99
C6	45	4.38	0.72	15	4.60	0.63	15	4.27	0.80
EPT	45	27.93	4.84	15	32.53	2.56	15	22.73	3.69

Table 2 Analysis of Variance in Each Subsection of the English Proficiency Test (EPT)

Source of Variation	SS	df	MS	F	
C1	46.97	2	23.49	8.97	***
Error (C1)	156.98	42	2.62		
C2	30.17	2	15.09	5.38	**
Error (C2)	117.73	42	2.80		
C3	59.51	2	29.76	11.25	****
Error (C3)	111.07	42	2.64		
C4	16.53	2	8.27	5.06	**
Error (C4)	68.67	42	1.63		
C5	8.93	2	4.47	3.48	*
Error (C5)	53.87	42	1.28		
C6	1.11	2	0.56	1.09	
Error (C6)	21.47	42	0.51		

\*  $p < 0.05$     \*\*  $p < 0.01$     \*\*\*  $p < 0.001$     \*\*\*\*  $p < 0.0001$

As Tables 1 and 2 show, question C6 was not appropriate in differentiating between skilled and less-skilled readers.

*Analysis of the Performances on Inference and Literal Questions*

The means and standard deviations of the accuracies on both inferential questions (INF) and literal questions (LIT) are shown in Table 3 and graphically presented in Figure 1. The results show that, in general, inferential questions were more difficult to answer correctly than literal questions. As Table 3 shows, skilled readers were constantly more accurate than less-skilled readers when answering both literal (LIT) and inferential questions (INF). The results of the experiment showed that the skilled group differed greatly from the less-skilled group in the inferential questions (INF) whereas there was virtually no difference between the two groups in the literal questions (LIT). The greater difference between the two proficiency groups in INF than in LIT seems to suggest that the difference lies in the ability to make inferences, and not in the ability to achieve a surface level understanding of the texts.

Table 3 The Means and Standard Deviations of Accuracies in Both Inferential Questions and Literal Questions

Var	N	All		Skilled			Less-Skilled		
		Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev
TCP	45	24.87	2.34	15	25.33	2.47	15	24.60	1.96
FL	45	7.00	0.95	15	6.87	1.06	15	7.07	0.88
VL	45	6.84	0.85	15	7.07	0.92	15	6.67	1.16
FI	45	5.91	0.97	15	5.87	1.51	15	5.93	1.39
VI	45	5.11	1.53	15	5.53	0.96	15	4.93	0.72
LIT	45	13.84	1.19	15	<i>13.93</i>	2.06	15	<i>13.73</i>	1.60
INF	45	11.02	1.85	15	<i>11.40</i>	1.10	15	<i>10.87</i>	1.10

LIT (Literal) = FL (False Literal) + VL (Valid Literal)

INF (Inferential) = FI (False Inferential) + FL (False Literal)

TCP = LIT + INF

*Correlational Analysis of Reading Comprehension Ability and Performance on Inference Questions and Literal Questions*

Pearson correlation coefficients associated with high and low English proficiency are shown in Tables 4 and 5, and are graphically presented in Figure 2.

Correlational analysis of the data of 45 subjects (Table 4) shows that there was a significant correlation between C4 (syntax) and VL [ $N=45$ ,  $r=0.42$ ,  $p < .01$ ]. This result may indicate that a knowledge of syntax (C4) is important for understanding the literal meaning of a text (VL). There was also a significant correlation between C4 and the EPT [ $N=45$ ,  $r=0.53$ ,

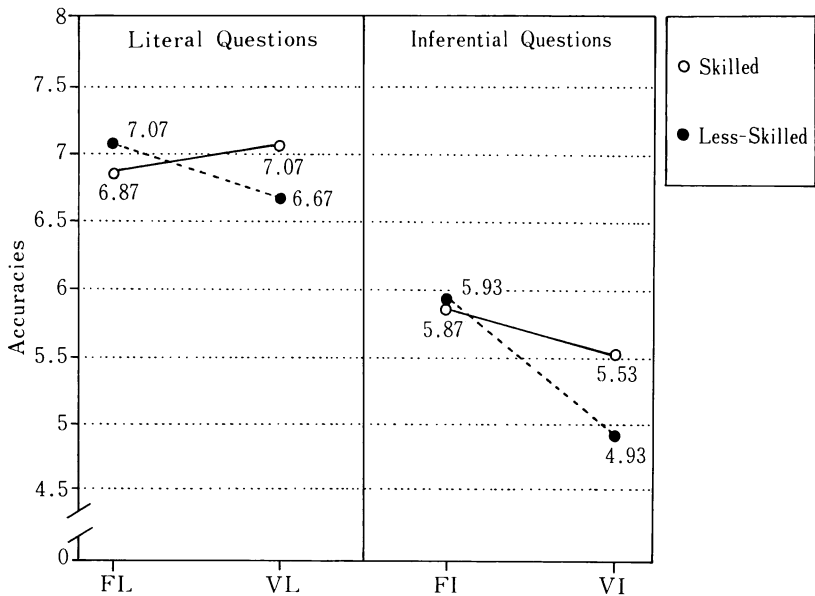


Figure 1 The Means of Accuracies on both Inferential and Literal Questions

Table 4 Pearson Correlations Coefficients

*All Subjects* (N=45)

	FL	VL	FI	VI	LIT	INF	TCP	EPT
C1	-0.05	-0.03	0.09	0.15	-0.06	0.17	0.10	0.60**
C2	-0.01	0.03	-0.03	-0.14	0.01	-0.13	0.10	0.55**
C3	0.08	0.10	-0.00	0.03	0.14	0.02	0.09	0.58**
C4	-0.03	0.42**	0.04	0.10	0.27	0.10	0.22	0.53**
C5	0.04	0.26	0.36*	0.08	0.22	0.26	0.31*	0.52**
C6	-0.10	0.10	0.28	-0.02	-0.01	0.13	0.10	0.27
EPT	-0.00	0.24	0.16	0.06	0.17	0.14	0.19	1.00**

\*  $p < .05$  \*\*  $p < .01$ *Skilled Readers* (N=15)

	FL	VL	FI	VI	LIT	INF	TCP	EPT
C1	-0.15	-0.46	0.49	0.41	-0.55*	0.51*	0.18	0.64*
C2	-0.15	0.14	0.02	0.03	-0.02	0.03	0.02	0.35
C3	0.31	-0.11	0.23	-0.29	0.20	-0.11	-0.01	-0.04
C4	-0.08	0.53*	-0.10	0.11	0.39	0.04	0.20	0.14
C5	0.21	0.02	0.25	0.39	0.23	0.40	0.43	0.58*
C6	-0.19	-0.19	0.02	0.09	-0.35	0.08	-0.09	0.14
EPT	0.03	-0.19	0.64**	0.37	-0.14	0.55*	0.40	1.00**

\*  $p < .05$  \*\*  $p < .01$ *Less-Skilled Readers* (N=15)

	FL	VL	FI	VI	LIT	INF	TCP	EPT
C1	0.26	0.13	-0.14	0.13	0.29	0.01	0.17	-0.06
C2	0.23	-0.11	0.00	-0.35	0.11	-0.30	-0.19	0.48
C3	-0.05	0.40	-0.12	-0.37	0.23	-0.41	-0.21	0.62**
C4	0.03	0.46	0.24	-0.18	0.33	0.02	0.20	0.58*
C5	-0.05	0.60*	0.60*	-0.49	0.36	0.01	0.21	0.71**
C6	0.07	0.29	0.48	-0.18	0.25	0.20	0.30	0.36
EPT	0.18	0.58*	0.28	-0.53*	0.53*	-0.26	0.08	1.00**

\*  $p < .05$  \*\*  $p < .01$

Table 5 Correlation between C5 and the Inferential Ability Test

	FL	VL	FI	VI	LIT	INF	TCP	EPT
Skilled	0.21	0.02	0.25	0.39	0.23	0.40	0.43	0.58*
Less-Skilled	-0.05	0.60*	0.60*	-0.49	0.36	0.01	0.21	0.71**
ALL Subjects	0.04	0.26	0.36*	0.08	0.22	0.26	0.31*	0.52**

\*  $p < .05$     \*\*  $p < .01$

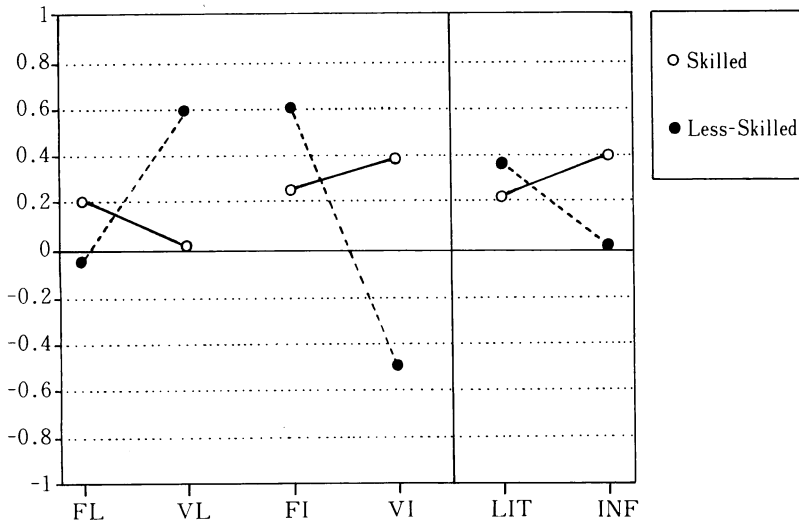


Figure 2 The Correlation Coefficients between Reading Comprehension (C5) and Inferential Questions (INF) and Literal Questions (LIT)

$p < .01$ ]. This may indicate that a knowledge of syntax (C4) may be required for the development of a general English language proficiency (EPT).

There was a significant correlation between C5 and FI [ $N=45$ ,  $r=0.36$ ,  $p < .05$ ], between C5 and TCP (the total score of the Inference Test) [ $N=$

45,  $r=0.31$ ,  $p < .05$ ], and between C5 and the EPT [ $N=45$ ,  $r=0.52$ ,  $p < .01$ ]. Thus, the result shows that reading comprehension (C5) is related not only to the ability to understand both literal and inferential questions (TCP) but also to general English language proficiency (EPT).

Analysis of the data of the skilled readers ( $N=15$ ) shows that there was a significant correlation between C4 and VL [ $N=15$ ,  $r=0.53$ ,  $p < .05$ ] while the correlation coefficient between C4 and the EPT was not at all significant ( $r=0.14$ ). Although a knowledge of syntax (C4) is correlated with the surface level interpretation of a text (VL), a knowledge of syntax (C4) did not affect the performance of skilled readers on the EPT. It seems that most skilled readers have already acquired a good knowledge of syntax, and that the difference in their EPT scores was produced by other factors than a knowledge of syntax (C4). Furthermore, there was a significant correlation between the EPT and FI [ $N=15$ ,  $r=0.64$ ,  $p < .01$ ], and between the EPT and INF [ $N=15$ ,  $r=0.55$ ,  $p < .05$ ]. This appears to confirm the above hypothesis: the EPT scores of the skilled readers were affected by the efficiency of their higher-order text processing ability, rather than by their knowledge of syntax. There was also a significant correlation between C5 and the EPT [ $N=15$ ,  $r=0.58$ ,  $p < .05$ ].

As for the less-skilled readers, there was a significant correlation between C4 and the EPT [ $N=15$ ,  $r=0.58$ ,  $p < .05$ ], and the correlation coefficient between C4 and VL was also high, although not significant [ $N=15$ ,  $r=0.46$ ,  $p < .08$ ]. This may indicate that a knowledge of syntax (C4) is not only a prerequisite for interpreting the literal meanings of a text, but that it also determines the performance of the less-skilled readers on the EPT. It is possible that less-skilled readers have not acquired a good knowledge of syntax and therefore the deficiency in their knowledge of it

had a major effect on their accuracy in the EPT. Significant correlation coefficients between C5 and VL [ $N=15$ ,  $r=0.60$ ,  $p < .05$ ], between the EPT and VL [ $N=15$ ,  $r=0.58$ ,  $p < .02$ ], and between EPT and LIT [ $N=15$ ,  $r=0.53$ ,  $p < .05$ ] seem to further support that the performances of the less-skilled readers on the EPT were influenced by their knowledge of syntax rather than by their higher-order cognitive skills, such as making inferences. While high correlation coefficients were obtained between the EPT and VL, and between the EPT and LIT, there was a significant negative correlation between the EPT and VI [ $N=15$ ,  $r=-0.53$ ,  $p < .05$ ]. This contrasting result may also show that less-skilled readers are, in comparison with skilled readers, more dependent on a knowledge of syntax rather than on higher-order skills (i. e., inferential ability) to obtain accurate and explicit information from a text.

Contrary to the prediction, there was a significant correlation between C5 and FI [ $N=15$ ,  $r=0.60$ ,  $p < .05$ ] as regards less-skilled readers. However, there was not a significant correlation between the EPT and FI ( $r=0.28$ ) for the less-skilled readers, whereas there was a significant correlation between the EPT and FI [ $N=15$ ,  $r=0.64$ ,  $p < .01$ ] for the skilled readers. A possible explanation for these results is that FI might not have been as difficult as predicted for the less-skilled readers. The less-skilled readers might have judged propositional correctness by using some kinds of question-answering strategies. For example, in order to answer the fourth question of Passage No.1 (see Appendix B), the subjects may search for 'the young man' first, then simply write F if they cannot find the content relating to 'knew' (e. g., P1 [KNEW, THE YOUNG MAN, X]). If so, the difference between FI and FL is no more clear-cut in a sense that the subjects have only to verify whether there is the content relating to 'knew'.

Thus, the difference between the two groups on FI is considered to have diminished.

As observed in the correlational analysis including all the subjects' data, there was a significant correlation between C5 and the EPT [ $N=15$ ,  $r=0.71$ ,  $p < .01$ ]. This indicates that C5 is a reliable test of reading comprehension. Therefore, based on the performance on C5 (reading comprehension), the present study analyzed the relationships between the levels of English language proficiency and the ability to understand not only the surface level meaning of a text (e. g., LIT) but also the deeper significance of the text (e. g., INF). As Figure 2 and Table 5 clearly indicate, the pattern of the performances by skilled readers contrasted with the performances by the less-skilled readers on the all experimental conditions.

#### 4. CONCLUSION

The present study investigated the relationship between the inferential ability and other linguistic skills, such as syntax and reading ability. The data showed that inferential questions (INF) were more difficult than literal questions (LIT) for both skilled and less-skilled readers. The studies on inference (Smith & Collins, 1981; Ellis & Beattie, 1986; Kemper, 1988) indicate that those sentences which require readers to make inferences need a longer time to be processed and that they put a greater cognitive load on readers. The accuracy of both groups on inferential questions was low in the current experiment. This was probably because inferential questions required the readers to make inferences, and, thereby increased their cognitive load.

In the study by Oakhill (1982), 7-to 8-year-old L1 children heard 8 short stories. After a three-minute card sorting, they read 32 recognition sen-



tences and said 'Yes' if they thought they had read exactly the same sentence before. They said 'No' if they thought they had not seen the sentence. The results for both skilled and less-skilled readers didn't differ when the children heard the sentences which they had originally read. However, skilled readers and less-skilled readers differed when they had to decide the truth or falseness of the sentences which were probable but not exactly the same as the original sentences. In comparison with less-skilled readers, skilled readers were more likely to judge those plausible sentences as correct (as regards inference, see Johnson, Bransford & Solomon, 1973; Winograd, 1972). In other words, skilled readers appear to understand a text by making use of inferences (a similar argument was made by Manktelow & Over, 1990, pp.18-19) and actively trying to construct a meaningful representation of the text.

In the present experiment, skilled readers were more accurate than less-skilled readers in inferential questions, although the difference was not significant. In contrast, there was no significant difference between skilled readers and less-skilled readers in literal questions. The data confirmed that inferential questions were more difficult than literal questions for Japanese university students who learn English as a foreign language. As predicted, the skilled group was constantly better than the less-skilled group in both literal and inferential types of questions and the difference between the two groups was larger in the inferential questions than in the literal questions. It may be that in answering literal questions, the reader has only to interpret accurately what is explicitly stated. On the other hand, in order to answer the inferential type of questions, the reader has to integrate the information at the inter-sentence level or even at the paragraph level. This would reduce the reader's cognitive working space.

Consequently, the accuracy in answering inferential questions was lower than that for literal questions. Greater difference in inferential questions and virtually no difference in literal questions between the two groups suggests, at least to some extent, that the ability to make inferences accounts for the different proficiency level between the two groups.

Correlational analysis was performed on the scores for the Inferential Ability Test and the totals of the EPT, and for the scores of the EPT subsections, such as C4 (syntax) and C5 (reading comprehension). In skilled and less-skilled readers, C4 (syntax) correlated higher with literal questions (LIT) than with inferential questions (INF). As regards the less-skilled group, C5 (reading comprehension) had a higher correlation with LIT than with INF. In contrast, as regards the skilled group, C5 correlated better with INF than with LIT.

In the case of the skilled group, there was a significant correlation between C4 (syntax) and VL (a surface level understanding), whereas the correlation between C4 and EPT (general English language proficiency) was not significant. A significant correlation was found between INF (inferential ability) and the EPT. These findings imply that syntactic knowledge is critical, especially for less-skilled readers, to accurately understand the meaning of a text. Yet, for the skilled readers who already have a sufficient knowledge of syntax, the higher-order cognitive skills such as inferential ability seem to play a more important role than syntactic knowledge in determining language proficiency levels.

As to less-skilled readers, there was a significant correlation between C4 (syntax) and EPT and a high correlation between C4 and VL (surface understanding), although it was not significant. These findings suggest that in the case of less-skilled readers, the syntactic knowledge was not

only necessary for a surface understanding of the text, but it determined the general English language proficiency (EPT). It is possible that the less-skilled readers have not completely learned the syntactic knowledge, and the syntactic knowledge plays a more important role than the inferential ability in determining their proficiency level. Significant correlations between C5 and VL, between the EPT and VL, and between the EPT and LIT also suggest that the reading comprehension ability (C5) or the general language ability of the less-skilled readers was determined by the ability to get a literal, accurate meaning of a text by making use of the syntactic cues. While there was a significant correlation between the EPT and VL, between the EPT and LIT, there was a significant negative correlation between the EPT and VI. This contrasting difference also shows that the level of the less-skilled readers' proficiency was more dependent on syntactic knowledge than higher-order skills, such as inferential ability.

#### Note

1. See Chapman (1979) for poor L1 readers' paying little attention to cohesive ties; also see Cohen et al. (1979) which showed that non-native readers of English did not notice conjunctive words signaling cohesion.
2. Afflerbach (1990) states that only readers with a prior knowledge of a topic were able to infer or construct main idea sentences when none were provided for difficult texts. See Phillips (1990) for the relationship between language proficiency and the use of inference strategy; also Pearson et al. (1979) for the effect of background knowledge on comprehension of explicit and implicit information.
3. Also see a summarized report by Oakhill et al. (1988).
4. There are at least three types of inferences: (1) Bridging Inferences, (2) Contextual or Elaborated Inferences, (3) Structural Inferences (Harris & Sipay, 1990, pp. 583-584).

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**Appendix A (Examples of the English Proficiency Test)\*1****C1**

Find a word in which the underlined part has the same pronunciation as that of the entry word.

(1) reward

1 charge      2 sorce      3 wrse      4 harth

**C2**

Read the following dialogues between a woman (W) and a man (M) and circle the most appropriate answer for each question (Q).

(1) W: "I can't stand this apartment because the rent went up very high. So I am going to move out next week. Do you think you can give me a hand?"

M: "Don't worry. I'll ask my club members to see if some of them are free also."

Q: "What does the man suggest?"

- (A) Asking some other people to help with the move instead of him.
- (B) Finding a different apartment.
- (C) Trying to find others to help them too.
- (D) Asking club members to find some other apartment.

**C3**

Select a word which is the closest in meaning to the underlined word of each sentence.

(1) The teacher's explanation was too intricate for me to understand.

1 vague      2 complicated      3 unusual      4 academic

**C4**

Choose the most appropriate word to fill in each blank.

(1) Mary (                    ) with the gift.

1 pleases      2 is pleasing      3 will please      4 is pleased

## C5-C6

Read the following passage and select the best answer for each question.

Electricity is such a part of our everyday lives and so much taken for granted nowadays that we rarely think twice when we switch on the light or turn on the radio. At night, roads are brightly lit, enabling people and traffic to move freely. Neon lighting used in advertising has become part of the character of every modern city. In the home, many labor-saving devices are powered by electricity. Even when we turn off the bedside lamp and are fast asleep, electricity is working for us, driving our refrigerators, heating our water, or keeping our rooms air-conditioned. Every day, trains, trolleybuses, and streetcars take us to and from work. We rarely bother to consider why or how they run—until something goes wrong.

In the summer of 1959, something *did* go wrong with the power plant that provides New York with electricity. For a great many hours, life came almost to a standstill. Trains refused to move and the people in them sat in the dark, powerless to do anything; elevators stopped working, so that even if you were lucky enough not to be trapped between two floors, you had the unpleasant task of finding your way down hundreds of flights of stairs. Famous streets like Broadway and Fifth Avenue in an instant became as gloomy and uninviting as the most remote back streets. People were afraid to leave their houses, for although the police had been ordered to stand by in case of emergency, they were just as confused and helpless as anybody else.

(1) Electricity

- A is something we have come to accept without question.
- B has not made life easier.
- C is something of a miracle.
- D is something we think about all the time.

- (2) It is not until electricity fails that
- A we take it for granted.
  - B people and traffic are able to move freely.
  - C we realize its real value.
  - D we regard neon lighting as part of the character of a modern city.
- (3) The power failure caused elevators to stop, so that people
- A refused to move trains.
  - B were obliged to walk down hundreds of flights of stairs.
  - C were so lucky as to be trapped between two floors.
  - D had to stand by.
- (4) The police
- A had ordered people not to leave their houses.
  - B ordered people to stand by in case of emergency.
  - C were no less confused and helpless than anybody else.
  - D did go wrong with the power plant.
- (5) Most large modern cities
- A would do very well without electricity.
  - B are completely dependent on electricity.
  - C need air-conditioned buildings.
  - D can do without electricity.

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\* 1 Except for C2 stimuli for the English Proficiency Test (EPT) were selected from among the questions in the STEP (Society for Testing English Proficiency) test. The stimuli for C2 were adopted from a listening textbook for TOEFL by H. Murakawa (1986).



**Appendix B (Examples of the Inferential Ability Test)**

## Passage No.1

Harry Marsh was a driving examiner who had to test people who wanted to get a driving-licence. One day he came out of his office as usual and saw a car at the side of the road, with a young man in it. He got into the car beside the driver and told him to check the lights, then the brakes and then all the other usual things. The driver performed everything promptly and faultlessly, without saying a word.

Then Harry told the driver to start his engine and drive forward. Then he told him to turn right into a side road, stop, go backwards into another side road and then drive to the office again. On the way, the driver said to Harry politely, "Could you please tell me why we are doing all these things? I was passing through this town and only stopped to look at my map."

(quoted from L. A. Hill, 1980a, p. 4.)

Which of these sentences are true (T) and which are false (F)?

1. Harry got into the car and told the young man to fasten a seat belt. (FL)
2. The young man could start a engine and drive forward promptly and faultlessly. (VI)
3. The young man's car had been parked outside Harry's office. (VL)
4. The young man knew that Harry was giving him a driving test. (FI)

## Passage No.7

Sally had been studying at an art college for a year and, like most students, she did not have much money. It was going to be her mother's birthday soon, and she wondered what she could buy her as a present that would be nice and useful but not too expensive.

Sally's college was in London, but she had been living in the country for many years, so every day she had an hour's journey by train

in the morning, and the same in the evening.

At lunch time one day, a week before her mother's birthday, she decided to have a quick sandwich and a cup of coffee instead of her usual meal in the college hall, and then go shopping near her college to try to find her mother a nice present.

When she had been looking for half an hour, she came across a shop that was selling umbrellas cheap, and decided that one of those would solve her problem, since her mother had lost hers the month before.

"Now which colour shall I choose?" she thought. "Well, I think a black one would be the most useful really. You can carry that when you are wearing clothes of any colour, can't you?" So having made up her mind, she bought a lovely black umbrella and took it back to the college with her until her classes had finished.

On her way back home in the train that evening, she felt hungry because she had had such a small lunch, so she went along to the buffet car for another sandwich and a cup of coffee. She had left the black umbrella above her seat in the compartment, but when she got back, it had gone! When she had left the compartment, there had been no other passengers in it, but now there were three.

Sally burst into tears when she saw that the umbrella was no longer there. The other passengers felt very sorry for her and asked what the matter was. When she explained that the black umbrella she had bought for her mother had disappeared, and that she had to get out at the next station, the three other passengers asked her for her mother's address, in order to be able to send the umbrella on to her in case someone had removed it by mistake and not on purpose, and brought it back after Sally had got out of the train.

The next week, Sally heard from her mother. Her letter said, "Thank you very much for your lovely presents, but why did you send me three black umbrellas?"

(quoted from L. A. Hill, 1988, pp. 6-7)

Which of these sentences are true (T) and which are false (F)?

1. Sally wanted to buy a present for her birthday. (FL)
2. She did not have her usual lunch because she needed the money to buy an umbrella. (FI)
3. She usually had a quick sandwich and cup of coffee for lunch. (FL)
4. The umbrella was not in the compartment when she came back. (VL)
5. She left the umbrella in her compartment in the train because there were no other passengers there. (VI)
6. The other passengers said they wanted Sally's mother's address because they wanted to send her another (a new) umbrella. (VI)