



## Developing a Scale for Vocabulary Learning Strategies in Foreign Languages \*

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### Abstract

The aim of this study is to develop a vocabulary learning strategy scale in a foreign language. The Scale development process consisted of three stages: a) writing the items related to vocabulary learning strategies based on Oxford's (1990) sub-dimensions of "Language Learning Strategies Scale" b) editing the items in accordance with expert opinions and implementing the pilot study, c) implementing the scale to the students (N = 923), and establishing the validity and reliability studies. Firstly, exploratory factor analysis was conducted on the data collected. According to the results of the analysis, a total of 32 items were determined in six dimensions: memory, cognitive, compensation, meta-cognitive, affective and social strategies. Total variance explained was found to be 41.02% and the confirmatory factor analysis was carried out on the data within the scope of validity of the scale. Fit indices ( $\chi^2/df = 2.36$ , RMSEA = .052, CFI = .96, SRMR = .054) revealed that the model fits the data. Within the framework of reliability studies, Cronbach's alpha reliability of the scale was .89 and for the subscales: memory = .74, cognitive = .67, compensation = .71, meta-cognitive = .72, affective = .64, social = .62. These results prove that the vocabulary learning strategies scale is valid and reliable. With the help of this scale, teachers will be able to determine the strategies their students should use and design their teaching-learning activities accordingly. In addition, this scale is accurate enough for teachers of foreign languages to use in teaching strategies as a guide.

### Keywords

Vocabulary learning strategies  
Vocabulary learning  
Foreign language  
Scale Development

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## Introduction

### *Vocabulary Learning*

One of the most important problems in language teaching seems to be that vocabulary instruction is a neglected area in EFL contexts since researchers widely focus on syntax although vocabulary learning is an important part of learning a foreign language (Zimmerman, 1997). However, a large number of researchers consider vocabulary to be the core element of language learning (Coady & Huckin, 1997; Harley, 1996; Nation, 2001; Read, 2000). Furthermore, Krashen (1989) perceives the lack of vocabulary as the biggest barrier in conveying meaning and regards vocabulary

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as the basic asset to the unification of four skills. Language learners with an adequate vocabulary are considered to be more successful than learners with a limited vocabulary. From this definition, it can be deduced that there is a positive correlation between language proficiency and vocabulary knowledge (Lupescu & Day, (1993). Thus, students are required to learn sufficient number of words with their accurate usage in order to establish good communication in a foreign language (Huyen & Nga, 2003). But, Nation & Newton (1997) & Coady (1997) define vocabulary as a problematic area in which the importance of motivation, individual and group activities, implicit and explicit practices of vocabulary learning and vocabulary learning strategies are clearly emphasized.

Despite abundant empirical research (Haastrup, 1991; Mondria & Wit- de-Boer, 1991; Wang, Thomas, Inzana, & Primicerio, 1993) on vocabulary acquisition which plays critical a role in language learning, there is a consensus on the lack of conceptualization of process and certain strategies that students develop for vocabulary learning.

### *Foreign language learning strategies*

The nature of language learning is different from other learning areas. Researchers working in the field of foreign language learning define language learning strategies in different forms. For instance, "Language learning strategy is an attempt to develop linguistic and sociolinguistic competence in the target language in order to incorporate these into one's interlanguage competence" (Tarone, 1983, p.67). "Learning strategies are specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990, p. 8; Oxford & Scarcella, 1994). O'Malley and Chamot (1990) view learning strategies as "the special thoughts or behaviours that individuals use to help them comprehend, learn or retain new information" (p. 203). Vocabulary learning strategies are often viewed as a sub category of general learning strategies (Carter & McCarthy, 1988; Oxford, 1990; Schmitt, 1997). With regard to strategic vocabulary learning, Ahmed (1989) classifies students as successful and unsuccessful learners in terms of their level of awareness in strategy use and relating newly learned words with previously learned ones. In touch with the issue, Portre (1988) reports that weak learners use only limited number of strategies. Ellis (1994) underlines the significance of vocabulary learning strategies which raise awareness of new lexical items and activate conscious learning. Using proper learning strategies directly affects learning a foreign language. (Liu, 2004) acknowledges about the existence of consensus on the relationship between language learning strategy (Nisbet, Tindall, & Arroyo,2005) and English proficiency indicating the findings of related studies which assume that if more strategies are used, higher proficiency will be gained. There are several studies that have been consistent in their claims that language learning strategies and English proficiency are related. The pattern of strategy use has been significantly related to English proficiency. Based on all this research, it can easily be said that in language learning -especially in the acquisition of vocabulary, use of strategies affects the success and language proficiency. It is clear that in language teaching, teaching how to use the vocabulary learning strategies to the students, identifying the most suitable strategy for each student and encouraging them to use these strategies will be effective in achieving success in learning the language. Hence, Graves (1987) suggests students actualise their learning of new words independently, and encourage them "to adopt personal plans to expand their vocabulary over time". This seems to be quite reasonable (p.177). Besides, teaching students how to use vocabulary learning strategies makes a great contribution to developing their own learning style. Wenden (1985) states that giving students instant feedback is like giving them a fish to eat, but teaching them how to use these strategies is like teaching them how to fish (as cited in Griffiths, 2004). Özmen & Gülleroğlu (2013) also underline the importance of being aware of the language learning strategies (LLSs) which are regarded as an important factor determining the success of the learners and drawing attention to the significance of teaching LLSs. Laufer (1990) stresses the teacher's role in which motivating the students and increasing their motivation in vocabulary learning are employed together with planning, organizing, monitoring the process and product along with correcting their mistakes, leading, encouraging and rewarding them. Not limited to the aforementioned aims, language teachers try to base their teaching on diverse techniques and activities that foster individual learning. Teachers of foreign languages should also be capable of practising vocabulary teaching strategies (Hatch & Brown, 1995).

As can be understood from the literature, both the use of strategies by students and encouragement given by the teachers to use these strategies as well as including these strategies in the teaching-learning activities potentially provide positive support in language learning. In this sense, teachers have major responsibilities. Based on this idea, this study aims to develop a scale for vocabulary learning strategies in foreign language learning. As the most common foreign language taught in our country is English, the research was conducted on students who are learning English.

## Method

### *Study Group*

The Study group consisted of 923 sixth and seventh graders from four different state schools in Sakarya Province in the 2012-2013 academic year. The criterion behind this choice is the fact that these schools and the students represent the average success level and socio-economic standards of Turkey. In order to apply the scale, it was necessary for the students in the study group to have had a language learning experience before. So the researchers preferred to study with these students because they already had a language learning experience as they had started learning English when they were in the 4th grade in Primary school. Of the students, 470 (50.1%) are male and 453 (49.9%) were female. Detailed information is given in Table 1.

**Table 1.** Study Group Frequency Table

	Grade 6		Grade 7		Total	
	N	%	N	%	N	%
Female	216	46	254	54	470	51
Male	201	44	252	56	453	49
Total	417	45	506	55	923	100

### *Scale development process*

The scale was developed on the basis of "The Strategy Inventory for Language Learning (SILL) which was developed by Oxford (1990). Oxford's scale consists of two categories such as direct and Indirect Strategies. Each category includes 3 dimensions so the scale comprises 6 dimensions in total. (50 items)

Direct strategies consists of memory, cognitive and compensation strategies;

- Memory strategies for storing and retrieving information,
- Cognitive strategies for understanding and producing the language,
- Compensation strategies for overcoming limitations in language learning.

Indirect Strategies consists of metacognitive, affective and social strategies;

- Metacognitive strategies for planning and monitoring learning,
- Affective strategies for controlling emotions, motivation,
- Social strategies for cooperating with others in language learning

(Oxford, 1990)

Researchers examined the items in Oxford's scale and adapted them to English vocabulary learning. While writing the items, the primary and secondary school students' skills of language use and perception were taken into account. The Items in Oxford's Scale were not translated word by word but, they were used as a reference while establishing the scale and determining the sub-dimensions of the scale. New items related to vocabulary learning were written in accordance with Rebecca Oxford's theoretical structure and the aforementioned dimensions of the scale. One of the purposes of selecting Oxford's scale as the theoretical background was its potential to add new items into the compensation strategies dimension. Thus, as the name indicates, computers are perceived as complementary components in language teaching and learning. From this point of view, six new items related to the use of technology in vocabulary learning constituted the sub-dimension of compensation strategies of the scale.

The five-point Likert scale was used in order to indicate the frequency of the preferred vocabulary learning strategies. The rating system of the scale was set as "Always (5), often (4), sometimes (3), rarely (2), never (1)".

## Findings

### *Validity Study*

For the face and content validity studies, the 56-item scale was submitted to five experts - one from each of the departments of Psychological Counselling and Guidance, Assessment and Evaluation, English Language Education, Turkish Language Education, and Computer and Instructional Technologies. In the light of expert views, the scale was revised through the elimination of four items the language, expression and content validity of which were determined to be low. A group of secondary school students in a state secondary school commented on the 52-item scale so as to pre-empt unanticipated problems and test its psychometric properties along with its applicability. As the students seemed to have difficulties in understanding two of the items, these two items were removed from the scale and the validity and reliability studies were performed on the remaining 50 items.

The Eigenvalue-greater-than-one rule which is known as the K1 method proposed by Kaiser (1960) was used in the EFA case (as cited in Fabrigar et. al, 1999). While determining the items of the scale in the process of exploratory factor analysis (EFA), what was taken into consideration was that Eigenvalues of the factors were 1, the item factor loadings were at least .30 and for the items taking place in two factors, the minimum difference between the factors was .10. The model-fit of the item-factor structure obtained from exploratory factor analysis (EFA) was tested through confirmatory factor analysis (CFA). Exploratory Factor Analysis (EFA): In the EFA which was conducted to analyse the construct validity of the scale, primarily the correlation matrix was performed to find out whether there were meaningful correlations between the items. The result showed that there were enough meaningful correlations for the factor analysis to be performed. Then, sampling adequacy with the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Sphericity tests were carried out. KMO is an index that compares the size of the observed correlation parameters to the partial correlation parameters. The KMO rate being greater than .60 and p value from Bartlett's test being smaller than .01 show the suitability of the data set for the Principal components analysis (Büyüköztürk, 2002).

The results revealed that the KMO value is high (.946), Bartlett's test is significant, ( $p < .01$ ), and the data are suitable for the Principal components analysis.

The factor loadings display the correlation between the item and the structure that is to be tested. Therefore, the factor loadings and the related proportions that are the outcomes of the principal components analysis were examined. 15 items were removed from the scale on expert view due to the fact that they had high loadings on two or more factors and they did not fit into the category which was supposed to measure a certain feature. In case of cross-loading items in the same dimensions with differences less than .20, the items which contributed to the content validity was retained (Plotnikoff, 1994). Another 3 items were removed from the scale simply because their factor loadings were low ( $< .30$ ). After these processes, the 50-item VLS-S was finalised as 32 items.

The rotated components matrix obtained from the factor analysis after a varimax rotation is shown in Table 2 along with Scree plot in Figure 1. Varimax rotation, one of the orthogonal rotation models, was used to maximize the values of factor variances with a limited number of variables. According to the principal components analysis results, seven items related to the "Memory Strategies" (MS) factor of the VLS-S are displayed in Table 2 and the factor loadings of these items vary between .329 and .628, and also explain 23.78% of the total variance. In the second factor, five items related to the "Cognitive Strategies" (CS) factor of the VLS-S are displayed in the table and the factor loadings of these items vary between .318 and .744, while explaining 5.17% of the total variance. In the third factor, four items related to the "Compensation Strategies" (CnS) factor of the VLS-S are displayed in the table and the factor loadings of these items vary between .454 and .688 and also explain 4.07% of the total variance. In the fourth factor, four items related to the "Metacognitive Strategies" (McS) factor of the VLS-S are displayed in the table and the factor loadings of these items vary between .306 and .631 while explaining 2.95% of the total variance. In the fifth factor, six items related to the "Affective Strategies" (AS) factor of the VLS-S are displayed in the table and the factor loadings of these items vary between .330 and .508, while explaining 2.58% of the total variance. In the sixth factor, six items related to the "Social Strategies" (SS) factor of the VLS-S are displayed in the table and the factor

loadings of these items vary between .313 and .616 and also explains 2.47% of the total variance. As a result, the total amount of variance explained by these six factors is: 41.02%.

**Table 2.** Factor Analysis Results of the Scale-Rotated Components Matrix

Dimensions	Item No	Factor Loadings					
		Metacognitive Str.	Memory Str.	Cognitive Str.	Compensation Str.	Social Str.	Affective Str.
Memory Strategies	1	.021	<b>.628</b>	.135	.005	.113	.049
	2	.262	<b>.606</b>	.057	.064	-.009	.115
	3	.337	<b>.329</b>	.056	.241	.041	.170
	4	.134	<b>.535</b>	.061	.201	.001	.084
	7	.453	<b>.390</b>	.365	.005	.059	-.001
	8	.455	<b>.367</b>	.093	.169	.054	.066
	9	.254	<b>.467</b>	.163	.133	.166	-.119
Cognitive Strategies	10	-.035	.083	<b>.672</b>	.165	.063	.117
	11	.102	.099	<b>.744</b>	.136	.010	.053
	13	.438	.104	<b>.396</b>	-.030	.065	-.114
	14	.558	.211	<b>.409</b>	-.012	.125	-.083
	16	.037	.495	<b>.318</b>	.253	.089	-.051
Compensation Strategies	12	.174	.208	.308	<b>.454</b>	.043	.095
	20	.104	.237	.142	<b>.673</b>	.068	.004
	21	.019	.066	.192	<b>.688</b>	.085	.069
	22	.089	.072	.063	<b>.649</b>	.119	.222
Metacognitive Strategies	18	<b>.393</b>	.354	.389	.103	.095	.069
	26	<b>.631</b>	.224	.032	.084	.153	.114
	28	<b>.506</b>	.303	.189	.112	.125	.146
	29	<b>.306</b>	.515	.315	.070	.108	.118
Affective Strategies	36	-.024	-.005	.151	.338	-.002	<b>.508</b>
	38	-.033	.214	.399	.110	.166	<b>.350</b>
	40	.376	.230	.151	-.086	.262	<b>.406</b>
	41	.563	.192	.035	.047	.193	<b>.346</b>
	42	.295	.261	.097	.046	.246	<b>.330</b>
	43	.423	.048	-.049	.268	.084	<b>.437</b>
Social Strategies	44	.263	.114	.332	.103	<b>.384</b>	.075
	45	.193	.123	.239	.124	<b>.460</b>	.016
	46	-.150	.256	.139	.237	<b>.616</b>	-.024
	47	.311	-.041	.079	.001	<b>.565</b>	.067
	49	.128	.152	.016	.103	<b>.391</b>	.074
	50	.098	.329	.079	.048	<b>.313</b>	.301
Eigenvalue (Total = 20.05)		11.89	2.58	2.04	1.47	1.29	1.23
Total variance explained (%) = 41.02		23.78	5.17	4.07	2.95	2.58	2.47

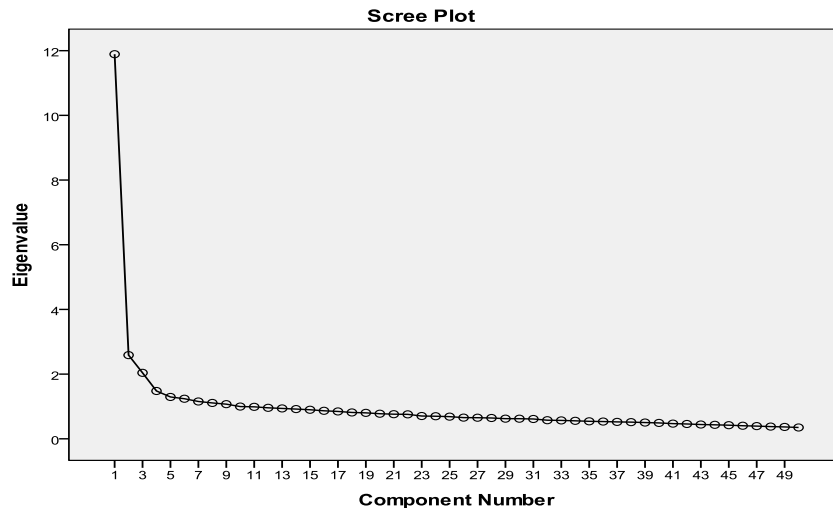


Figure 1. Scree Plot of Factor Structure

### Confirmatory Factor Analysis (CFA)

In order to test the model which was obtained through EFA, a confirmatory factor analysis was conducted. This analysis was carried out by using the scale consisting of 32 items, with 500 students randomly selected from the participants (N=923) the exploratory factor analysis was conducted on. The findings achieved by analysing the constituted model via confirmatory factor analysis are given below. Chi-square/df value was (1054.95/ 447= 2.36) and the CFA results indicated a good fit [SRMS=.054, GFI=.88, RMSEA=.052, CFI=.96]. Standard values for the indices were: GFI and AGFI values should be between 0 and 1. Although there is no agreement in the literature concerning these values, if the value is over 0.85 and 0.90, it indicates a good fit (Anderson & Gerbing, 1984; Cole, 1987; Kline, 1994; Marsh, Balla, & McDonald, 1988; Schumacker & Lomax, 1996). RMSEA values also vary between 0 and 1. If these values are closer to 0, they indicate a good fit.  $\chi^2/df$  ratio indicates a good fit and if it is lower than 2 it indicates an excellent fit (Jöreskog & Sörbom, 1993; Kline, 2005). Thus, all standardized fit indices indicate that the model factor structure was confirmed. The range of fit index for CFA is displayed in Table 3.

Table 3. Recommendations for Model Evaluation: Some Rules of Thumb

Fit Measure	Good Fit	Acceptable Fit	Scale Values
$\chi^2/df$	$0 \leq \chi^2/df \leq 2$	$2 < \chi^2/df \leq 3$	2.36
RMSEA	$0 \leq RMSEA \leq .05$	$.05 < RMSEA \leq .08$	.052
$p$ value for test of close fit ( $RMSEA < .05$ )	$.10 < p \leq 1.00$ close to $RMSEA$ ,	$.05 \leq p \leq 1.00$	.18
CFI	$.97 \leq CFI \leq 1.00$	$.95 \leq CFI < .97$	.96
SRMS	$0 \leq SRMR \leq .05$	$.05 < SRMR \leq .10$	.054

(Schermelleh-Engel, Moosbrugger, and Müller, 2003 p.52)

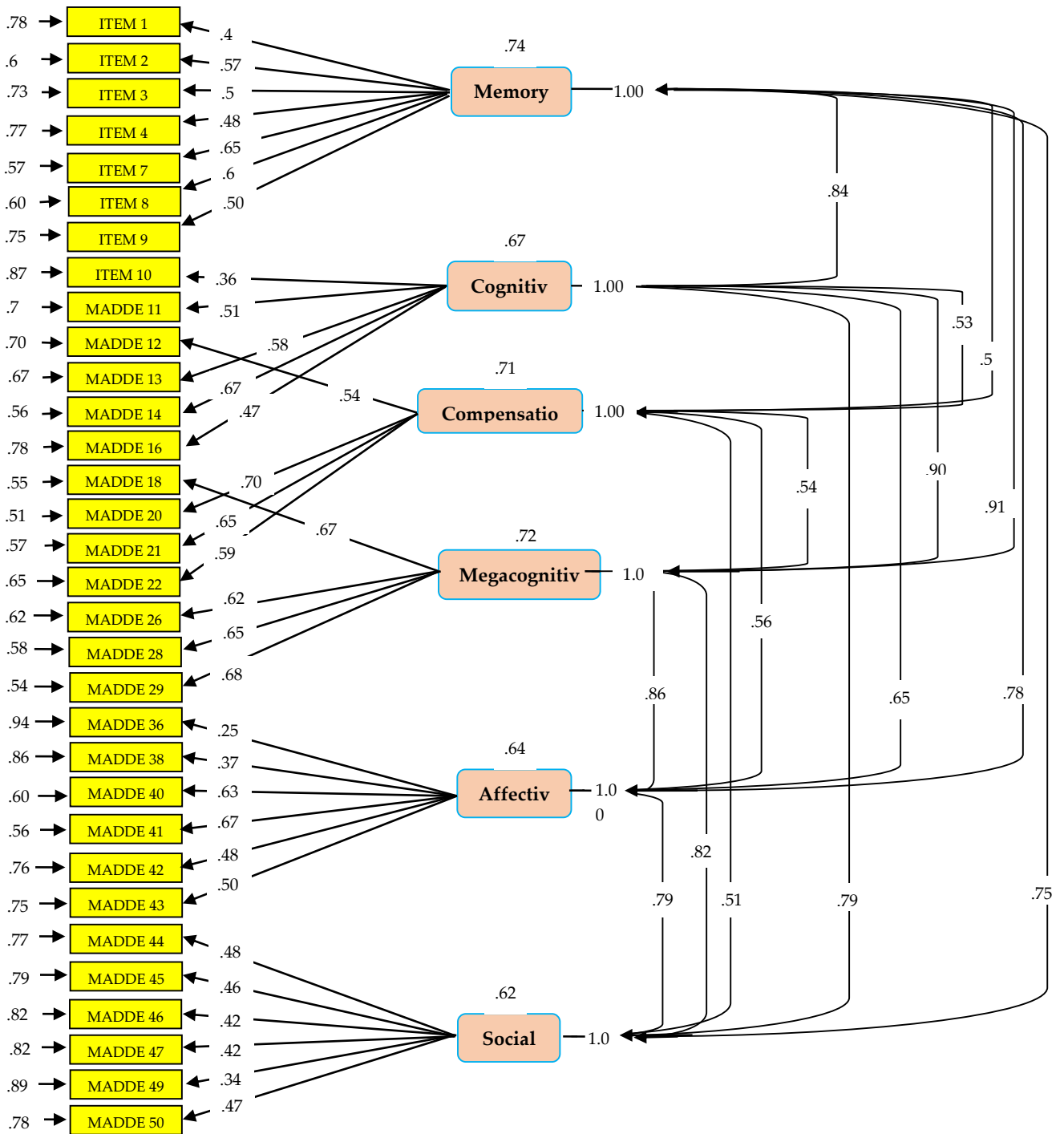


Figure 2. Path Diagram of Confirmatory Factor Analysis

**Reliability Study**

In order to determine the scale’s internal consistency, Cronbach’s alpha ( $\alpha$ ) reliability coefficient was calculated. The Cronbach’s alpha ( $\alpha$ ) reliability coefficient for the scale applied to 923 students was found as .89. This value shows that the scale is highly reliable (Nunnally, 1978; as cited in Gadermann, Guhn, & Zumbo. 2012). The reliability coefficients for the sub scales are given below. The reason why Cronbach's coefficient values are lower than the scale total score can be interpreted by the fact that the number of of items in sub the scales are insufficient.

**Table 4.** The Reliability Coefficient Values for the Scale

Sub Factors/Scales	Cronbach's $\alpha$
Memory Strategies	.74
Cognitive Strategies	.67
Compensation Strategies	.71
Metacognitive Strategies	.72
Affective Strategies	.64
Social Strategies	.62
Scale Total	.89

The corrected item-total correlations of the scale were between .26 and .57, the difference of t (sd=162) values calculated for the 27% upper and lower groups. Item points specified for the total points ranged from 9.64 ( $p < .01$ ) to 22.87 ( $p < .01$ ). The findings are shown in Table 4.

**Table 5.** The t Values for the 27% Upper and Lower Group Differences for the Corrected Item-Total Correlation of the Scale.

Item No	Item-Total Correlation	t values (27% Upper-Lower)	Item No	Item-Total Correlation	t values (27% Upper-Lower)
1	.40	13.921*	22	.26	13.993*
2	.47	16.730*	26	.55	16.240*
3	.47	16.550*	28	.42	20.425*
4	.46	15.433*	29	.48	22.875*
7	.54	21.425*	36	.57	9.640*
8	.51	18.927*	38	.28	14.395*
9	.42	15.981*	40	.47	17.304*
10	.39	12.125*	41	.41	17.242*
11	.53	16.535*	42	.52	16.795*
12	.53	17.277*	43	.45	13.998*
13	.34	14.410*	44	.54	16.690*
14	.34	19.574*	45	.44	14.312*
16	.56	17.493*	46	.48	12.606*
18	.37	22.247*	47	.35	10.998*
20	.52	17.838*	49	.32	10.802*
21	.45	12.747*	50	.34	15.079*

\* $p < .01$

The Pearson product-moment correlation co-efficient was calculated to observe the correlation between the VLS-S and its factors.

**Table 6.** The Correlation Values between the Factors of the Scale

Dimensions	Symbol	[1]	[2]	[3]	[4]	[5]	[6]	Mean	SD
Memory Str.	[1]	1						3.17	5.44
Cognitive Str.	[2]	.55*	1					2.87	4.39
Compensation Str.	[3]	.53*	.55*	1				2.87	3.66
Metacognitive Str.	[4]	.61*	.52*	.57*	1			3.48	3.48
Affective Str.	[5]	.54*	.48*	.50*	.61*	1		3.42	4.92
Social Str.	[6]	.48*	.44*	.43*	.50*	.50*	1	3.20	4.81
Scale total		.81*	.76*	.75*	.80*	.79*	.73*	3.15	.65

\*  $p < .01$

Table 6 reveals that the correlations between the factors are statistically significant ( $p < .01$ ) and vary between .43 and .81. These findings indicate a high level of coherence and correlation between the factors of the scale.



## Discussion

Overall in this study, the VLS-S, theoretically based on Oxford's (1990) language learning strategies scale, was developed in order to determine the vocabulary learning strategies used by secondary school students. A six factor structure was achieved for the VLS-S by applying EFA. The factor structure was tested by using the CFA to ensure a model fit. As a result of the Exploratory EFA and CFA, the scale consisting of 32 items and six factors was found suitable both theoretically and statistically. These results prove the construct validity of the scale. Within the framework of the reliability studies, when the internal consistency co-efficients are examined, it confirms that the scale can be used reliably. Accordingly, the VLS-S can be used to determine the VLSs used by the students in secondary school in order to learn English vocabulary.

The distribution of the items in the scale according to the factors are: the 1st, 2nd, 3rd, 4th, 7th, 8th and 9th are determined to be the items measuring the "*Memory Strategies*" factor. While the 10th, 11th, 13th, 14th, and 16th measure the "*Cognitive Strategies*" factor, the 12th, 20th, 21st and 22nd items measure the "*Compensation Strategies*" factor, the 18th, 26th, 28th and 29th items measure the "*Metacognitive Strategies*" factor, the 36th, 38th, 40th, 41st, 42nd and 43rd items measure the "*Affective Strategies*" factor, and the 44th, 45th, 46th, 47th, 49th and 50th items measure the "*Social Strategies*" factor of the vocabulary learning strategies in English. The lowest possible score to get from the scale is 32 while the highest possible score is 160. The lowest possible score to get from the whole scale is 32 while the highest possible score is 160. Total score obtained from the scale and sub-dimension scores can be assessed as low, medium and high strategy use. This is how Oxford (1990) explains the assessment of the language learning strategies scale. Regarding the to a five point Likert type, the scores ranging from 1 to 5 are divided in three equal parts and classified as (1.0 - 2.4: low; 2.5-3.4: medium and 3.5-5.0: high). According to this assessment, the score obtained through the division of the total scale score by item number (32) can be assessed. Likewise, relevant dimension can be assessed through the scores obtained from the division of the sub-dimension scores by sub-dimension item numbers.

In conclusion, the VLS-S presented in this study can be used to find vocabulary learning strategies preferred by the secondary school level students in learning English vocabulary. In addition, the scale can be utilised as a guide in strategy teaching by foreign language teachers. Oxford and Scarcella (1994) highlights the importance of independent vocabulary learning without much guidance. But still, teachers are expected to figure out the strategies used by students and design teaching-learning activities accordingly.

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