



Natural Order of Vocabulary Acquisition

MUHAMMAD SHABAN RAFI

Department of English Language and Literature
University of Management and Technology
Pakistan

Abstract:

Past investigations conclude that L1 (first language) English learners acquire frequent, concrete, typical and basic level words faster and earlier than infrequent, abstract, atypical and super-ordinate level words. This study examines: (a) the natural order of vocabulary acquisition among 5 to 7 years old English as a Second Language (ESL) learners, and (b) whether the order of vocabulary presentation in the Grade-I English textbook, published by Punjab Textbook Board (PTB), Pakistan, coincides with the vocabulary acquisition habits of the learners. A vocabulary test was executed to gather data from one hundred and twenty ESL learners. A corpus analysis of the Grade-I English textbook was also carried out to compare the order of vocabulary presentation with the learners' acquisition habits. The study revealed that Grade-I ESL learners acquire and memorize frequent, concrete, basic level and typical vocabulary of a category faster and earlier than infrequent, abstract, super-ordinate and atypical ones. Moreover, the order of vocabulary presentation in English textbooks does not match with the acquisition habits of the learners, which has implications for textbook writers.

Key words: ESL, learner, vocabulary, acquisition, and textbook

Introduction

Children progress from simple to complex lexical forms in the acquisition of a language. It is natural to establish a reference point to process relatively complex language structures. In the Transformational Grammar when we

transfer kernel sentence into non-kernel, thus we intuitively establish the kernel sentence as a reference point. Carroll and White (1973) support the point that the way mind stores information of lexemes is related to the ease of retrieval. Each model of lexical access such as hierarchical network, spreading activation, logogen and cohort, advocates uniform principles and parameters to retrieve lexemes. On shuffling these principles and parameters subconsciously, the natural order of language growth encounters inhibitions in the process and production. The thesis of this study argues that any divergence from the natural (/normal/regular) vocabulary acquisition habits of the learners may trigger mental gaps, which hamper language output. The study is based on research that has established that children acquire frequent, concrete, typical and basic level words faster and earlier than infrequent, abstract, atypical and superordinate level words, and that this phenomenon is universal and equally applicable to L1 (first language) and L2 (second language) users of English as Second Language (ESL). Fitzpatrick and Izura (2011) put weight behind this assumption that there are broad similarities between L1 and L2 in vocabulary acquisition and response time.

Teachers have always been naturally interested in how learners go about learning vocabulary (Nation 1990; Hath and Brown 1995; Chacon-Beltran, Abello-Contesse, and Torreblanca-Lopez 2010). Hamzah, Kafipour and Abdullah (2009) argue that vocabulary learning strategies has been important segment of language teaching strategies since 1970s, but even to-date teachers are ambivalent about how learners acquire vocabulary effectively and efficiently or how it can best be taught. With some knowledge of the natural order of vocabulary acquisition, they can facilitate the learners' acquisition process. One of the factors which determines the rate and sequence of vocabulary acquisition in children is frequency of input (as supported by Narasimhan and Gullberg 2011; Szagun 2011; Lawley 2010). Wells (1985) argues:

Relative linguistic complexity...is the major determinant of order of emergence in the sense that it delimits what the child will be able to learn at each stage. Within these limits, frequency in the input plays a role in facilitating the actual learning: on the one hand, a certain minimal frequency is necessary to provide the child with a model from which to

learn and, on the other hand, differences in relative frequency make some items more salient than others... (381)

Taylor and Taylor (1990) support the above mentioned thesis, emphasizing that frequent words tend to be short, e.g., *car* versus *automobile*. However, regardless of the word's length, it can have a frequency effect. That is; children learn, recognize and memorize frequent words faster than infrequent words, e.g., they acquire and memorize *walk* relatively earlier than *stroll*. In the maturation of mental lexicon, the frequent lexical items learnt are personal, selective and most of the time, action related. Children learn faster the names of those things that they are most often exposed to. Children's early lexical acquisition includes names of specific people (*mama, papa*), animals (*dog, cat*), toys (*doll, ball*), lexemes that refers to actions or changes (*up, all gone*), names for body parts (*nose, eye*) and routines that are linked to specific social interaction (*bye-bye*).

A child does almost as well as an adult at generating predicates for words bound by a concrete relation; a child does not do nearly so well as an adult when the relation is abstract. (Anglin 1970, 93).

One of the factors which influence children's mental lexicon maturation is concreteness; they comprehend concrete phenomena faster than abstract concepts (Carroll 1999). Subsequently, they understand new terms very easily whose referents are concrete, such as *table, tree, dog* and so on. This happens because they can easily relate the meaning of a word to the thing or action it represents. Relatively, the words with abstract meanings, which do not have any concrete referent, such as *love, justice, kindness* and *hope*, exert a heavy load on the working memory of learners. The concrete words are relatively easy to imagine and to define; they evoke images instantaneously, provoking further production of speech acts (Taylor and Taylor 1990, 148-149).

Part of knowing the vocabulary of a language is to understand its hierarchical pattern (Rosch 1977). The relation of hyponymy, that is, the relation of very general lexical items like *creature, animal*, and *mammal* to more specific vocabulary as *dog, beagle* and *Snoopy*, serves to organize a language's lexicon.

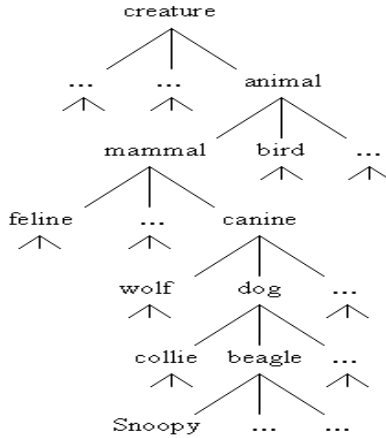


Figure 1

The term *creature*, at the top of the hierarchy is called ‘super-ordinate’ has the most general meaning, and it is used to refer to all the objects below. The subsequent terms (*animal*, *mammal* and *bird*) are called ‘sub-ordinate’ or ‘hyponyms’ (Taylor and Taylor 1990). According to Anglin (1970) and Bellugi and Brown (1958, 1964) the children learn the ‘middle level’ of this hierarchy first. One reason is that parents’ conversation with their children mostly includes terms that describe basic notions, for example *car* instead of various types of cars, however while speaking among themselves they prefer specificity, such as *Rolls Royce*, *Limozin*, *Mercedes* and so on. In the same way, parents mostly use *flower* instead of *plant*, *dog* rather than *animal*, and so on (Jackson and Amvela, 2007). Sometimes, the ease with which basic level term is acquired depends on conceptual access, as children find it more natural to categorize a novel object as an instance of basic level rather than super-ordinate term. In fact, children find it easier to learn new basic level lexical items than novel super-ordinate items, even if the words are used with equal frequency.

The basic objects are... the most inclusive categories for which a concrete image of the category as a whole can be formed, ... the categories most codable, most coded, and most necessary in language. (Rosch et al. 1976, 582)

Another reason for acquiring basic level terms earlier could be that in hierarchical patterns the higher items are more abstract, while for basic level terms children can list many

properties (Miller 1991). For example, chair is a basic level object and it is possible to identify its many distinguishing basic features, such as arms, legs, back while furniture, the superordinate term, does not readily evoke such features.

Another feature which may affect the disposition of mental lexicon is typicality effect or category-size effect (Landauer and Meyer 1972). It signifies that the children respond to typical members of a category faster than atypical ones. The objects that belong to same category share same properties, for example, in the category *birds* includes animals which have feathers, lay eggs and can fly. All members of a category are not truly representative of that category e.g., ‘as rated by people, members of the category *bird* range from high to low in the representation: *robin, sparrow, blue jay, parakeet, pigeon, eagle, cardinal, hawk, parrot, chicken, duck, goose*’ (Rips, Shoben, and Smith 1973). The most representative example of the category *bird* is *robin*, which is called the ‘prototypical’ member of the category, whereas the members lacking some properties of the category *bird* are called ‘atypical’ or ‘peripheral’ members of the category, such as *ostrich*. Moreover, Smith, Shoben, and Rips (1974) examined the effect of category similarity on verification times and concluded that verification time decreases for true statements if similarity is present but increases for false statements.

- I. A robin is a bird.
- II. An ostrich is a bird.
- III. A whale is a fish.
- IV. A horse is a fish.

In the above statements, sentence (I) takes less time than (II) for category verification while (III) takes longer time than sentence (IV). It shows that typical members of a category take less time to verify than atypical items in true statements and the opposite is true for false statements. In lexis development, children acquire lexical items for typical members before those for atypical ones (Taylor and Taylor 1990, 154-57; Carroll 1999, 113).

The work of previous researchers as outlined above supports the premise that L1 learners acquire frequent,

concrete, basic level and typical words faster than infrequent, abstract, superordinate and atypical words.

Research Questions

1. What is the natural order of vocabulary acquisition among 5 to 7 years old ESL learners?
2. Does the order of vocabulary presentation in a Grade-1 English textbook, published by PTB, Pakistan coincides with the natural order of vocabulary acquisition of learners?

The results of the research question (1) may lead us to better understand the natural order of vocabulary acquisition habits of English as Second Language learners. The study assumes that there is incongruence between natural vocabulary acquisition and the planned vocabulary development in the ESL learners' syllabus that accounts for certain mental gaps. These cognitive gaps inhibit language processing and production. In order to prevent these barriers to language learning, it is necessary to align the ESL syllabus with the natural order of vocabulary acquisition. The following methodology is designed to address this issue.

Methodology

A sample of 120 Kindergarten children between 5 to 7 years of age was selected to observe the effects of teaching different types of words: frequent, infrequent, concrete, abstract, basic, superordinate, typical and atypical on their acquisition. The quantitative data were gathered from eight different state run schools spread across the province of Punjab, Pakistan. The words were taught to them by their respective teachers considering the natural order of vocabulary acquisition, irrespective of vocabulary presentation in their textbook. As discussed in the introduction there is consensus among the linguistics that a child passes through various phases, such as the first sounds, babbling, the one-word stage, the two-word stage and from telegraphic to infinity while acquiring L1 (First language).

Cognitivists acclaim that L2 (second language) is acquired on the same universal innate principles that govern

L1 acquisition, which is why one finds the same stages of development even if the complete L2 grammar is not acquired. The above mentioned order of L1 acquisition puts weight behind the hypothesis that there is a natural order of a language acquisition, which is innate to human. To investigate the assumption that vocabulary is acquired in the natural order the present research prepared the following vocabulary list from Grade-I English textbooks of various publishers to investigate the research question (1), however the children' language competence and difficulty level of vocabulary present in their textbook was considered to minimize the effect of confounding variables. The purpose behind the selection of vocabulary list confirming the natural order of vocabulary acquisition from the textbooks other than their own was to minus the effect of their already acquired vocabulary.

Table 1
Vocabulary List

Funny, Walk, Mountain, Spoon, Lonely, Rug, Cake, Painting, Love, Kindness, Teddy-bear, Pain, Pizza, Burger, Fast Food, Pets, Parrot, Rabbit, Orange, Watermelon, Potato, Tomato, Sparrow, Duck

Including this the class teachers were consulted to ensure whether the words chosen for experiment correspond with their competence and level of difficulty present in their prescribed textbook. Another factor which was considered in the preparation of the vocabulary list was the inclusion of equal proportions of the above mentioned types of words. Albeit this was not purely an experimental study yet some of the confounding variables were neutralized, such as input from the teachers and the peers during the experiment. In the vocabulary test, students were asked to fill in the blanks by looking at the picture of 'rug' and writing what concept or word came to their mind. The empirical data were also collected with the help of participants' observation of the difference in times taken by students to respond to frequent and infrequent words, concrete and abstract words, and superordinate and basic level terms.

A corpus analysis of the Grade-I English textbook, published by the PTB, was also carried out. The textbook was analyzed to investigate whether or not the sequence in which

words were presented matched the order with which the children acquired vocabulary.

Results and Discussion

The main results of the experiment are presented in Table 2; the children were able to acquire frequent words more easily as compared to infrequent ones. More factually speaking, the children attempted 88.3% and 12.5% correct response on frequent and infrequent words respectively. In the test, they recognized the frequent word *spoon* in picture correctly with ease as compared to the infrequent word *rug*, although it was also represented visually. There was significant difference between frequent and infrequent words monitoring times. The end result was that monitoring times increased for low frequency words and eye fixation to low frequency words for about 160 milliseconds longer than high frequency words.

Table 2
Percentage of Vocabulary Acquisition Response of ESL Learners

Words	Correct Response	Incorrect Response
Frequent	88.3	11.7
Infrequent	12.5	87.5
Concrete	90.0	10.0
Abstract	11.7	88.3
Superordinate	6.70	93.3
Basic Level	87.5	12.5
Typical	85.0	15.0
Atypical	25.0	75.0

The children took relatively longer time to memorize abstract words than concrete ones. Words such as *love*, *kindness* and *pain*, which require the association of ideas, were difficult to acquire. The children took more time to fill in the blank, *I ___ my mother* with *love* as compared to write *teddy-bear* as a response for *I like ___* in the vocabulary test. Even after being provided enough time to respond to the question, the correct response on abstract words was only 11.7%, which points to the late acquisition of abstract words as compared to concrete items during the maturation of children’s mental lexicon.

As far as the acquisition of super-ordinate and basic level terms is concerned, the study depicted 87.5% acquisition of basic level terms and 6.7% super-ordinate level terms. Instead of using super-ordinate term '*fast-food*', the children used basic level terms *burger, chips, coke*. They used basic level terms as *rabbit, parrot* and *cat* instead of *pets*, when they were shown a picture group of domestic animals. Most people can list many properties of basic level terms unlike super-ordinate ones. For example, a *chair* is a basic level term, and we can identify several distinguishing features of chairs. In contrast the super-ordinate *furniture* does not readily lead to many such features. If you go down the hierarchy from a basic level term, for example *armchair* then you can add minor features.

In the case of acquisition of typical and atypical vocabulary items of a category, it was found that the children acquire typical items of a category before acquiring atypical of the same category. For example, it was easy for them to decide that *potato* was a vegetable as compared to choose whether *tomato* was a vegetable or fruit. The correct response rate for these questions was 85% and 25% respectively, which endorsed the view of acquisition of typical items before atypical ones. As cited above Smith, Shoben and Rips (1974) also concluded similar finding that verification time for atypical terms is relatively higher than typical ones. In their experiment; for example, *ostrich* that is atypical category of super-ordinate bird does not hold all the properties of bird takes more time for verification. Thus, typicality effect inhibits acquisition ability of children.

The following results were found in relation to the second research question, regarding the relationship between the order of vocabulary presentation in the Grade-I English textbook and the vocabulary acquisition habits of the learners. The vocabulary items included in the textbook were overwhelmingly frequent and concrete. All lexical items were presented through pictures, to facilitate the children's vocabulary acquisition. The textbook included some quite frequently used words e.g., *book, table, bag, star, flower, cup, ball* and so on. However, increased repetition of one or two categories of lexical items did not manifest with the children's maturation of mental lexicon. Eventually, this mismatch

engendered gap(s) between their acquisition habits and order of vocabulary present in their textbook.

The study supports the natural order hypothesis. It synthesizes that ESL children acquire frequent, concrete, basic level and typical words of a category before infrequent, abstract, super-ordinate and atypical ones. The study identified limitations in the focus of the Grade-I English textbook, which overwhelmingly favours frequent and concrete words. Many of these are quite familiar to the children even before their entry in Grade-I, in effect they are found less motivated to relearn these words. Eventually, vocabulary present in the textbook does not support their maturation of mental lexicon. Moreover, vocabulary learning tasks are more receptive than productive, which eventually draw a cut point to exercise other approaches for vocabulary acquisition. It is important for L2 teachers to challenge their students by emphasizing vocabulary, and by doing so giving them a fighting chance to learn the vocabulary they need to function in their second language (Schmitt 2010).

Conclusion

This research has analyzed the natural order of vocabulary acquisition in 5 to 7 year old learners who were studying the Grade-I English textbook. The study discovered that the learners acquired frequent words earlier than infrequent words, concrete words before abstract words, basic level terms prior to super-ordinate terms and typical vocabulary items of a category earlier than atypical ones. The reason behind this order of vocabulary acquisition was the ease of retrieval of these terms and lack of inhibition in associating these words with their referents. The study speculates that this phenomenon is equally applicable to L1 and L2 users of ESL, and it may be applied universally. However, an independent study can be conducted to explore this assumption further.

The study also found that order of vocabulary representation in the textbook had mismatch with the order of vocabulary acquisition of the learners. A Corpus analysis of the Grade-I English textbook showed that only concrete words, such as *bus, chair, table, pencil, bag* and so on and frequently used words, such as *ball, cat, computer, star, flower* and so on were repeated throughout the textbook. This repetition of terms

did little to support their maturation of mental lexicon. As Nelson (1973) has shown, children use words from various grammatical classes early on. Nelson found that general nominals such as *ball* and *car* were most prevalent, followed by specific nominals (*Mommy*), action words (*up, go*), modifiers (*dirty, pretty*), personal and social words (*please, Want*), and functional words (*what, for*). To supplement the learners' language maturation process, the natural order of vocabulary acquisition ought to be considered of major importance especially when designing textbook. Most vocabulary learning tasks probably promote several aspects of knowledge, measuring multiple aspects of knowledge seems necessary to fully determine their relative efficacy (Webb 2005, 2008).

BIBLIOGRAPHY

- Anglin, J. 1970. *The Growth of word meaning*. Cambridge, MA: MIT Press.
- Bellugi, U., and R. Brown. 1964. "Three processes in the child's acquisition of syntax." *Harvard Education Review* 34: 133-151.
- Brown, R. 1958. *Words and things*. Glencoe, IL: Free Press.
- Carroll, W. D. 1999. *Psychology of language*. USA: Brooks/Cole Publishing Company.
- Carroll, J.B., and M.N. White. 1973. "Age-of-acquisition norms for 220 pictureable nouns." *Journal of Verbal Learning and Verbal Behaviour* 12: 563-576.
- Chacon-Beltran, R., C. Abello-Contesse, and M. Torreblanca-Lopez. 2010. "Vocabulary teaching and learning: Introduction and overview." In *Insight into non-native vocabulary teaching and learning*, edited by R. Chacon-Beltran, C. Abello-Contesse, M. Torreblanca-Lopez, 1-12. MPG Books Group Ltd.
- Fitzpatrick, T., and C. Izura. 2011. "Word association in L1 and L2: An exploratory study of response types, response times, and interlingual mediation." *Studies in Second Language Acquisition* 33(3): 373-398.
- Hamzah, S.G.M., R. Kafipour, and K.S. Abdullah. 2009. "Vocabulary learning strategies of Iranian undergraduate EFL

students and its relation to their vocabulary size.” *European Journal of Social Sciences* 11(1): 39-50.

Hatch, E., and C. Brown, 1995. *Vocabulary, semantics, and language education*. Cambridge: Cambridge University Press.

Jackson, H., and Z.E. Amvela. 2007. *Words, meaning and vocabulary: An introduction to modern English lexicology*. England: Athenaeum Press, Gateshead, Tyne & Wear.

Landauer, T.K., and D. E. Meyer. 1972. “Category size and semantic-memory retrieval.” *Journal of Verbal Learning and Verbal Behaviour* 11: 539-549.

Lawley, J. 2010. “Conspicuous by their absence: The infrequency of very frequent words in some English as a foreign language textbooks.” In *Insight into non-native vocabulary teaching and learning*, edited by R. Chacon-Beltran, C. Abello-Contesse, and M. Torreblanca-Lopez, 145-155. MPG Books Group Ltd.

Miller, G.A. 1991. *The science of words*. New York: Scientific America.

Narasimhan, B., and M. Gullberg. 2011. “The role of input frequency and semantic transparency in the acquisition of verb meaning: evidence from placement verbs in Tamil and Dutch.” *Journal of Child Language* 38(3): 504-526.

Nation, I.S.P. 1990. *Teaching and learning vocabulary*. Heinle & Heinle Publishers.

Nelson, K. 1973. “Structure and strategies in learning to talk.” In *Psychology of Language*, edited by W. D. Carroll. 1999. USA: Brooks/Cole Publishing Company.

Rips, L.J., E.J. Shoben, and E. Smith. 1973. “Semantics distance and the verification of semantics relations.” *Journal of Verbal Learning and Verbal Behaviour* 12: 1-20.

Rosch, E. 1977. “Human Categorization.” In *Advances in cross-cultural psychology*, edited by N. Warren, London: Academic Press.

Rosch, E., W. Gray, D. Johnson, and P. Boyes- Braem. 1976. “Basic objects in natural categories.” *Cognitive Psychology* 7: 573-605.

Schmitt, N. 2010. “Key Issues in Teaching and Learning vocabulary.” In *Insight into non-native vocabulary teaching and learning*, edited by R. Chacon-Beltran, C. Abello-Contesse, and M. Torreblanca-Lopez, 28-40. MPG Books Group Ltd.

Smith, E.E., E.J. Shoben, L.J. Rips. 1974. "Structure and process in semantic memory: A featural model for semantic decisions." *Psychological Review* 81: 214-241.

Szagan, G. 2011. "Regular/irregular is not the whole story: the role of frequency and generalization in the acquisition of German past participle inflection." *Journal of Verbal Learning and Verbal Behaviour* 38(4): 731-762.

Taylor, I., and M. M. Taylor. 1990. *Psycholinguistics: Learning and using language*. USA: Prentice-Hall International, Inc.

Wells, G. 1985. *Language Development in the pre-school Years*. Cambridge: Cambridge University Press.

Zareva, A., P. Schwanenflugel, and N. Yordanka. 2005. "Relationship between lexical competence and language proficiency." *Studies in Second Language Acquisition* 27(4): 567-594.

Webb, S. 2008. "Receptive and productive vocabulary sizes of L2 learners." *Studies in Second Language Acquisition* 30(1): 79-95.

Webb, S. 2005. "Receptive and productive vocabulary learning: The effects of reading and writing on word knowledge." *Studies in Second Language Acquisition* 27(1): 33-52.