

SECOND LANGUAGE VOCABULARY ACQUISITION IN CHILDREN: A DEVELOPMENTAL PERSPECTIVE

DACIAN D. DOLEAN*

ABSTRACT. Second language acquisition is an extensively researched topic that gained much recognition in the past three decades. The number of empirical studies conducted on this topic by researchers in the fields of neurolinguistics and psychology surged, and their contribution to existing and emerging theoretical models helped gain a deeper understanding of the linguistic processes underlying second language acquisition. This paper aims to provide a brief review of the major empirical studies and theoretical models concerning second language vocabulary acquisition in children, and to emphasize on its methodological advantages and limitations.

Keywords: *second language; vocabulary acquisition; phonemic awareness; incidental learning; language immersion.*

ZUSAMMENFASSUNG. Der Zweitsprachenerwerb ist ein umfangreiches recherchiertes Thema, das viel Anerkennung in den letzten drei Jahrzehnten gewonnen hat. Die Anzahl der empirischen Studien zu diesem Thema durchgeführt von den Forschern in den Bereichen Neurolinguistik und Psychologie stieg und ihr Beitrag für bestehende und neue theoretische Modelle halfen bei einem tieferen Verständnis der sprachlichen Prozessen zugrunde der Zweitsprachenerwerb. Dieses Artikel soll einen kurzen Überblick über die wichtigsten empirischen Studien und theoretischen Modellen betreffend den Wortschatzerwerb in der Zweitsprache der Kinder bieten, und auf seine methodischen Vorteile und Grenzen abheben.

Stichwort: *zweite Sprache; Wortschatzerwerb; phonologische Bewusstsein; beiläufiges Lernen, Sprachenimmersion.*

Introduction

Second language acquisition has been the subject of interest among researchers for many years, but starting with the 1980's the studies on this topic increased substantially (Laufer, 2009). Even though the history of second

* PhD student, Faculty of Psychology and Educational Sciences, Babes-Bolyai University, Cluj-Napoca, Romania, dorin.dolean@ubbcluj.ro

language education indicates that for a long time theories and research focused mostly on grammar teaching pedagogy (Zimmerman, 1997), the importance of studying the second language vocabulary gained much recognition in the past decades (Barcroft, 2004). One explanation is that while the lack of grammar knowledge sometimes makes communication more difficult, and unclear, the lack of vocabulary makes it impossible. Another reason for vocabulary development emphasis is that learning vocabulary does not imply ignoring learning the grammar. Conboy and Thal (2006) found that actually the opposite is true: learning vocabulary is associated more with enhanced grammatical abilities in 2-3 year olds than to the lexical-conceptual development. This happens probably because when children have a larger vocabulary, they can also have more complex and meaningful conversations, and implicitly can improve the frequency of opportunities for grammar corrections. The findings are consistent with earlier studies (e.g. Senvatka & Healy, 1998) that suggested that grammar knowledge is already wired in the lexicon, and that it can be developed over time through language exposure. However, simply knowing the meaning of certain words does not necessarily imply understanding vocabulary accurately, since one word can have different meanings in different contexts. Thus, when addressing the second language vocabulary acquisition process, there is always a certain connection to the syntactic frame in which the vocabulary words are being presented.

Phonemic awareness as a cognitive pre-requisite for vocabulary acquisition

The second language vocabulary acquisition is strongly dependent by the phonemic awareness development. An 18 months longitudinal study demonstrated that infants' phonemic awareness at 6 months predicted their language acquisition performance at 24 months of age (Tsao, Liu & Kuhl, 2004). This variable seems to be even more important than the frequency of language exposure. On a study conducted on immigrants arriving in Australia, Bundgaard-Nielsen, Best, and Tyler (2011) found that the second language vocabulary size is positively correlated with the second language vowel perception ability, while the amount of exposure to the foreign language was determined to be less significant. Another study (Fernald & Marchman, 2012), showed that lexical processing in 18 months of age can anticipate vocabulary development 12 months later, indicating that early language processing ability influences the size of vocabulary acquisition. Finally, De Abreu and Gathercole (2012) found that phonological awareness determined the accuracy of word decoding and spelling in an unfamiliar foreign language, indicating that phonological processing abilities are critical for acquiring the sound structure of a foreign language.

The ability to distinguish between phonemes develops as early as prenatal period. Byers-Heinlein, Burns, and Werker (2010) showed that children are able to distinguish between two different languages as soon after they are born if their mothers spoke them consistently during their pregnancy. While it's estimated that there are about 600 consonants and 200 vowels in the world's languages (Ladefoged, 2001), most languages have about 40 phonemes which change the meaning of words (Kuhl, 2010). Infants' job in their first year of life is to distinguish the phonetic units specific to their native language, based on the environmental language exposure. During this period, children's phonemic awareness develops not only by refining their perception of native sounds, but also by ignoring phonemic structures that are not characteristic to their native language and to the languages they have been exposed to. Thus, if children are being consistently exposed to a second language during their infancy, the chances to develop the second language vocabulary increase.

The fact that phonemic awareness development play a crucial part in second language vocabulary acquisition is also proven by the study conducted by Kaushanskaya and Marian (2009). The authors showed that bilinguals learn twice the number of words in a foreign language than their monolingual peers, indicating that children whose phonological processing skills are better developed, perform better in foreign language vocabulary learning tasks.

The phonological awareness eventually leads to the development of phonological constancy. Best et al. (2009) discovered that children age 19 months (but not those aged 15 months) develop phonological constancy, defined as "the ability to recognize a word's identity across natural phonetic variations". The authors considered phonological constancy as being one of the milestones that facilitate a rapid vocabulary growth, and later, reading acquisition.

So how do children acquire the second language vocabulary after they develop phonemic awareness and phonological constancy?

Second language vocabulary acquisition from comprehensible input exposure to social interaction facilitated learning

Much of the research conducted in the 1980's tried to emphasize on the role of second language exposure in vocabulary development. Nagy, Herman and Anderson (1982) estimated that 10-15 exposures to unknown words from reading in native language can help the learner understand the meaning of that word, without explicit translation of its meaning. Krashen (1989) expanded this approach and suggested that similarly, the second language vocabulary is acquired unconsciously simply by learner's exposure to comprehensible input, especially through reading. Saffran et al (1996) supported these theories and conceptualized the "statistical language learning model", suggesting that children

can use the statistical properties of linguistic input to learn the foreign language by themselves. Since the statistical patterns of language input are variable, the authors limited concept's generalizability due to the fact that some structures can be assimilated more easily than others.

Krashen's and Saffran's theories of vocabulary acquisition solely by exposure through comprehensible input were challenged by several subsequent studies. Swanborn and de Glopper (2002) emphasized on the fact that input exposure is not sufficient to anticipate the amount of learned vocabulary words. They showed that the incidental vocabulary learning efficiency depends on the purpose of learning. The authors calculated that the probability of learning a word is lower (.06) when words are read for fun, and higher when words are read for text comprehension purpose (.08) and for knowledge of the topic (.10). Elley (1999) indicated that after listening to a single story three times, learners understood the meaning of only 20% of target words, while adding explanation to the words raised learning performance to 38%. Horst, Cobb and Meara (1998) had even worse performance indicators. They showed that after learners read and listened to a 21,000 words novel, they acquired about 5 out of the 45 target vocabulary words. The effects of contextual support of words acquisition through reading a story were investigated as well by Zahar, Cobb & Spada (2001) who estimated that it takes 29 years for an adult learner to learn 2000 new vocabulary words simply through input, thus showing that Krashen's input theory is limited. Another study conducted on college students (Brown, Waring & Donkaewbua, 2008) verified whether the incidental vocabulary learning was more efficient under reading, reading-while-listening or listening only treatments. Results indicated that after three months of exposure, the vocabulary acquisition was very modest, participating students retaining an average of one out of 28 vocabulary words learned in any of the two reading treatments, and retained none of the listening-only treatment words.

Even though Krashen's input theory received multiple criticisms, it represents a milestone in the study of incidental second language vocabulary acquisition. Further studies focused on this topic revealed its advantages and limits. For instance, Gass (1999) suggested that vocabulary words are more likely to be learned incidentally if there are recognized cognates between the new word and words in native language, if the exposure is significant, or if the learner is familiarized with other second language words within the same learning context. Wode (1999) reported that after 7 months of immersion, 7 graders immersed in a foreign language program had a more diverse vocabulary, know more synonyms and produced significantly more lexical items than their non-immersed peers, items that could not be found in textbooks or related with teacher's lesson plans. The author concluded that the incidental foreign language vocabulary acquisition in the classroom can produce linguistic performance

that can solely be attributed to the interactions between participants. Similar results were reported by Ellis and Hu (1999), in a study in which they controlled the types of interactions between teacher and students. Students who had the chance to formulate their own questions and ask clarifications about tasks had better linguistic performance compared to students who were not allowed or had limited possibility to ask clarifications. Authors explained the results by the superior dialogic interaction between the teacher and students, and attributed the findings to the linguistic opportunities provided by dialogs.

So why is incidental second language acquisition in the classroom working better than the simple exposure to a foreign language? One possible explanation can be attributed to the role played by the social interaction on language learning. Kuhl (2007) defined this phenomenon as “Social Gating Hypothesis”, suggesting that the diversity of learning situations that occur in a social context can increase attention/arousal, information access, sense of relationship and/or activation of brain mechanisms. Several studies conducted on the impact of television on children’s linguistic performance confirmed this hypothesis. Rosenberry, Hirsh-Pasek, Parish-Morris, and Golinkoff (2009) indicated that children under three cannot learn by themselves words that name actions (verbs) by simply being exposed to television programs, while children older than three can. However, when an adult was present to interact with them and support their learning, children under three were able to learn the verbs, indicating that human interaction plays an important role in the vocabulary acquisition of children. Uchikoshi (2006) showed that watching television during kindergarten hours did not increase the size of the vocabulary, while watching the same shows in a supportive family environment does. These findings were confirmed by Conboy and Kuhn (2010) who indicated that the presence of a human being interacting with the child is critical for language-learning situations, for both the phonetic and lexical units of the language. Zimmerman et al. (2009) suggested that adult-child meaningful two-way communication is essential to language development, rather than one-way input adult language (e.g. story telling) or the language children are being exposed through television.

Implications

This review aimed to put an emphasis on the role of vocabulary learning in second language acquisition and its’ developmentally milestones during the language acquisition process. A good knowledge of those characteristics will probably help foreign language educators adjust and improve their approach in teaching a second language.

Two of the milestones of second language vocabulary acquisition are the development of phonemic awareness and phonological constancy. Programs or activities designed for children to help develop these skills will likely result

in enhancing vocabulary acquisition. These programs can be developed within a foreign language classroom setting or in similar subject areas (e.g. native language classes).

Studies showing that a significant amount of grammar can be acquired implicitly while learning the vocabulary might suggest policy makers and foreign language teachers to (re)consider the skills teaching ratio within a foreign language classroom. Increasing reading comprehension activities while reducing the grammar exercises might not necessarily reduce the quality of grammar skills, but will certainly improve the vocabulary size.

One can also anticipate positive vocabulary development outcomes from the controlled exposure of children to a foreign language speaking environment, i.e. classroom immersion programs. However, the simple exposure would not necessarily increase the vocabulary size and depth. The studies show that human interaction plays a crucial role in improving the impact of exposure to second language on vocabulary development.

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