

## Effects of L1 Lexicalization on Vocabulary Recall in Incidental Vocabulary Acquisition

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### **Abstract**

Lexicalization refers to the process of assigning words to concepts existing in a language; and languages differ in the way they lexicalize target language concepts, thus, creating the possibility of some target language concepts not being lexicalized in the L1 lacking direct equivalents. The interplay and interdependency of the two domains, L1 lexical knowledge and L2 lexical knowledge, has been the mainstay of many research studies on bilingual lexicon, and researchers argue that a target word is processed via the L1 system during which a learner attempts to establish parallels with the existing related L1 knowledge. The study followed an experimental design to investigate how effectively ninety L2 Odia speakers of Class XI recall the selected six aspects of the eight target words, both lexicalized and non-lexicalized, from reading of a text followed by the administration of an immediate recall test. The comparison of learners' scores using a paired samples t-test on both the category of words on each sub-test representing one of the six aspects revealed that the learners could not recall the semantic aspects of the non-lexicalized words effectively compared to their counterparts. This has serious implications for vocabulary instruction programmes in teaching-learning contexts where teachers and learners both need to attend to this pragmatic aspect involved in non-lexicalized words.

**Keywords:** Lexicalization, recall, bilingual lexicon, lexical knowledge, semantic aspects

## Introduction

The theories pertaining to second language vocabulary acquisition owe a great deal to the principles commonly followed in the linguistic analysis of a word which helped to establish the notion of a word from an applied linguistic perspective. A word offers a multitude of knowledge and aspects; and this knowledge of a word can be understood at three different dimensions such as form, meaning, and use (Nation, 2001). This multidimensional nature of a word just makes it impossible to arrive at a common framework that can aptly justify how learners acquire various aspects involved in a word. Researchers in SLA have argued that 'knowing a word' would mean to know its denotations and connotations, syntactic properties, underlying forms, associations, use, and frequency (Richards, 1976; Olshtain, 1987; Gass, 1989; Tekmen and Daloglu, 2006; Heidari-Shahreza and Tavakoli, 2012). This multi-faceted nature of a word has also led researchers to investigate what exactly makes a word difficult or easy to learn. In order to answer this question, researchers tried to examine factors inherent in the word itself (intralexical) and factors (interlexical) in relation to the L1 language system in case of a foreign/L2 speaker. The list of intralexical factors such as pronunciability, orthographic representation including length, inflectional and derivational complexity, synformy, grammar, semantic features (abstractness/concreteness, specificity and register restrictions, idioamaticity, multiple meaning) involved in a word can affect word learning (Laufer, 1997). Likewise, many of these factors can be viewed in relation to the already existing system (L1) when a second language learner acquires an L2 target word. These factors, both intralexical and interlexical, can sometimes be facilitating, difficulty-inducing, and factors with no clear effect on word learning (*ibid.*). The present study is concerned with one such variable, i.e. lexicalization, presumed to be an interlexical factor, and the way it can affect acquisition and recall of target words and their related aspects.

### L1 Lexicalization and Second Language Vocabulary Acquisition

The issue of L1 lexicalization as a linguistic variable has profound implications for second language vocabulary acquisition, however, has not been looked into seriously with a very few number of studies conducted in this line of enquiry. There are countless number of concepts available in a language. These concepts can be expressed using the

vocabulary of the language; and naturally, 'languages vary in which they lexicalize' (Chen and Truscott, 2010). The English word *prejudice*, for example, meaning 'an unreasonable or unfair opinion about something/somebody' has not been lexicalized in Odia. Will words of this kind pose any learning difficulty for L2 learners? Target words having direct equivalents (L) in the L1 have been defined as lexicalized and those lacking have been defined as non-lexicalized (NL) (Paribakht, 2005; Chen and Truscott, 2010, Heidari-Shareza and Tavakoli, 2012; Patro, 2016).

The role of L1 in the acquisition of second language vocabulary has long been recognized with instances of cross-linguistic studies on how learners' L1 lexical knowledge base affects acquisition of L2 morphological variations, syntactic behaviours, semantic transfer, and modes of lexical processing (Koda, 1989; Swan, 1997; Koda, Takahashi and Fender, 1998; Jarvis, 2000; Jiang, 2000; Heidari-Shahreza and Tavakoli, 2012). Several studies reported that 'learners avoid quite systematically words that have no equivalent in their mother tongue' (Blum and Levenston, 52) and found that 'semantic similarity with the L1 verbs affected learning of L2 verbs to a great extent' (Yu, 1996). Learners often tend to process L2 words based on their meanings in their L1 and the absence of direct equivalents could possibly lead to lexical errors. However, these studies did not highlight the impact of L1 lexicalization on L2 vocabulary acquisition and how it can affect acquisition of L2 lexical patterns in reading.

Paribakht (2005), the first study to address this issue of L1 lexicalization, tried to look into the processes and knowledge sources involved in lexical inferencing of lexicalized (L) and non-lexicalized (NL) words from reading of English texts by Farsi-speaking EFL learners. Though the study did not really look at acquisition/learning in depth, the findings revealed that learners were more successful in inferencing meanings of L words compared to NL words. In addition, they spent more time on NL words than L words in terms of the time spent in inferencing. Taking clues from the above study, Chen and Truscott (2010) with 72 Mandarin-speaking university freshmen tried to examine whether this issue of L1 lexicalization posed some special learning difficulty in terms of acquisition of six selected aspects of word knowledge (of both L and NL) from reading of English texts under incidental learning condition with repetition as a variable. The results obtained from the analysis of learners' response on the immediate retention measure suggested

that limited learning occurred in case of NL words when compared with L words. The participants effectively retained the lexical aspects involved in L words indicating significant gains. Similar findings were reported on the delayed retention measure after two weeks highlighting the possibility that lexicalization posed special learning difficulties for learners. However, there was no control over the *saliency* (see Brown, 1993) of the target words which might have affected learning. Modelled on the Chen and Truscott (2010) study with greater control over the *saliency* of the target words, Heidari-Shahreza and Tavakoli (2012) reported findings almost similar to the previous study. Learners were more successful in terms of retention of the semantic aspects of word knowledge involved in the L words compared to NL words. However, there was no significant difference between learners' performance on L and NL words at orthographic and syntactic levels. The selected target words in both studies seemed to be low frequency in nature with reduced ecological validity. Moreover, the researchers were not quite able to control the cultural connotations involved in the selected words which might have impacted learning and the results as well. The low frequency nature of the words could be well beyond the learners' existing level of proficiency and could make lexical processing of such words difficult. This can be said in relation to the Vocabulary Levels Test (2000 word level) these two previous used to select the participants.

## **L2 Lexical Processing and the Role of L1**

A majority of the studies conducted in the second language vocabulary acquisition focused on the *what* of acquisition rather than the *how* of it. Much later when theorists tried to develop model(s) of the mental lexicon (Singleton, 1999; Aitchison, 1994), researchers tried to explore and look into the processes responsible for storage, organization, and retrieval of words and their related properties from the mental lexicon. A possible and one-dimensional explanation on the workings of the mental lexicon could have been possible provided the learner functioned with one lexical system representative of one particular language. However, the problem is multiplied when one deals with learners with multiple lexical systems; and a working explanation of the mental lexicon, possibly a bilingual one, most often remains an inconclusive one.

Acquisition of L1 vocabulary appears to be fairly easy and effortless on the part of the learner as the need to acquire seems immediate in order

to make sense of the word. Subsequently, with the advantage of having an already established lexical system when a learner attempts to acquire L2 vocabulary, in the early years, she presumably draws parallels with the L1 lexical system to process the target vocabulary. Hence L2 lexical processing tends to be slow compared to L1 and L2 lexical knowledge growth seems to be incremental in nature. The processes involved in the organization and retrieval of L2 lexical knowledge might be results of the interaction that occur between the two lexical systems in the mental lexicon. In order to be a part of the mental lexicon the target vocabulary knowledge is presumed to interact with the multiple layers of L1 knowledge giving rise to possible lexical transfer in case of shared properties between the two at the formal, semantic and conceptual level. While most often the L1 lexical system significantly differ from the L2 system at the formal level (phonology and morphology), the two lexical systems might have a common and shared conceptual store in the mental lexicon and a reference to it is made when the acquisition of the meaning(s) of the target words is in focus. However, the unavailability of a concept or semantic equivalent in the L1 lexical system might lead to a halt in processing the target word. In the light of the above discussion, the issue of L1 lexicalization seems to cause serious problems for learners to acquire L2 words that lack semantic parallels in their L1. In the present study an attempt has been made to understand this issue of L1 lexicalization more closely which would take us one step closer to understand the workings of the bilingual mental lexicon in terms of organization, storage, and retrieval (recall) of the words in focus.

Researchers in SLA argue that in second language teaching-learning contexts reading as a skill is believed to be more conducive to acquire target vocabulary compared to other language skills. It provides a better context to acquire and explore the layers of knowledge involved in a word while at the same time help learners to comprehend the word for better understanding of the text. This learning has been defined as 'incidental' when learners struggle or work with the meaning of the text rather than the individual words. The study adopted the framework of incidental vocabulary acquisition through reading to contextualize the target words, and subsequently, to acquire them with the following research question in focus.

To what extent can learners recall the selected aspects of word knowledge involved in the target lexicalized (L) and non-lexicalized (NL) words?

## Method

### Participants

The participants who took part in the study were 90 Odia learners of English as second language (ESL), aged 15-16 (37 female, 53 male). All of them were from Class XI with at least 7-8 years of exposure to English in formal learning contexts in Odisha where classroom instruction primarily focused on developing the knowledge of grammar of the L2 with minimal scope for communication or related language skills. Though they were not able to converse in English fluently, however, they could read the prescribed texts easily and comprehend them. They were all relatively intermediate users of English and shared a similar socio-economic background. These learners were selected from a total number of 214 based on their score of 27.5 or more out of a maximum score of 30 on the 3,000 level Vocabulary Levels Test (Schmitt, 2000). This suggested that the selected participants could read and comprehend a reading text prepared around the first 3,000 words in English.

### Target Words

The selection of target words has always been crucial to any research conducted in second language vocabulary acquisition and any inconsistency in this regard can lead to varying results. There are a number of factors which can be considered and reviewed during the selection of target words such as frequency, morphological complexity, syllabic structure, phonological consistency or inconsistency and the like. The target words need to be well within the learners' existing proficiency level in vocabulary use which can be determined by the administration of the VLTs. In this study, the twenty potential target words were selected from the first 1,000 words of the 3,000 core Academic Vocabulary List (Gardner and Davies, 2013). The use of the 3,000 level VLT to select the sample ensured that the participants could operate at this frequency level.

The target words were selected through the administration of a diagnostic test to a parallel group of students during the pilot study in which each of the twenty words were embedded into a sentence followed by a meaning-matching task. A total number of eight words were selected as the target words on which seventy per cent of the learners had scored correctly on the matching-type task. Later, it was established from the

participants of the pilot study that the target words were unknown to them.

**Table 1: Twenty Potential Target Words**

Verb		Noun		Adjective
Implement	Abandon	Dilemma	Fragment	Apparent
Constitute	Advocate	Instance	Perspective	Subsequent
Attribute	Comprise	Prejudice	Precision	Strategic
Endeavour	Manipulate	Dichotomy	Constraint	Substantial

**Table 2: Target Words**

Verb		Noun		Adjective
Implement (L)	Endeavour (NL)	Dilemma (NL)	Precision (L)	Strategic (NL)
Constitute (L)	Manipulate (NL)	Prejudice (NL)	Perspective (L)	Substantial (L)

Note: L = lexicalized, NL = non-lexicalized

### Reading Material

The only reading text used in the study comprised all the eight target words with a total number of 211 words. It was expository in nature since the target words, academic in nature, seemed to fit into such contexts better than any other text type. A lextutor analysis of the text revealed that around 84% of the words were from the first 2000 most frequent words in English which could enable the learners to read and comprehend the text independently without seeking any instructional help (Nation, 2001). Moreover, the nature of the target words in terms of the morphological structure would not provide any clue to the learners to infer their meanings. Subsequently, the reading could be kept meaning-focused in which the learners had to exploit the meaning-based connections in order to acquire the word subconsciously.

### Immediate Recall Test

Based on the Chen and Truscott (2010) model the immediate recall was designed to test recall of the selected aspects of word knowledge. It included six sub-tests representing each of the six selected aspects

of lexical knowledge. These aspects are deemed crucial for ESL/EFL learners to comprehend any text; and retention and acquisition of the same could help them acquire other related aspects that require comparatively more manipulation. The following table displays the six aspects and the item-type used for the sub-tests.

**Table 3: Aspects of Word Knowledge Measured**

Sub-tests	Word Knowledge Measured	Item Type
1	Productive knowledge of orthography (PO)	Dictation
2	Receptive knowledge of orthography (RO)	Multiple choice
3	Receptive grammatical knowledge (RG)	Multiple choice
4	Receptive knowledge of meaning (RM) (L2-L1)	Matching
5	Receptive knowledge of association (RA)	Multiple choice
6	Productive grammatical knowledge (PG)	Sentence construction

### Procedure

The experiment included two phases-reading of the text and administration of the immediate recall test. All 90 participants were assigned to read the prescribed text and were instructed beforehand that the reading would be followed by a reading comprehension task in order to ensure that the reading remains meaning-focused and to divert the learners' attention from the target words. The reading was followed by the immediate recall test which consisted of all the six vocabulary sub-tests. Each of the sub-tests was printed on a single sheet just to discourage the learners from copying the corresponding words from other sub-tests while responding to sub-test 1 (dictation type). They were given as much time as required to respond to the sub-tests, however, were not allowed to go back to the completed sub-test(s) once they had finished it.

### Pilot Study

The pilot study was conducted with a sample of twenty comparable with the sample of the main study prior to the experiment. It was conducted to select the target words using the word diagnostic test and to examine whether the reading text which contained all the target words posed any difficulty to the learners. Several text-related factors were taken into

consideration such as text length, time taken to read, complexity, and familiarity with the topic while retaining the text for the main study. In addition, their response on the immediate recall test was also obtained on factors such as format familiarity, clarity in instruction, and level of difficulty. Though the last one varied from sub-test to sub-test the same was retained without any modification.

### **Data Analysis**

To answer the research question, regarding the extent to which the learners could recall the selected aspects of target lexicalized (L) and non-lexicalized words (NL), learners' gains on L and NL words were compared on each sub-test using a paired samples t-test at 5% level of significance ( $p < .05$ ).

### **Result and Discussion**

For the research question, the independent variable was L1 lexicalization and the dependent variables were the six aspects of vocabulary knowledge. Prior to the t-test analysis (paired samples t-test), the participants' mean scores (M) and standard deviations (SD) were calculated on each sub-test for L and NL words. The paired differences were calculated for the mean, standard deviation, t-score and p-value.

**Table 4: Means (M) and Standard Deviations (SD) on the Immediate Recall Test and t-test Analysis**

				Paired Differences			
Sub-tests/L vs. NL		Mean	Std. Deviation	M	SD	t	Sig.
Pair 1	POL	2.4333	1.07265	.93333	1.04826	4.877	.000*
	PONL	1.5000	1.27982				
Pair 2	ROL	3.2667	.86834	-1.0000	1.09387	-0.501	.620
	RONL	3.3667	.85029				
Pair 3	RGKL	2.3333	1.44636	-4.0000	1.65258	-1.326	.195
	RGKNL	2.7333	1.20153				
Pair 4	RKML	2.1667	1.46413	.56667	1.07265	2.894	.007*
	RKMNL	1.6000	1.30252				

Pair 5	RAL	2.4333	1.07265	.83333	1.68325	2.712	.011*
	RANL	1.6000	1.16264				
Pair 6	PGKL	3.1333	1.00801	.50000	1.40810	1.945	.062
	PGKNL	2.6333	1.12903				

Note: \* $p < 0.05$

The above table displays the comparison between learners' mean scores on lexicalized (L) words and non-lexicalized (NL) words on each sub-test. The analysis revealed that the difference between the mean scores (L vs. NL) was significant on PO, RKM, and RA while the difference was not significant on RO, RG, and PG. The mean scores calculated for NL words were lower than the mean scores calculated for L words on PO, RKM, and RA. It suggests that NL words caused learning difficulties for learners in recalling the orthographic (productive) and the semantic aspects involved. This could be due to the fact that when learners attempt to comprehend and retain such words following the L1 route the absence of their equivalents in the L1 might result in avoidance of such words. Thus, acquisition and retention of several aspects involved in those words (NL) would become difficult and ineffective compared to aspects involved in lexicalized words. Learners were able to recall the orthographic (receptive) and syntactic aspects of both L and NL words. One possible explanation of this could be that the participants encountered the target words three times in various contexts which could have eventually led them to retain the selected properties and recall them later.

## Conclusion

The present study investigated the effects of L1 lexicalization on the acquisition (recall) of six selected aspects of eight target lexicalized and non-lexicalized words. The findings indicated that the learners could not successfully recall the semantic aspects involved in the non-lexicalized words compared to the lexicalized words. This poses a serious learning difficulty for learners when such words are encountered and presented to them for learning. Generally, these NL words do not have a straight forward singular meaning and could include more semantic features which might make it difficult for learners to retain all the components of its meaning. This suggests that both teachers as well as learners need

to be aware of such a feature of NL words while any attempt is made to acquire these words. Following a similar design further research can be conducted by including other semantic aspects and more number of NL words, possibly non-academic in nature. A comparative study can also be conducted to see how this issue of lexicalization affects acquisition in explicit learning and incidental acquisition contexts.

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