LEARNING STRATEGIES AS A VARIABLE IN CLOZE TEST PERFORMANCE

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In recent years, teachers have been strongly encouraged to incorporate learning strategy training into their classes in order to help learners in their classes to become more effective language learners and ultimately more proficient language users. This encouragement is not, however, based on strong empirical findings. In addition, and with the exception of vocabulary learning strategies, there is also little in the literature on learning strategies, beyond speculation, on what specific language skills would be improved by the adoption of particular learning strategies. The purpose of this study is to investigate the relationship between certain learning strategies and performance on a common measure of language proficiency, the cloze test.

Learning Strategies

Learning strategies have been defined as "operations or steps used by a learner to facilitate the acquisition, storage, or retrieval of information" (O'Malley, Chamot, Stewner-Manzanares, Russo and Küpper, 1985). In the field of second language acquisition, research on learning strategies has mostly focused on description and classification (Rubin, 1975; Naiman, Frohlich and Todesco, 1975; O'Malley *et al.*, 1985; Oxford, 1985 and 1990; Wenden, 1986; Chamot, 1987), differences in strategy use between good learners and poor learners (Rubin, 1975; Naiman *et al.*, 1975), the relationship between use of learning strategies and proficiency (Politzer and McGroarty, 1985; Oxford and Nyikos, 1989; Oxford, 1990), the effects of learning strategy training (Cohen and Aphek, 1980 and 1981; O'Malley *et al.*, 1985; O'Malley, 1987) and variables that

influence choice and use of learning strategies (Chamot, 1987; O'Malley, 1987; Oxford and Nyikos, 1989).

The major claims made for learning strategies appear to fit into three categories. One suggests that individual and cultural differences influence the learning strategies used by learners (Chamot, 1987; O'Malley, 1987; Oxford and Nyikos, 1989; Tinkham, 1989). Chamot (1987) found differences between beginning and intermediate students' use of individual strategies, although no tests were carried out on the data to find whether these differences were statistically significant or not. O'Malley (1987) reported different effects for vocabulary learning strategy training on Hispanic and Asian, primarily South East Asian, learners and that the Asian learners were 'highly efficient rote learners of vocabulary lists' (142). Tinkham (1989) found that Japanese high school sophomores had more positive attitudes towards rote memorization than did their American peers and also outscored them in tests of recognition and recall. Oxford and Nyikos (1989) performed factor analysis on a learning strategies questionnaire filled in by mostly American university FL learners and found five underlying factors: formal rule-related practice strategies, functional practice strategies, resourceful, independent strategies, general study strategies, and conversational input elicitation strategies. The statistical data from the factor analysis is unfortunately not given and information on which individual strategies load onto each factor is extremely sparse. The study also found statistically significant correlations between the factors and sex, major, years of study, whether the FL course was required or elective and self-rated measures of speaking proficiency, listening proficiency, reading proficiency and motivation, as well as several (unexplained) interactions.

The second view suggests that there are differences in the effectiveness of individual strategies for learning and in the appropriateness of particular strategies for different learning tasks (Chamot, 1987; O'Malley, 1987; Oxford, 1990). Politzer and McGroarty (1985) however found little evidence to suggest that use of particular learning strategies

leads to greater learning gains, as measured by standardised tests of proficiency, in spite of a loose statistical design that was highly likely to produce Type 1 errors. O'Malley (1987) found no overall statistically significant effect for strategy training on vocabulary learning or listening ability. He did find one for speaking ability but, since his strategy training involved teaching one of his experimental groups English discourse patterns and including this as a factor in the evaluation, this result probably needs to be treated with a fair degree of caution.

The third view suggests that proficiency is related to the number of strategies used and the frequency with which they are used (Oxford, 1990). The only support for this position comes from Oxford and Nyikos (1989) and Oxford (1990), who reported, without giving figures, a strong correlation between the scores obtained with a 112 item learning strategies questionnaire and self-rated proficiency levels.

While the first view seems fairly well supported by the evidence, the second and third views are not well supported and also appear to be contradictory. It is difficult to see how the third view, what can perhaps be called a *more-the merrier* view of learning strategies, fits in with the individual and cultural difference view of learning strategy use and the differential effectiveness view of learning strategies.

Cloze Tests

Cloze tests are widely believed to be good measures of both high and low-order reading skills (see Willis (1995) for a review of the literature). The bulk of the evidence from quantitative research supports this view (Brown, 1984). Support also comes form introspective studies of performance on cloze tests (MacLean, 1984; Mangubhai, 1990; Willis, 1995). This research also suggests that learners use various strategies in conjunction with the high and low-order skills to help them retrieve words to fill in the blanks and evaluate them. Cohen (1984), in a review of his students' studies of test taking strategies, reported that 16% of the subjects in one study on cloze tests used only the sentence context and that under 25% read the passage before beginning to fill in

the blanks, in spite of instructions to the contrary. His students also found that 'better' subjects were more likely to guess when they were not sure of an answer than 'poor' students and that students who translated got lower scores. These strategies, reading the text before beginning to fill in the blanks (skimming), guessing and not translating, appear to be the same as those found in taxonomies of learning strategies. This suggests that learners who use these kinds of 'reading and compensation' strategies for learning may have an advantage when taking cloze tests.

In addition to the possible relationship between cloze test performance and these types of stategies, cloze test performance may also be related to vocabulary learning strategies. This class of strategies seems particularly relevant since cloze test performance ultimately depends on retrieval of appropriate words. Also, research into vocabulary learning suggests different ways of learning vocabulary produce different rates of learning and (see Nation (1982) and Carter (1987) for comprehensive discussions of research into vocabulary learning). In general the results of these studies indicate that learning with bilingual word lists is superior to learning words in context (e.g. Siebert, 1930; Morgan and Bailey, 1943; Morgan and Froltz, 1944), and that learning with the keyword method is more efficient than not doing so (e.g. Atkinson, 1975; Atkinson and Raugh, 1975; Raugh and Atkinson, 1975; Cohen and Aphek, 1980 and 1981). Brown and Perry (1991) applied Craik and Lockharts's depth processing theory (1972; and Craik and Tulving, 1975) to a study comparing the keyword method, elaboration (semantic processing) and a combination of the two. They found that the combination produced significantly better results than the keyword method alone, providing partial support for depth of processing theory. Their scoring system however counted not only the learned words as correct but also synonyms, which seems to cast some doubt on the validity of the study.

Overall, the research into vocabulary learning strategies indicates that certain strategies are better than others and that combinations may

be even more effective. There also however seems to be a persistent, and somewhat contradictory, belief that the number of strategies used, the *more-the-merrier* view, and the frequency with which they are used are also a major factor.

The research questions for this study were:

1. What vocabulary learning, reading and compensatory strategies are used by a group of Japanese EFL learners?
2. How are individual vocabulary learning, reading and compensatory strategies related to performance on a cloze test?
3. How are vocabulary learning and reading and compensation strategies, collectively and as groups, related to performance on a cloze test?

The hypotheses for Questions 2 and 3 were:

1. Individual learning strategies will correlate positively with performance on the cloze test.
2. Learning strategies will collectively correlate positively with performance on the cloze test.
3. Learning strategies, as groups, will correlate positively with performance on the cloze test.

Subjects and Method

Subjects

The subjects of this study were all female Japanese first year students in three departments at a women's university in Tokyo. Originally all the students, about 340, who had studied English as a foreign language for six years in Japanese secondary schools were to be included, however because of scheduling problems, an inconsistency in the time allowed for the cloze test in one class, student absences and incomplete return of the learning strategies questionnaire, the number of subjects who actually took part in the study was 144.

Table 1. Cloze test statistics.

Counts	
Blanks	56
Deletion Rate	1 : 7
Words	389
Sentences	24
Paragraphs	4
Readability Statistics	
Flesch Reading Ease	61.1
Flesch Grade Level	8.9
Flesch-Kincaid	8.8
Gunning Fog Index	8.8

Instruments

The two instruments used in the study were a cloze test and a learning strategies questionnaire. The cloze test is an adapted version of one used by Chihara, Oller, Weaver and Chavez-Oller (1977) which was taken from an ESL textbook (Praninskas, 1959). The adaptation was made by Chihara and Sakurai (1987) for a study comparing the effects of background knowledge on cloze test scores. The changes made were simply to change the original personal and place names to Japanese personal and place names. In that study, with female Japanese junior college students, the mean (acceptable) score was 26.00±8.44 1SD (K-R21=0.82). Other statistics are shown in Table 1. The text was chosen as suitable for this study because of its reasonably high reliability in Chihara and Sakurai's study, because the likely mean, even with exact scoring, was expected to be around 50% with this group of subjects, which Brown (1984, 116) suggests is optimum for reliability and validity, and because it has a typical item type distribution (Jonz, 1990).

The learning strategies questionnaire was the 50-item Version 7.0 of the Strategy Inventory for Language Learning (SILL) for ESL learners. No reliability or validity coefficients are given for this particular version, although a "slightly earlier, 121 item version of the SILL has been most extensively studied from a psychometric point of view. Internal consistency reliability of the 121-item form using Cronbach's alpha is

.96 for a 1,200-person university sample... and .95 for a 483-person military sample" (Oxford, 1990; 255). The SILL was also found not to suffer from *social desirability response bias* (256). Fifteen of the 50 questions, those related to vocabulary learning, reading and compensating for missing knowledge (Appendix A), were used for the study.

Procedures

The cloze test were administered to the subjects during one of their regular English lessons by their class teacher. The time allowed for the test was 45 minutes. The questionnaire was completed in class, when there was time for this, or completed as a homework assignment and handed in later. The cloze tests were scored using the exact scoring method. This method was chosen because there was only one scorer and it was felt that it was the best way to ensure the stability of the marking.

Data Analysis

The reliabilities of the cloze test and the learning strategy questionnaire data were found, K-R21 for the cloze test and Cronbach alpha for the others. The cloze test and questionnaire data underwent three further statistical treatments. The first was to answer the first research question and was descriptive. The second treatment was correlational, and the third a multiple linear regression. These were used to answer the second and third research questions, about the relationship between learning strategies and cloze test performance. The correlational analyses were one-tailed since most of the literature on learning strategies seems to suggest that they should correlate positively with the cloze test. In the multiple linear regression, variables were entered stepwise. The α-level was set at 0.5 for each analysis. All the statistical analyses, apart from the reliability of the cloze test, were performed with SPSS for Windows, Release 6.0.1 (1993).

Results

The descriptive statistics for the cloze test and the parts of the questionnaire are shown in Table 2 and those for the individual learning strategies in Tables 3 and 4 and Figures 1 and 2. The reliabilities of the cloze test, 0.50, the vocabulary learning strategies section, 0.49, the reading and compensation strategies section, 0.47, and the all learning strategies, .050, were all somewhat low.

The overall mean for vocabulary learning strategies was 3.01, with the mean scores of the individual strategies ranging from 2.27 to 3.80. The most frequently used vocabulary learning strategies were 'repetition' (Question 10),[1] 3.80, the 'keyword method', (Question 3), 3.46, and 'remembering the location of a word on the page', (Question 9), 3.40. The least frequently used vocabulary learning strategies were 'acting out the meaning of new vocabulary' (Question 7), 2.27, 'flashcards' (Question 6), 2.57, and 'using words in different ways' (Question 13), 2.70.

The overall mean, 3.46, median, 4.00, and mode, 4.00, for reading and compensation strategies were all higher than those for vocabulary learning strategies, 3.01, 3.00 and 3.00, respectively. The mean scores of the individual strategies ranged from 2.96 to 4.04. The most frequently

Table 2. Descriptive statistics of cloze test and questionnaire sections and total.

	Cloze Test	Vocabulary Learning	Reading and Compensation	All Strategies
N	14	142	144	14
Mean	24.1	27.10	20.78	47.8
Standard Deviation	5.4	4.24	3.24	6.0
Median	24.0	27.00	21.00	47.0
Mode	22.0	26.00	20.00	47.0
Minimum	11.0	15.00	11.00	26.0
Maiximum	40.0	40.00	29.00	64.0
Range	29.0	25.00	18.00	38.0
Reliability	(K-R 21) 0.5	(Alpha) 0.49	(Alpha) 0.47	(Alpha) 0.5

used reading and compensation strategies were 'using synonyms' (Question 29), 4.04 and 'guessing' (Question 24), 3.94. The least frequently used reading and compensation strategies were 'not translating' (Question 22), 2.96, 'inventing new words' (Question 26), 3.08, and 'not looking up unknown words' (Question 27), 3.26.

The correlations between the individual learning strategies and the cloze test are shown in Table 5. There were 31 statistically significant correlations out of a possible 105 (29.52%) between the individual learning strategies. The strategies most frequently correlating with others were 'learning words in context' (Question 2), 'using words in new ways' (Question 13), which both correlated with other strategies 8 times, including with each other. 'Guessing' (Question 24) correlated 6 times with other strategies, including 'learning words in context' (Question 2). The strongest correlations were between 'learning words in context' (Question 2) and 'using words in new ways' (Question 13) ($r=0.346$, $p<.001$), 'the keyword method' (Question 3) and 'visualizing a situation in which the word may be used' (Question 4) ($r=0.356$, $p<.001$), and 'guessing' (Question 24) and 'using synonyms' (Question 29) ($r=0.295$, $p<.001$). The strategies least frequently correlating with others were 'using flashcards' (Question 6), which correlated with no other strategies, and 'rhyming' (Question 5), which correlated with one other strategy, 'acting out the meaning of new words' (Question 7).

Altogether four strategies correlated with the cloze test. One was a vocabulary learning strategy, 'remembering the location of a word on the page' (Question 9) ($r=0.166$, $p<.05$). The other three were reading and compensation strategies. Two of these correlated positively with the cloze test score, 'using synonyms' (Question 29) ($r=0.222$, $p=<.005$) and 'guessing' (Question 24) ($r=0.195$, $p<.01$), and one correlated negatively, 'inventing new words' (Question 26) ($r=-0.187$, $p<.05$). Only three of the four strategies, however, entered the multiple regression equation, 'using synonyms' (Partial $R=.229$, $p<.05$), 'inventing new words' (Partial $R=-.237$, $p<.005$), 'remembering the location of a word on the page' (Partial $R=.180$. $p<.007$) (Table 6). The partial correlation

Table 3. Descriptive statistics for use of

	Q07 Act out	Q06 Flashcards	Q13 Use	Q05 Rhyme	Q02 Context
N	142	144	144	144	144
Mean	2.27	2.57	2.70	2.88	3.00
Standard Deviation	1.07	1.24	0.84	1.19	0.89
Median	2.00	2.00	3.00	3.00	3.00
Mode	3.00	2.00	3.00	2.00	3.00
Minmum	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00
Range	4.00	4.00	4.00	4.00	4.00

Table 4. Descriptive statistics for use of reading and compensation strategies.

	Q22 Not trans-late	Q26 Invent words	Q27 Not look up	Q18 Skim	Q24 Guess	Q29 Syno-nyms	Sec-tion	Sec-tion Item Mean
N	144	144	144	144	144	144	144	144
Mean	2.96	3.08	3.26	3.50	3.94	4.04	20.78	3.46
Standard Deviation	1.00	1.17	1.07	1.06	1.01	0.84	3.24	1.10
Median	3.00	3.00	3.00	3.00	4.00	4.00	21.00	4.00
Mode	3.00	4.00	3.00	3.00	5.00	4.00	20.00	4.00
Minimum	1.00	1.00	1.00	1.00	1.00	2.00	11.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	29.00	5.00
Range	4.00	4.00	4.00	4.00	4.00	3.00	18.00	4.00

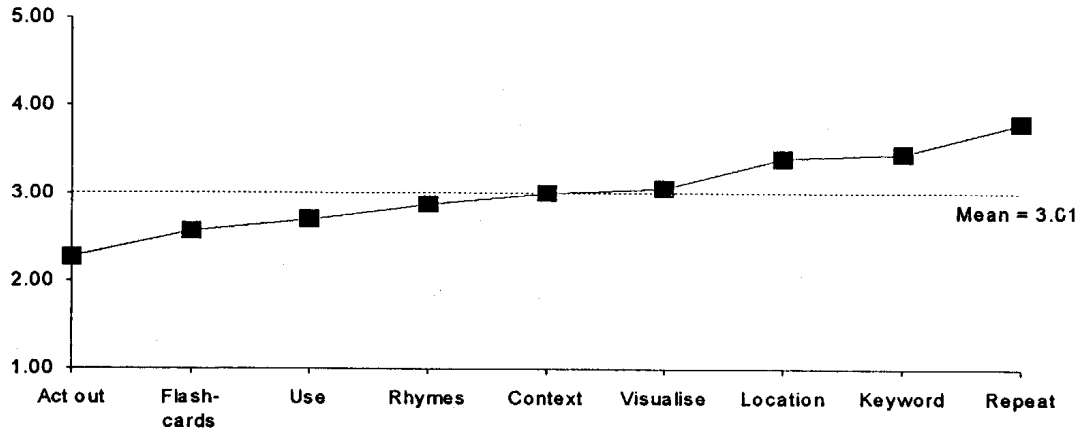

Figure 1. Use of vocabulary learning strategies.

vocabulary learning strategies.

Q04 Visualise	Q09 Location	Q03 Keyword	Q10 Repeat	Section Total	Section items
144	144	144	144	142	142
3.06	3.40	3.46	3.80	27.10	3.01
1.15	0.97	1.13	1.04	4.24	1.15
3.00	3.50	4.00	4.00	27.00	3.00
2.00	4.00	4.00	4.00	26.00	3.00
1.00	1.00	1.00	1.00	15.00	1.00
5.00	5.00	5.00	5.00	40.00	5.00
4.00	4.00	4.00	4.00	25.00	4.00

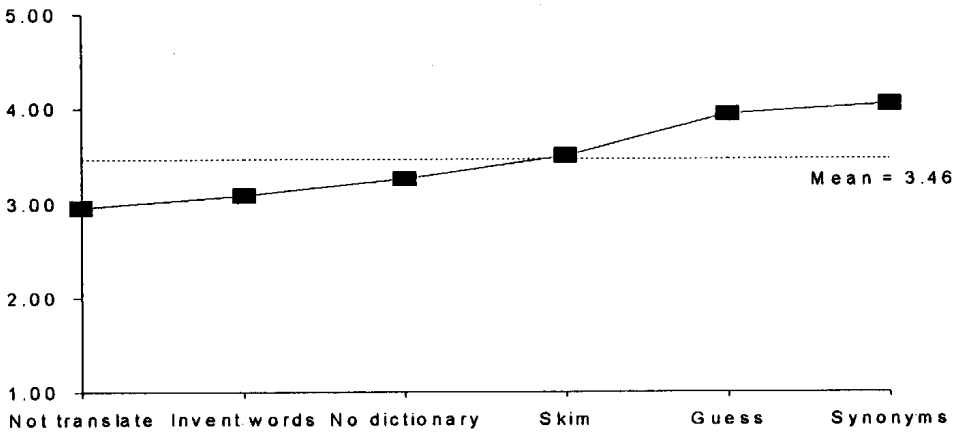

Figure 2. Use of reading and compensation strategies.

between 'guessing' and the cloze test score became statistically insignificant (Partial $R=0.131, p>.05$) after 'using synonyms' entered the equation on the first step. The variance shared by the cloze test and the strategies in the regression equation was 12.45% (Multiple $R=0.35, p<.001$). An investigation of residuals showed that there were no outliers or influential cases.[2] The shrinkage[3] was however quite substantial, 15.62%, which suggests that the regression equation has only moderate predictive power (Stevens, 1986). There were no significant correlations between the cloze test and the total score for all the strategies, or the scores for the two sections (Table 7).

Table 5. Correlations between individual learning strategies and the cloze correlations).

		Q02	Q03	Q04	Q05	Q06	Q07	Q09
Q03		0.208						
	P=	**.006						
Q04		0.061	0.356					
	P=	.232	***.000					
Q05		0.053	0.043	0.067				
	P=	.266	.305	.213				
Q06		0.038	0.077	−0.035	0.063			
	P=	.326	.179	.338	.228			
Q07		0.200	0.209	0.118	0.184	0.133		
	P=	**.009	**.006	.080	*.014	.057		
Q09		0.137	0.111	0.153	−0.005	−0.012	0.200	
	P=	*.050	.092	*.034	.479	.444	**.008	
Q10		0.196	0.049	0.052	−0.071	0.008	−0.090	0.095
	P=	**.009	.278	.270	.199	.461	.146	.130
Q13		0.346	0.139	0.253	−0.129	0.024	0.186	0.132
	P=	***.000	.049	***.001	.062	.390	*.013	.057
Q18		0.044	0.053	0.215	0.011	−0.143	−0.031	0.000
	P=	.300	.266	.005	.448	.043	.357	.500
Q22		0.220	0.030	−0.022	−0.028	−0.032	−0.002	0.061
	P=	**.004	.362	.396	.370	.353	.489	.234
Q24		0.117	0.167	0.179	0.017	0.018	0.076	0.134
	P=	.081	*.022	*.016	.421	.417	.185	.055
Q26		0.180	0.024	0.043	−0.042	0.063	0.092	0.093
	P=	*.015	.389	.305	.307	.225	.137	.133
Q27		0.066	0.111	0.084	0.042	0.026	0.164	0.041
	P=	.216	.094	.159	.310	.378	.026	.312
Q29		0.141	0.098	0.012	−0.037	−0.125	0.066	0.109
	P=	*.046	.120	.444	.331	.069	.217	.098
SCORE		−0.033	0.035	0.057	0.007	−0.042	−0.079	0.168
	P=	.347	.338	.249	.467	.309	.175	*.022

Discussion

The learners who took part in this study tended to be more active users of reading and compensation strategies than vocabulary learning strategies. The most frequently used vocabulary learning strategies, 'repetition', the 'keyword method', and 'remembering the location of a

test ($N=142$ for correlations involving Question 7 and $N=144$ for all other

Q10	Q13	Q18	Q22	Q24	Q26	Q27	Q29
0.171							
*.020							
0.180	0.137						
*.016	*.050						
0.147	0.144	0.086					
*.039	*.042	.153					
0.135	0.244	0.265	0.151				
.054	**.002	***.001	*.035				
0.128	0.075	0.162	−0.003	0.0707			
.063	.185	*.026	.486	.203			
−0.003	0.196	0.034	0.155	0.236	0.161		
.484	**.009	.344	*.032	**.002	*.027		
0.042	0.128	0.197	0.019	0.2947	0.075	0.090	
.309	.063	**.009	.411	***.000	.186	.142	
−0.078	0.114	0.135	0.026	0.195	−0.187	0.105	0.222
.177	.087	.053	.380	**.010	*.012	.106	**.004

word on the page', were 'usually', 'almost always' or 'always' used by 50% or more of the learners. The very frequent use of 'repetition' supports Tinkham's (1989) finding that Japanese learners have positive attitudes towards rote memorization. In contrast to these frequently used strategies, over half the learners 'never', 'almost never' or did 'not usually' employ the two least frequently used strategies, 'acting out the meaning of new vocabulary' and 'flashcards'. The correlation results

Table 6. Regression analysis of cloze score vs. learning strategies ($N=142$).

Multiple R	0.35281		Analysis of Variance			
R Square	0.12448		DF	Sum of Squares	Mean Square	
Adjusted R Square	0.10544	Regression	3	522.2915	174.0972	
Standard Error	5.15949		138	3673.603	26.62031	
		$F=6.54001$	Signif $F=0.0004$			
		Variables in the Equation				
Variable	B	SE B	Beta	Part Correlation	Partial Correlation	T	Sig T
Q09	0.966397	0.450077	0.172779	.171026	.179801	2.147	0.0335
Q26	−1.07153	0.373764	−0.22999	−.228349	−.237085	−2.867	0.0048
Q29	1.436424	0.520831	0.221472	.219675	.228558	2.758	0.0066

Table 7. Correlations between the cloze test and learning strategy sections.

	Vocabulary learning strategies	Reading and compensation strategies	All strategies
Cloze Test	0.027	0.137	0.092
$P=$	.375	.051	.138

also suggest that certain vocabulary learning strategies have a tendency to co-occur with others. The strongest relationships appear to be between two visual strategies, 'the keyword method' and 'visualizing a situation in which the word may be used', and two linguistic strategies, 'learning words in context' and 'using words in new ways'. All these strategies are used with moderate frequency. Two of the least frequently used strategies, 'using flashcards' and 'rhyming', correlated with one or no other strategies, suggesting that their use is somewhat idiosyncratic. The overall trend, however, suggests that this group of learners seems to prefer easy-to-use, mental strategies and to eschew strategies that require preparation or physical action.

The most frequently used reading and compensation strategies, 'using synonyms' and 'guessing', were 'usually', 'almost always' or 'always' used by over 50% of the learners. The other strategies, 'not translating', 'inventing new words', and 'not looking up unknown words' and 'skimming', had reasonably normal distributions over the range of frequencies. The correlation data also suggested that 'guessing' and

'using synonyms' are closely related. Given the prevalence of the Grammar-Ftranslation Method in Japanese schools, the figures for 'not translating' and 'not looking up new words' are perhaps lower than would be expected. In addition, the frequent use of two strategies, 'guessing' and 'using synonyms', appear to be inconsistent with characterizations of Japanese learners as being passive and unwilling to take risks. One possible explanation is that the learners in this study are among the more successful learners in Japanese schools and are therefore perhaps atypical of Japanese students as a whole. Another is, of course, that Japanese learners are less passive and unwilling to take risks than seems to be commonly believed.

The correlations and multiple linear regression between the individual learning strategies and performance on the cloze test only partially supported the hypothesis that all the strategies and the cloze test scores would positively correlate. One vocabulary learning strategy and two reading and compensation strategies correlated positively, one reading and compensation strategy correlated negatively, and the remaining 11 strategies did not correlate significantly at all. There was no support for the hypotheses that the vocabulary learning and the reading and compensation strategies, collectively and as groups would correlate with the cloze test scores.[4] What this seems to indicate is that learning strategies vary in the advantages (and disadvantages) that they bring to cloze test-takers, but that the great majority are neutral, and also that the number of strategies used and the frequency with which they are used are not factors.

Apart from one strategy, the individual vocabulary learning strategies did not correlate with the cloze test. This would suggest that vocabulary learning strategies are generally similar in their effectiveness. While this is not implausible and also does not contradict the evidence from studies of vocabulary learning strategies, since greater frequency of use of less efficient strategies would make them as effective as less frequently used efficient strategies, there is another, perhaps more reasonable, explanation. Most of the words that were needed to

complete the cloze test were words that the learners had probably learned at junior high school and any effect for the way they had learned them had long since been washed out by subsequent encounters with the words. In a sense, then, a cloze task may not provide a fair test of vocabulary learning strategies when the learners have been familiar for some time with vocabulary needed to fill in the blanks.

The one vocabulary learning strategy that did correlate with the cloze test ($R=0.168$) and enter the regression equation (Partial $R=0.180$) was 'remembering the location of a word on the page'. This result, though, is difficult to explain, even if we assume that the effects of learning strategy used for initial learning were not washed out. Craik and Lockhart's depth of processing theory clearly is not applicable since other strategies, for example, 'using words in different ways', 'acting out the meanings of words' and 'remembering words in context' would all seem to require deeper semantic processing. Photographic memory would also appear to be an unlikely explanation, given the generally high frequency with which this strategy was used and, in my experience, the rarity of learners with photographic memories. Also, since there seem to have been no experimental studies on this strategy, it would be, perhaps, be wise to treat it as a possibly spurious correlation.

Two of the six reading and compensation strategies correlated positively with the cloze test, 'guessing' and 'using synonyms'. The correlation of the cloze test with 'guessing' confirms Cohen's students' (1984) finding that better learners guess when in doubt. 'Using synonyms' however correlated more strongly with the cloze test than 'guessing' and, because of the strength of the correlation between the two strategies, 'guessing' did not enter the regression equation. A possible reason for the greater importance of 'using synonyms' in this study may be the vocabulary level of this particular group of learners, an explanation that is also consistent with Chamot's (1987) finding of

had a very good receptive knowledge of the most frequent three thousand words of English, over 15 on the Vocabulary Levels Test (Nation, 1990). This would appear to be neither a large number nor a small one. With a large vocabulary, learners would have little need to use synonyms and, with a small one, they would not have the resources be able to use them. With the medium level of vocabulary that these students had, 'using synonyms' is both possible and apparently effective. In other words, the effectiveness of individual learning strategies may vary depending on the learners' linguistic resources.

'Inventing words' correlated negatively with the cloze test, indicating that learners who use this strateghy for learning are at a disavantage when taking a cloze test. A possible reason is that, since the cloze test is basically a test of accuracy, inventing words, particularly when the learners' L1 is lexically distant from the L2, will produce more incorrect answers than correct ones. There was however no evidence from the errors on the cloze test that learners did, in fact, invent words. Another plausible explanation is that the strategy of 'inventing words' represents a disregard for accuracy and is a form of extreme risk taking. If true, this would suggest that learners' goals and, possibly, attitudes towards language and language use are related to strategy choice.

The three remaining reading and compensation strategies, 'skimming', 'not translating' and 'not looking up new words', did not correlate with the cloze test. 'Skimming' probably did not correlate because, as Willis (1995) found, learners taking a cloze test go through the text several times, filling blanks each time, which suggests that any beneficial effect of an initial skimming of the text would probably be lost. The non-correlation of 'not translating' disagrees with the results of the studies reported by Cohen (1984), which found that learners who translated got lower cloze test scores. This difference may be an artifact of the language teaching methods used in Japan and in Israel, where Cohen's students did their studies. Japanese students may be more effective translators than Israeli students, which may have the effect with Japanese learners of watering down the advantages widely

thought to be associated with not translating. 'Not looking up new words' would appear not to correlate for the same reason.

Conclusions

Overall the results of this study suggest that Japanese learners prefer easy-to-use, mentalistic vocabulary learning strategies to strategies that require preparation or physical action. Their preferred reading and compensation strategies however indicate that they, or at least the more successful among them, are more active and more willing to take risks than is commonly believed.

There was no support for *more-the-merrier* view of learning strategy use; neither vocabulary learning nor reading and compensation strategies collectively correlated with the cloze test scores. The majority of both vocabulary learning and reading and compensation srategies were also found not to correlate significantly with cloze test performance. With vocabulary learning strategies this may have been because the learning effect had been washed out by repeated exposure to the vocabulary items needed to be recalled for the cloze test. The size of the correlations between the individual reading and compensation strategies and the cloze test also indicate that they are not equal in their relationship with cloze test performance. Indeed, one strategy, 'inventing words', appears to be positively harmful for learners preparing to take tests of linguistic accuracy. It is also possible that certain strategies, e.g. 'using synonyms', gain in value with increases in learners' language knowledge.

The implications of the study for learner strategy training are somewhat limited. First, the learners' L1, proficiency level and goals need to be taken into account when deciding which strategies to encourage. For learners preparing to take proficiency tests that require production in the L2 and are marked on the basis of accuracy, 'guessing' would appear to be beneficial for learners with limited vocabulary resources and 'using synonyms' for learners with greater resources.

'Inventing words' would, however, appear not to be beneficial, although this may not necessarily be true for learners whose L1 vocabulary has a lot in common with that of the L2.

Second, in general the learning strategies used to learn vocabulary seem not to have a long term effect on the recall. This suggests that, as long as there is repeated exposure to the learned vocabulary, the strategy or strategies used for learning it are not very important. In the short term, however, efficiency of learning is probably desirable, in which case, the 'keyword method', which has been shown by quite a large number of researchers to be an efficient strategy, and possibly, 'remembering the location of a word on the page', which correlated with the cloze test in this study, may be useful techniques to teach.

Notes

1) The question numbers given in the paper are the same as those on the original questionnaire.
2) The maximum Mahalanobis D^2 was 11.35 (critical value about 32.00). The maximum Cook D was 0.07, the maximum leverage was 0.08, and the Durbin-Watson test value was 1.81. A visual check of the residual plot of Studentized Residuals vs. Predicted Values revealed no particular pattern or clustering of data points.
3) Shrinkage was calculated using the equation (R Squared − Adjusted R Squared)/R Squared × 100%.
4) It is likely that, if the sample had been a little larger and the pattern of reading and compensation strategies maintained, the correlation ($p=0.51$) with the cloze test would have become statistically significant. The size of the correlation ($r=0.137$), however, is lower than that of the two compensation strategies, 'guessing' and 'using synonyms', that had positive correlations, suggesting that whole is far less important than its parts.

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Appendix A

Questions on the SILL Used in the Study and Scale Guidelines

Vocabulary Learning Strategies

2. I use new English words in sentences so I can remember them.
3. I connect the sound of an English word and an image or a picture of the word to help me remember the word.
4. I remember a new English word by making a mental picture of a situation in which the word might be used.
5. I use rhymes to remember new English words.
6. I use flashcards to remember English words.
7. I physically act out new English words.
9. I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign.
10. I say or write English words several times.
13. I use the English words I know in different ways.

Reading Strategies

18. I first skim an English passage, then go back and read more carefully.
22. I try not to translate word-for-word.

Compensation Strategies

24. To understand unfamiliar English words, I make guesses.
26. I make up new words if I do not know the right ones in English.
27. I read English without looking up every new word.
29. If I can't think of an English word, I use a word or phrase that means the same thing.

Scale

1. Never or almost never true of me
2. Usually not true of me
3. Somewhat true of me
4. Usually true of me
5. Always or almost always true of me