A Study of Reading Strategies and Effects of Reading Ability Levels and Text Types on Rational Deletion Cloze Test Performance of EFL University Students

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Abstract

This study aims to investigate the effects of reading ability levels and two text types, narrative and expository texts, on the rational deletion cloze test performance and to study the students' use of reading strategies on their taking the cloze test. One hundred seventy-four first-year university students participated in this study. They were assigned into three groups of high, average and low reading ability. The instruments included a rational deletion cloze test and a reading strategies questionnaire. The interaction effects of reading ability levels and text types on the cloze test performance were found to be nonsignificant. However, each of these two variables had a significant effect on the cloze test performance, with large effect sizes. The uses of reading strategies by the three reading ability groups while working on the cloze test were also found to be significantly different.

Key words: *cloze test, rational deletion cloze test, reading ability, reading strategies*

I. Introduction

Cloze tests have been extensively used, for more than 30 years, as completion measures, aimed at tapping reading skills. The cloze procedure is regarded as an integrative method of assessment since the completion of cloze items requires simultaneous processing of several linguistic components (Madsen, 1983 cited in Keshavarz and Salimi, 2007). Many studies on the concurrent validity of cloze procedures (e.g. Oller, 1972; Irvine et al., 1974; Stubbs and Tucker, 1974; Alderson, 1979; Brown, 1980; Hinofotis, 1980) show high correlations between cloze tests and standardized tests, and with their sub-tests. This has led to the assumption that the cloze test can be used as a measure of overall proficiency in English as a second language (Saito, 2003) as well as a measure of reading comprehension (Alavi, 2005).

However, the precise language abilities required by a given cloze test and the effects of cloze methods — fixed-ratio, rational, and multiple-choice — have been controversial issues. Among these three methods, research on fixed-ratio cloze procedure, with every nth word deletion, has been the focus. The advocates of cloze procedure claim that cloze tasks involving the discourse processing ability can measure reading comprehension at the macro level (Oller, 1979 cited in Chapelle and Abraham, 1990; Chavez-Oller et al., 1985; Jonz, 1990; McKenna and Layton, 1990; Fotos, 1991). However, researchers like Alderson (1980, 1983, and 2000) and Cohen (1998) regard cloze tests as only measures of local-level reading ability.

To construct cloze tests to evaluate reading comprehension, Alderson (1979) suggested that the tests should obtain the deletion criteria from aspects of the reading process so as to indicate that test takers relate different pieces of information beyond clause boundaries of the deleted word to restore the gap, and therefore the tests could measure 'higher order processing abilities.' Bachman (1985) has suggested the development of a rational deletion cloze test, "a cloze test of specific abilities through the use of a rational deletion procedure." He has proposed the principal basis for classifying and selecting words to be deleted by using the hierarchical structure of written discourse as a criterion, since "not all deletions in a given cloze passage measure exactly the same abilities" (Bachman, 1985: 535). These criteria were derived from discourse processing theory, which is the fundamental principle that asserts that learners proceed through the text by using both micro-level and macro-level text processing strategies (Read, 2000: 107). Despite being frequently recommended in cloze testing, few studies have employed Bachman's category of cloze items. Only Sasaki (2000) and Yamashita (2003) have employed this category in their coding scheme to analyze the subjects' self-report on their cloze test taking process, but not as the classification for cloze deletion as Bachman has suggested.

In conducting language testing research, to further focus on test construction, researchers need to take into account factors that can affect performance on language tests (Bachman, 1995: 155). In the field of cloze testing, there is a vast amount of research in cloze tests on different variables — such as deletion ratio, scoring systems, passage difficulty, and method of student response. However, text type is a variable that does not receive much attention in cloze test research. This may stem from the standard practice of cloze testing, which employs only one passage of a certain length. Nevertheless, this practice has often been criticized, since a single text cannot be a representative sample of the language (Klein-Braley, 1997: 59).

Research evidence suggests that text type is related to reading comprehension (Alderson, 2000). Narrative and expository are two main text types (Koda, 2005). These two text types have different effects upon language learners; narrative text appears to be easier to understand and monitor than expository text (Alderson, 2000; Koda, 2005). While research on reading assessment has studied the relationships of text types to reading comprehension (Brantmeier, 2005), only a handful of studies to date has concentrated on the effects of text types on a cloze task. Among those few is Wu's (1994) work. He found that the narrative texts were more suitable for measurement of students' reading comprehension than the expository texts.

Another perspective that only a small number of research studies on cloze tests seem to pay attention to is that of the test takers themselves. In a normal reading situation, a reader only concentrates on reading strategies that enable him or her to interpret the text, whereas in the testing situation, not only does a test taker have to be concerned with the interpreting of the text, but he/she also "needs to develop different strategies to interpret the test as well as to complete the task….[t]he strategies applied in the testing situation vary with test tasks" (Francis, 1999: 46). There are few studies investigating reading strategies in cloze testing,

except for Kletzien's (1991) and Lu's (2006) studies. They found that individual test takers used different reading strategies in restoring the cloze blanks. They both seemed to agree that research on reading strategies in cloze test performance would yield some significant information for reading education.

Traditionally, cloze tests are regarded as measures of reading comprehension. Test takers are required to search for "a distribution of elements" in restoring cloze gaps (Weaver, 1965: 127, cited in Raymond, 1988: 91) and to supply the gaps using surrounding words and context (Paris and Jacob, 1984: 2087). Due to the fact that cloze tests highly correlate with other measures of language proficiency (e.g. Oller, 1972; Irvine et al., 1974; Stubbs and Tucker, 1974; Alderson, 1979; Brown, 1980; Hinofotis, 1980), high achievers in cloze tests tend to achieve highly in the reading comprehension tests. However, there are only a few studies on rational cloze testing with second-language learners (e.g., Bensoussan and Ramraz, 1984; Hale et al., 1989; Jonz, 1990; Abraham and Chapelle, 1992; Sasaki, 2000; Yamashita, 2003). Findings from some of these studies seem to support that rational deletion cloze tests can be a measure that performs well in differentiating good and poor readers (Yamashita, 2003).

Accordingly, it is interesting to explore whether the rational deletion cloze test can be used as a measure of English as a Foreign Language (EFL) reading comprehension that can differentiate students of different reading ability. Since few studies have employed Bachman's (1985) classification of cloze items in cloze testing, it is also interesting to explore whether the rationale proposed by Bachman can help generate a cloze test consisting of items that can elicit different types of information, ranging from clause-level to text-level information. And, since the traditional cloze test has been criticized for its use of a single text, it is noteworthy to explore whether the test results can confirm the differences between text types, when both narrative and expository texts are included, as these two text types have been predicted to have different effects upon language learners. Finally, if it has been stipulated that the rational deletion cloze test can be a measure of reading comprehension, it is also interesting to explore whether students use different reading strategies in their cloze test performance.

This paper is part of a larger study which included data from retrospective interviews to gain in-depth information about the use of reading strategies in filling cloze gaps and to validate the test construct. The focuses of this paper are restricted to the following three research questions:

1. Do students' different reading ability levels have a significant effect on their rational deletion cloze test performance?
2. Do different text types have different effects on the rational deletion cloze test performance of the students with different reading ability?
3. Are there differences in the use of reading strategies by students with different reading ability levels in their taking the rational deletion cloze test comprising two different text types?

2. Methods

2.1 Participants

One hundred seventy-four university students were randomly selected to participate in this study. They were then chosen to represent readers of high ability (n = 58), average ability (n = 58) and low ability (n = 58). The reading test used to select these participants consisted of 40 multiple-choice test items. It was developed by the researchers and had reliability values (Cronbach's alpha) of 0.80 (the 2009 academic year), and 0.84 (the 2010 academic year). Based on the scores of the test, students at or above the 70th percentile rank were identified as readers of high ability. Students between the 69th and the 35th percentile ranks were identified as readers of average ability, and those below the 35th percentile rank were identified as readers of low ability. Table 1 shows the mean scores of the reading test and the differences among the three reading ability groups.

Table 1 Mean scores, standard deviations and standard errors of the reading test

	N	Mean	Std. Deviation	Std. Error
Low reading ability group	58	9.4310	1.63420	.21458
Average reading ability group	58	16.1207	2.34766	.30826
High reading ability group	58	25.0345	4.28365	.56247
Total	174	16.8621	7.05908	.53515

2.2 Instruments

In order to address the three research questions, two instruments, as listed below, were employed with the participants. A description of each instrument is provided in the sections that follow.

- the rational deletion cloze test
- the reading strategies questionnaire

a. The rational deletion cloze test

Two passages from pre-intermediate-level EFL textbooks, "Old Age in Present Society" (Day et al., 1999) and "The Ant and the Grasshopper" (Dos Santos, 2007), were adapted to be used in this study. The passages were 254 and 257 words in length and were determined to be at the fifth-grade readability level, using the Flesch-Kincaid Grade Level formula (Child, 2004). The pre-intermediate-level passages were used in order to facilitate the test-taking process, as none of the participants were familiar with the construct-responded cloze task. Another thing that was taken into consideration in selecting texts was strategy use. Researchers (e.g. Kletzien, 1986 and Bednar, 1987, cited in Kletzien, 1991; Paris et al., 1996 cited in Hudson, 2007) suggest that the use of reading strategies would decline if the reading task becomes harder. Thus, it was hoped that the given cloze texts would stimulate the students in their cloze test performance to a certain degree.

These two passages had undergone the selection and trial processes. "The Ant and the Grasshopper," an Aesop's fable, was used as a narrative cloze. This story was expected to activate the participants' world knowledge due to text familiarity. "Old Age in Present Society" was used as an expository cloze. This passage was also expected to activate the participants' world knowledge in terms of cultural familiarity. The rhetorical pattern of organization of the expository text is compare/contrast. This pattern of organization was used since previous studies have suggested that learners of different levels seem to be sensitive to compare/contrast text structure (Meyer and Freedle, 1984; Ghaith and Harkouss, 2003).

Each cloze text consisted of 20 items. Each blank, or item, required one word. The students responded to the cloze items by supplying their own words. The rationale for item deletion used in this study was adopted from Bachman's (1985) classification of cloze item types. These types of items are as follows.

1. The "within clause" item type. This item type requires the information within the clause where the cloze blank appears as a source of information for gap filling.
2. The "across clause, within sentence" item type. This type of cloze item requires the information across clause, but within the boundary of the sentence where the cloze blank appears as a source of information for gap filling.
3. The "across sentence" item type. This third type of item requires the students to read beyond the sentence where the gap appears in order to find source of information to restore the gap.
4. The "extratextual" item type. This last type of item requires the information outside the text boundary. The students have to relate what they have read to their world knowledge in order to restore the gap.

From the analysis of the two selected texts, it turned out that these two simplified texts had similar ratios of different types of text information. Both consisted of approximately 45% of the clause text information, 45% of the intersentential text information, and 10% of extratextual information. These ratios were maintained in the two cloze texts, and thus resulted in the following numbers of cloze items for each level of text information: six "within clause" items, three "across clause, within sentence" items, nine "across sentence" items, and two "extratextual" items. The average deletion ratio for each cloze text was 1:9. (The average deletion rate for the narrative cloze text was every 9.65 words, and the average deletion rate for the expository cloze text was every 9.1 words.) The six "within clause" items require three content words (a noun, a pronoun, an adverb) and three function words (a preposition, a collocation and a conjunction under clause). The three "across clause, within sentence" items require two content words (a verb and an adjective), and one function word (a negation). The nine "across sentence" items require seven content words (four nouns, one verb, an adjective, and one adverb) and two function words (the conjunctions above clause). The two 'extratextual' items require two content words (a noun and a verb).

To validate the test, eight lecturers in English were asked to provide retrospective data upon their completion of the two cloze texts; narrative and expository texts. The reason for not including native speakers of English in this task was based on the researcher's assumption that the way in which Thai teachers form their ideas on the cloze tasks would be similar to that of the students' due to their similar background in education. All eight lecturers used the same types of information as what had been designed for the test to restore cloze gaps in both the narrative and expository texts. The agreement ratio was 100%.

An acceptable alternative scoring procedure was used in this study. The correct answers from the lecturers and the students during the trial of the test were used as alternatives in the scoring key for acceptable responses.

b. The reading strategies questionnaire

The reading strategies questionnaire was employed in this study to capture the participants' use of reading strategies while they were working on the cloze test, since the test was assumed to be a tool that could measure comprehension at both the local and global levels. It should be noted that this survey was aimed at getting information concerning the participants' perception of their strategy use during the cloze test-taking process. The types of strategies enabling test takers to correctly solve cloze problems were not the focus of this survey.

The questionnaire was in the form of a checklist. The categories of reading strategies serving as the basis for constructing the questionnaire were based on the studies of Kletzien (1991) and Lu (2006). The strategies proposed by Kletzien and Lu are congruent with those "while-reading strategies" posited by Paris et al. (1996 cited in Hudson, 2007: 107-108). The questionnaire underwent trial processes. Strategies 1-11, as shown in Table 7, have been maintained throughout, and the strategy of "translating" was added, taken from the participants' suggestion in the trial processes.

The split-half reliability estimation of the questionnaire using the Spearman-Brown coefficient and the Guttman Split-Half coefficient resulted in reliability values of .788 and .785 (first semester of the 2010 academic year). Thus, the checklist questionnaire had high internal consistency.

3. Research procedures

All participants took the rational deletion cloze test in one test administration. The time allocation for each cloze text was 30 minutes. The two cloze texts were distributed to the participants in a counterbalancing manner to avoid practice effects. The checklist questionnaire was attached to each cloze text (narrative and expository) to elicit the participants' use of reading strategies on their solving the cloze items.

Data Analysis

The responses to the cloze test were scored, using the acceptable scoring key. Alternatives that

are semantically acceptable with minor spelling mistakes were given 2 points. The alternatives that are in the following forms were given 1 point: those in which word choice is not appropriate, but reflects test takers' understanding of the story; those that are not grammatically correct but the meaning of the slot is maintained; those that are not syntactically acceptable but the meaning of the slot is maintained; and those that violate the instructions by inserting more than one word, but the meaning of the slot is maintained.

The present study employed Cronbach's alpha as an estimation of reliability values. This is because there was more than one test score for each cloze item due to the use of the semantically acceptable scoring method. The reliability value (Cronbach's alpha) of the narrative cloze text was 0.84, and of the expository cloze text was 78.

3.1 Effects of reading ability levels and text types on rational deletion cloze test performance
A two-way ANOVA analysis with replication was carried out to portray the answers to the first two research questions. The two-way ANOVA analysis with replication was used when the same subjects were in two or more conditions (Arther, 2009). In this study, reading ability was the within-subject variable in which each subject was assessed in two conditions. The conditions were the narrative cloze and the expository cloze. The two-way ANOVA with replication was done in Excel.

In analyzing the effect of the reading ability levels on students' rational cloze test performance, a one-way independent ANOVA and the post hoc tests were used.

The effect sizes of the two ANOVA analyses, on narrative and cloze text performance, were calculated. The measure of omega squared (ω^2) was used to estimate the effect sizes for the one-way single factor ANOVA analyses for the comparisons of the performance of the three reading ability groups on the two cloze texts; narrative and expository (Field, 2009: 390).

3.2 Effects of text types on rational deletion cloze test performance
For the effect of text types on the rational cloze test performance, a dependent t-test was used to compare the differences between the scores gained from the narrative and the expository cloze texts.

The measure of Pearson correlation coefficients effect size r was used to estimate the effect size for the dependent t-test analysis of the difference between the two text types, since this estimate is widely used for the t-statistic (Field, 2009: 332).

3.3 The use of reading strategies
Responses to the questionnaire on the use of each strategy were counted. Frequency counts of each strategy used by different groups of readers were then calculated.

The Kruskal-Wallis tests were used to find out whether there were differences in the use of reading

strategies by students with different reading ability levels in doing the rational deletion cloze test comprising two different text types. The Mann-Whitney tests, which are the post hoc procedures for the Kruskal-Wallis tests, were then used to test differences in the use of reading strategies in all different combinations of the reading ability groups.

The effect sizes for the differences among all pairs compared were calculated by using the measure of Pearson correlation coefficients effect size r (Field, 2009: 570).

4. Results
All the statistical analyses were performed using SPSS version 13.0. The results are presented in accord with the research questions.

Descriptive statistics
The descriptive statistics of the rational cloze test are shown in Table 2 below. The mean scores of the two cloze texts reflect that the participants tended to have a higher performance on the narrative cloze than on the expository cloze. The reliability of each cloze text was regarded as high.

Table 2 Means, standard deviations, and reliability values of two cloze texts

	Mean	Variance	Std D	Cronbach's Alpha	No. of items
Narrative cloze	22.776	71.817	8.474	.841	20
Expository cloze	19.419	54.106	7.356	.778	20

Effects of reading ability levels and text types on rational deletion cloze test performance
A two-way ANOVA analysis, as shown in Table 3, revealed that both reading ability levels and text type had significant effects on the rational cloze test performance.

Table 3 The main effects and the interaction effect of reading ability level and text type

Source of Variation	SS	df	MS	F	p-value	Fcrit
Reading ability level	5371.195	2	2685.598	55.51134*	0.001	3.022127
Text type	1051.796	1	1051.796	21.74064*	0.001	3.868792
Interaction	72.16092	2	36.08046	0.745784	0.48	3.022127
Within	16545.71	342	48.37926			
Total	23040.86	347				

* $p < .05$

Since the performances of the three reading ability groups on the rational cloze test were significantly different, an ANOVA single factor was employed on the reading ability levels to find out which levels differed on the performance on each cloze text. It was found that there were significant differences among the three reading ability groups in their performance on each cloze text.

The effect sizes of the effect of reading ability levels on the rational deletion cloze test performance were calculated using the omega squared (ω^2) equation. It was found that the effect of reading ability levels on the narrative and expository cloze were large, $\omega^2 = .26$ and $.22$ respectively, which represented a substantial finding.

Table 4 The main effect of reading ability levels on narrative cloze performance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3201.655	2	1600.828	29.903*	.001
Within Groups	9154.207	171	53.533		
Total	12355.862	173			

* p< .05

Table 5 The main effect of reading ability levels on expository cloze performance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2241.701	2	1120.851	25.931*	.000
Within Groups	7391.500	171	43.225		
Total	9633.201	173			

* p< .05

Paired comparisons were then conducted. It was found that the high reading ability group scored significantly higher than the average and the low reading ability groups (p< .05) in both cloze texts.

4.2 Effects of text types on rational deletion cloze test performance
As shown earlier, the initial results from the two-way ANOVA analysis with replication indicated that the two text types, namely narrative and expository, had significant effects on the cloze test performances of the three reading ability groups. At this stage, the dependent t-test, or paired samples t-test, was used to compare the differences between the scores gained from the narrative and the expository cloze texts. Table 6 shows the details of the standard deviations and the standard error means of the two cloze texts. On average, the participants had higher scores on

the narrative cloze text (M = 22.76, SE = .64) than on the expository cloze text (M = 19.28, SE = .57). From the table, it was evident that the average scores of the two text types were significantly different, t = 23.46, p< .05. The effect size of the effect of text types on cloze test performance was calculated using the estimation of Pearson correlation coefficients (r) equation. This resulted in a large effect size, r = 0.46, which suggested a substantial finding.

Table 6 Comparison of narrative and expository cloze test performance

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Narrative cloze – Expository cloze	3.477	1.955	.1482	3.184	3.769	23.46*	173	.000

* p< .05

4.3 The use of reading strategies

The results from the Kruskal-Wallis H tests, as shown in Table 7, revealed that the use of each reading strategy by the three reading ability groups was significantly different. All participants reported the use of "reading the whole cloze passage before working on the blanks" and "using context to restore the blanks." The strategies of "making inferences" and "using main idea" were reported the least, while none of the participants reported the use of the "using main idea" strategy in their narrative cloze performance.

Table 7 The percentages and the H values of reading strategies used on the narrative and expository cloze (In each cell, the data of the narrative cloze is presented on the first line, and that of the expository cloze on the second line)

Strategies	High-reading ability group	Aveage-reading ability group	Low-reading ability group	X2	
1. reading the whole cloze passage before working on the blanks	58 (100%) 58 (100%)	58 (100%) 58 (100%)	58 (100 %) 58 (100%)	.0 .0	.000 .000
2. skipping unknown words while reading the cloze passage	30 (51.7%) 41 (70.6%)	50 (86.2%) 50 (86.2%)	52 (89.7%) 52 (89.7%)	131.00* 142.00*	

Strategies	High-reading ability group	Aveage-reading ability group	Low-reading ability group	X2
3. using sentence structures	51(87.9%) 51(87.9%)	32 (55.2%) 32 (55.2%)	28 (48.3%) 28 (48.3%)	110.00* 110.00*
4. using rhetorical patterns of organization	40 (69%) 51 (87.9%)	32 (55.2%) 32 (55.2%)	28 (48.3%) 28 (48.3%)	99.00* 110.00*
5. focusing on vocabulary	55 (94.8%) 55 (94.8%)	33 (56.9%) 33 (56.9%)	33 (56.9%) 33 (56.9%)	120.00* 120.00*
6. using context to restore the cloze blanks	58 (100%) 58 (100%)	58 (100%) 58 (100%)	58 (100%) 58 (100%)	.000 .000
7. looking for key words and phrases	58 (100%) 58 (100%)	42 (72.4%) 42 (72.4%)	32 (55.2%) 32 (55.2%)	131.00* 131.00*
8. using punctuation	58 (100%) 58 (100%)	31 (51.7%) 31 (51.7%)	28 (48.3%) 28 (48.3%)	116.00* 116.00*
9. making inferences	33 (56.9%) 33 (56.9%)	31 (53.4%) 31 (53.4%)	21 (36.2%) 21 (36.2%)	84.00* 84.00*
10. using main idea	- 38 (65.5%)	- 18 (31%)	- -	- 55.00*
11. using prior or world knowledge	54 (93.1%) 54 (93.1%)	55 (94.8%) 55 (94.8%)	46 (79.3%) 46 (79.3%)	154.00* 154.00*
12. translating	50 (86.2%) 50 (86.2%)	58 (100%) 58 (100%)	58 (100%) 58 (100%)	165.00* 165.00*
Total	**545 (78.30%) 605 (86.93%)**	**480(68.97%) 498(71.55%)**	**442(63.51%) 442(63.51%)**	**1466.00* 1544.00***

*p <.05

The Mann-Whitney tests employing a Bonferroni correction were used to follow up this

finding. It appeared that the use of reading strategies on performing both cloze texts by the high reading ability group was significantly different when it was compared to that of the average and low ability groups. Table 8 shows the results of paired comparisons among all ability groups on their working on narrative and expository texts.

Table 8 Paired comparisons

	Strategy use on narrative cloze			Strategy use on expository cloze		
	High/ Average ability	High/ Low ability	Average/ Low ability	High/ Average ability	High/ Low ability	Average/ Low ability
Mann–Whitney U	106389	92486.5	98390	116187	104510.5	106346
Wilcoxon W	221829	190389.5	196293	24043	202413.5	204249
Z	–5.339*	–6.515*	–1.960	–6.726*	–6.233*	–.918
Asymp. Sig. (2-tailed)	.000	.000	.050	.000	.000	.358

*$p < 0.01$
Grouping Variable: Ability levels

The effect sizes of the differences in paired comparisons were calculated, using the estimation of Pearson correlation coefficients (r) equation. The large effect sizes were obtained, suggesting that the high reading ability group used more reading strategies in their performance on the narrative cloze test, r = .5 and .6, and the expository cloze test, r = .62 and .58.

4. Discussion

In this section, each of the research questions is discussed consecutively.

Q 1: Do students' different reading ability levels have a significant effect on their rational deletion cloze test performance?

Regarding the first research question, the finding supports McKamey (2006) in that reading ability contributes to performance in the rational deletion cloze test. The work of Yamashita (2003) is also confirmed in that the rational deletion cloze test differentiates well between learners of different reading abilities.

The cloze item classification suggested by Bachman (1985) tends to be the appropriate criteria for item deletion since different types of items require different types of information. The finding also concurs with what Brown (2002) has pointed out, that each cloze item may function differently for different language groups, depending on their proficiency level. Moreover, this finding lends support to previous studies' assertions that rational deletion cloze tests can measure both

sentential and text-level comprehension (Alderson, 1979, 2000; Levenston, Nir and Blum-Kulka, 1984, cited in Storey, 1997; Read, 2000; Yamashita, 2003).

Finally, successful cloze test performance requires a number of different language skills, (e.g. grammatical knowledge, vocabulary knowledge, and reading comprehension) in which students are required to read across sentence boundaries, and, in certain ways, they have to relate what they have read to their world knowledge. In this study, learners who had high reading ability tended to possess more of these language skills than the average and low ability groups, which resulted in better cloze test performance.

Q 2: Do different text types have different effects on rational deletion cloze test performance?
The finding supports the work of Wu (1994) in that text types have an effect on the students' cloze performance and that the narrative texts are more sensitive to intersentential comprehension. The finding also confirms the theory that narrative text appears to be easier to understand and monitor than expository text (Alderson, 2000: 64; Lipson and Wixson, 2003: 181; Koda, 2005: 155; Zabrucky and Ratner, 1992, cited in Carnine et al, 2004: 336).

The data seems to support Koda (2005: 155), who noted that "narrative discourse appeals to readers' shared knowledge of the world." Results from informal interviews showed that the story of "The Ant and the Grasshopper" (the narrative cloze text) was familiar to the participants. The participants agreed that the background knowledge of the story facilitated their text comprehension. They seemed to have little difficulty following the sequence of events narrated in the story.

The difficulty of the expository text used in this study appears to emerge from the following factors. In normal reading, well-presented text enables readers to identify the relevant textual information, including main ideas and relationships between ideas, which is central to comprehension (Dickson, Simmons, and Kameenui, n.d.: 8). For example, important components of well-presented text are the location of main idea sentences and signal words. In cloze testing, however, text is presented in a different way with certain words deleted, some of which may be the signal words and the cues for the main idea. Good readers are generally aware of physical patterns of text organization even when the text is altered, as in cloze text (Grabe, 2004: 52). In this study, the high reading ability group seemed to be able to follow the story related in the expository cloze text, which, as mentioned earlier, was presented in the compare/contrast text structure.

Another factor in the perceived difficulty of the expository cloze may be the perception of vocabulary difficulty. The participants, especially the average and the low ability students, in the informal interviews observed that the vocabulary used in the expository cloze made the text more difficult than the narrative cloze. For them, the expository text was a formal report on the life of old people. In their opinion, more difficult words were found in the report than those found in the fable. Kletzien (1991) posited that the subject's perception of text difficulty may have certain effects on his/her test performance. This may result in the low performance of the

average and low reading ability groups. Moreover, research has shown that vocabulary knowledge plays an important role in L2 reading comprehension (Koda, 2005: 48; Zhang and Annual, 2008: 1), and that vocabulary knowledge correlates more highly with reading comprehension than other factors (Koda, 2005: 49). Thus, inadequacy of vocabulary knowledge in the average and low ability groups further contributed to their poor cloze test performance.

Q 3: Are there differences in the use of reading strategies by students with different reading ability levels in doing the rational deletion cloze test comprising two different text types?

Regarding the third research question, the overall employment of the 12 strategies by the three reading ability groups as shown in Table 7 revealed that there is no difference in the use of reading strategies in completing the narrative cloze and expository cloze. The finding shows that the high reading ability group used reading strategies in their cloze test-taking processes significantly more frequently than the average and low reading ability groups. This finding supports the work of Kletzien (1991) and Xiaoying and Xiangdong (2008). It seems that there is a positive relationship between the students' reading ability and the frequency of their use of reading strategies as suggested by different researchers (e.g. Paris and Meyer, 1981; Block, 1986; Upton, 1997). This may be interpreted as Xiaoying and Xiangdong (2008) have put it, "Proficient readers are more active in their attempt to comprehend than less-proficient ones."

Since the frequency of the use of reading strategies in solving both the narrative and the expository cloze texts as reported by the students was almost the same (see Table 7), the discussion in this part would focus on the overall employment of reading strategies regardless of the text type. The most frequently used strategies are "reading the whole cloze passage before working on the blanks" and "using the context to restore the blanks." Regarding the strategy of "reading the whole cloze passage before working on the blanks," the finding seems to be in contrast to what has been found in the previous studies (Emanuel, 1982, and Hashkes and Koffman, 1982, cited in Cohen, 1998: 104). In those studies it was found that only a quarter of non-native respondents read the entire EFL cloze passage before responding. In this study, however, all reading ability groups reported the use of "reading the whole cloze passage before working on the blanks." The reason why all participants in the present study read the whole text before completing the cloze test lies in the fact that the participants were not familiar with the constructed-responses cloze task. Results from the informal interviews revealed that the participants needed to read the whole cloze texts in order to get the idea of what they were about and how to tackle the task. Another explanation for the contrast to what was found by Emanuel, 1982, and Hashkes and Koffman, 1982, as cited in Cohen (1998), may lie in the differences of the samples used. The participants used in this study are EFL university students while the subjects used in those studies are schoolchildren. Students in different levels of education may have different ways of approaching cloze tasks. A possible explanation for the use of "using context to restore the blanks" by all participants may lie in redundancy. As the participants went through the cloze texts, they may have observed the language repetition in the texts (see the following example).

You didn't work this summer. You sang and danced. (16) _____ didn't follow my advice. You called me foolish.

According to Foto (1991), redundancy serves as a guiding principle which test takers can rely on to restore gaps and make inferences about the ideas in a cloze passage.

It was not surprising that "translating" and "using prior world knowledge" were reported as the second and third most-used reading strategies. It is possible that whenever the text comprehension was obstructed by language problems, the students, especially the average and low reading ability students, would resort to the "translating" strategy, to clarify the problem, as suggested by Wirotanan (2002). It is possible that use of the "translating" strategy frequently led to the unsuccessful restoration of the cloze gaps. Concerning the use of prior world knowledge, Grabe (2004: 50) stipulates that "the prior world knowledge facilitated the students' text comprehension." In addition, background knowledge, according to McCormick (1992, cited in Urquhart and Weir, 1998: 84), is more important in the understanding of expository texts than in narrative texts. However, it seems that the participants in this study used their prior world knowledge to facilitate their comprehension of the narrative text better than the expository text. Their familiarity with the fable presented in the narrative, despite the absence of several signaling cues, may have facilitated their constructing the text meaning. In the case of the expository text that is about the old people in the present society, despite their familiarity with the situation of the elderly, the story itself may not have been that stimulating. With the absence of discourse markers and several content words, the high reading ability participants tended to recognize the compare/contrast text organization better than the other two ability groups (Grabe, 2004: 52).

The students in the average and the low reading ability groups reported more frequent use of the strategy of "skipping unknown words while reading" than the students in the high reading ability group. This is in contrast to Hosenfeld (1977, cited in Hudson, 2007) and Carrell (1989), who claimed that low-proficiency readers viewed words as "equal in terms of their contribution to the phrase meaning", while the high-proficiency readers read in "broad phrases" and skipped words viewed as unimportant to the entire phrase meaning. It is possible that vocabulary knowedge of the average and the low reading ability participants was inadequate. Whatever words they did not understand, they would skip. That the high reading ability participants did not skip unknown words while reading may result from the test task itself, in which the deleted words must be restored. The participants may need to read every word in order to construct text meaning for restoring the blanks. That's why all the high reading ability participants reported using the strategies of "focusing on vocabulary" and "looking for key words and phrases."

Linguistic knowledge may have an effect on the use of the strategies of "using sentence structures," "using rhetorical patterns of organization," and "using punctuation." These strategies require linguistic knowledge from the readers in order to use them (Anderson, 1991). While the majority of the high reading ability group reported using these three reading strategies, only about 50 percent of the average group and less than 50 percent of the low group employed

these strategies. It is possible that the average and the low reading ability groups were equipped with insufficient linguistic knowledge.

Inferencing skills have been suggested as one of the important factors for successful reading comprehension (Alderson, 2000: 164) and cloze test performance (Stansfield and Hansen, 1983, cited in Fotos, 1991: 319). However, in this study, only a few students reported using the strategy of "making inferences," which was quite a surprising finding. From the informal interviews, the participants of all ability groups inferred the missing words from surrounding words and context, and they seemed to make inferences about the characters in the story of the narrative text. The reason that only a few of them reported using this strategy may lie in the Thai language used in the questionnaire, which may have misled them into thinking of making inferences as being something more complex than inferring the missing words and small incidents throughout the story. This point is worth pursuing with further investigation.

None of the students reported the strategy of "using main idea" in their work on the narrative cloze, however, and none of the low reading ability group reported using this strategy in their work on the expository cloze text. It may be as Bauman (1986, cited in Hudson, 2007: 109) has put it, that identifying the main idea of a text depends on text factors and students' reading ability. Bauman also suggests that when the main idea of a text is explicitly stated and presented early in the paragraph, it is more easily identifiable. That none of the participants reported use of the "using main idea" strategy while working on the narrative cloze text may reflect their comprehension of the narrative text structure, which, in general, does not require a main idea sentence. However, when reading the expository text, in which the main idea sentence is found early in the text, it is apparent that low ability groups have problems in identifying the main idea of the text. It seems that none of them were aware of the main idea sentence in the first paragraph. Not recognizing the main idea led to confusion in interpreting the subsequent parts of the text. This may be another factor in why the average scores on the expository cloze by the low-ability group were lower than those earned on the narrative cloze.

As mentioned earlier, research on the use of reading strategies in cloze testing is rare. So far, only the works of Kletzien (1991) and Lu (2006) have been found by the researchers. While the subjects in Kletzien's study were fifth- to seventh-grade native speakers of English, Lu's subjects were graduate students with unknown language ability. Thus, the findings on the use of reading strategies in cloze testing situations found in this study could be compared to those studies to a lesser degree. However, these findings have shed some light on the reading and cloze test-taking procedures of EFL university students with different reading ability levels. This may be useful for further studies.

5. Conclusion

The rational deletion cloze test in this study, making use of two different text types, was found to be an appropriate measure of reading comprehension. It was designed to have different types

of cloze items that could measure different levels of comprehension, ranging from clause-level information and text-level information to the incorporating of subjects' world knowledge. The findings support what Chapelle and Abraham (1990: 125) have pointed out that, despite the inconsistency of rational deletion cloze tests in terms of the characteristics of responses, this type of cloze "should have the advantage of allowing more consistent and controllable results to the extent that distinct item types can be understood and identified." The rational deletion cloze test used in this study was also found to differentiate well among good, average, and low reading ability students.

The findings regarding the use of reading strategies for taking cloze tests are interesting in that they have helped to determine that the rational deletion cloze test used in this study can measure reading comprehension in that students need to employ their local and global reading skills. However, it should be noted that reading strategies alone cannot help students to be successful in their cloze test performance. As Anderson (1991) has pointed out, successful reading is not directly concerned with the number of strategies used, but depends on how a strategy is used and how different strategies are combined in order to comprehend a given reading task. The findings in this study tend to suggest that the high reading ability students know better than the average and low ability groups how to employ and orchestrate reading strategies in order to make sense of the cloze texts.

Finally, it should be pointed out that the rational deletion cloze test used in this study produced processes that are not directly relevant to reading comprehension, for it required the production processes in which the students had to construct their own responses. The students had to activate several types of language knowledge, including knowledge of grammar, vocabulary and reading processes. However, even though the production of responses was found to be an unfamiliar test format by the majority of the students and may not be directly relevant to measure reading ability, the cloze test used in this study was perceived by the students to have had a positive impact on them. The students perceived that if they were trained to do this type of cloze test, the test would help them improve their English language competence.

Since the study has been of restricted scope, the results should not be overgeneralized. There are several limitations that should be addressed in future research.

1. The present study included only two cloze texts, designed to represent narrative and expository text types, respectively. The narrative text was in a fable form, and the expository text was presented in a compare/contrast rhetorical pattern of organization. Future studies should include a variety of each text type.

2. The cloze test performance of the participants on two text types was assessed in one test administration. Each cloze text was accompanied by a questionnaire surveying subjects' use of reading strategies in taking the cloze test. This may cause fatigue to the participants, which may have led to similar responses on both questionnaires. It is recommended that the cloze test

of each text type, together with the survey on subjects' use of reading strategies on each text type, be administered separately.

3. The texts used in the present study were designed to facilitate the lower reading ability students in answering correctly by employing their knowledge of the world. This was done because the test format was expected to be perceived as unfamiliar. More difficult texts should be used in future studies for EFL university students, and the effect of world knowledge on the process of taking cloze tests should be further investigated.

4. The use of reading strategies in taking a cloze test is worth investigating. The findings of this study have shed some light on the reading and cloze test-taking procedures of EFL university students with different reading ability levels. However, more studies should be conducted to explore exactly what strategies are used in taking cloze tests.

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