

Proto-Speech Roots Hypothesis in English Vocabulary Teaching in Second Language Acquisition

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Abstract—Vocabulary acquisition is the core and foundation of second language acquisition. This article puts forward a new method of English vocabulary teaching -- Proto-speech Root Hypothesis Method, which is based on the motivation of language -- the iconicity of sound and meaning. The main objective of the article is to discover the effect and learners' attitudes on two vocabulary methods -- Proto-speech Root Hypothesis Method and Roots-affixes Method-- on learning the meaning of new English words by English majors in private universities in Henan Province, China. The research was conducted at two first-year classes of English majors in Shengda University, a famous private university in Henan. Two classes learned 100 new English words in two vocabulary methods within two weeks by Massive Open Online Course (MOOC) and then received an online vocabulary test. The result shows that the Proto-speech Root Hypothesis Method is better for remembering new words, and students tend to learn more of it in class.

Keywords—vocabulary teaching, proto-speech roots hypothesis, proto-speech root, Massive Open Online Course (MOOC), vocabulary family

I. INTRODUCTION

Vocabulary is the foundation of all languages. Without grammar very little can be conveyed; without vocabulary nothing can be conveyed [1]. Vocabulary acquisition has always been the core of second language acquisition, and also an obvious criterion for judging the level of it. According to the lexical approach, lexis is in the center of creating meaning, whereas grammar plays a subservient managerial role [2].

According to Diller, 10,000 vocabulary is the minimum requirement for foreign language learners to read moderately difficult texts smoothly [3]. Laufer believes that foreign language learners with a vocabulary of 9000 could achieve 70% reading accuracy [4]. To sum up, only when a college student has a medium vocabulary of about 10,000 words can his or her English will be practical in communication, but actually it is difficult to get it, therefore, English vocabulary teaching has always been one of hot issues in China.

II. LITERATURE REVIEW

For most Chinese college students, small vocabulary means poor English ability. According to the comprehensive survey and analysis of the English ability of freshmen in key universities in China, the average vocabulary is 4,297 words, 3,100 words in ordinary universities and less than 3,000 words in private universities [5]. Even with the support of modern information technology, the problem of vocabulary has not been effectively solved.

Chinese college English vocabulary teaching can be divided into direct and indirect ones. The former takes vocabulary teaching explicitly as a part of teaching objectives, and makes detailed analysis, explanation and usage of words. The latter indirectly expands the learner's vocabulary through other learning activities, such as reading, listening and speaking [6]. Though many ways of vocabulary teaching are employed, such as morphology, multimodal method, schema method, contextual method, dictation method and the effective Roots-affixes Method [7–12], there are still many problems. Vocabulary teaching is not the main topic of English teaching, some of it is traditional and monotonous, and even out of context. The cultural connotation and pragmatic meaning of words are rarely mentioned. Less guidance on students' vocabulary learning and memory method and limited extracurricular reading normally happened [13, 14].

However, according to the National Standard for Teaching Quality of Undergraduate Majors in Colleges and Universities issued by the Ministry of Education of the People's Republic of China in 2018, all the colleges and universities of any majors in China have to compress credit hours and give more free time to students [15]. As a result, vocabulary teaching has almost separated from classroom, and learning new words depends on students or rarely checking by teachers, so the improvement of vocabulary is slow.

III. PROTO-SPEECH ROOTS HYPOTHESIS

A. Definition of Proto-Speech Roots Hypothesis

Rootology is neither palaeography nor etymology. It is semanology, that is, etymology in the sense of linguistic

genesis, which supposes the original morphologies of languages from an evolutionary point of view. Proto-speech Roots Hypothesis is based on the phonological association of simple linguistic symbols.

It is mainly inspired by Primordial Verb Hypothesis [16] and Guoluo Translingual Chi [17] and supported by anthropological research. Proto-speech Roots Hypothesis holds that human language originated from phonics and simulated sounds, and then evolved through a long and complex process forming the language we use today. Proto-speech roots are selected from the most primitive onomatopoeia, so they should be the proto-speech roots of all languages, that is, the origin of all languages cannot be separated from the proto-speech roots [18].

B. Numbers of Proto-Speech Roots

The selection of proto-speech roots is to analyze 6,442 words in the vocabulary of syllabus for graduate students (5,318 for master's degree and 1,124 for doctor's degree) [19], plus about 800 frequently used words that do not coincide with the vocabulary of TEM4 [20] and TEM8 [21]. Analyzing one by one, we obtain 1,430 roots (1,049 free roots and 381 bound roots), and then classify these roots into 20 proto-speech roots. In other words, these 20 proto-speech roots are extracted from the existing roots, which can represent language itself and the nature of human's initial imitation of their original cognitive process. And then we infer the development of the basic law of language in the long history. Actually, proto-speech roots point out that language is not totally arbitrary, but with motivation, especially the motivation of simple linguistic symbols.

C. Evolution Rules of Proto-Speech Roots

- Sounds arise naturally. It is the initial stage of language generation that human beings begin to imitate the sounds in the outside world by natural pronunciation.
- Meaning develops with sound. The imitated pronunciation is repeated many times, and the relationship between its sounds and meanings tends to be stable, that is, the formation of the proto-speech roots.
- Sound shift follows the development of meaning. With the evolution of human beings in all aspects, the meaning of the expression is rich. When proto-speech roots can not bear too many meanings, it is bound to differentiate new words of which sound and meaning is linked, and can also express the developed semantic differences, e.g., grass→grain→green.
- Similar sounds have similar meanings. Words that sound similar also have similar meanings, such as gap→gape.
- Antonyms come from the same root. The same root words may have the opposite meaning. For example: cell→ceiling; hospitable→hostile.

IV. FEATURES OF PROTO-SPEECH ROOTS HYPOTHESIS

Proto-speech roots hypothesis has four features, which explain this theory in details from the perspective of language evolution.

A. Primitivity

Primitivity is the language of primitive people's conversation. Anthropologists divide human society into four stages. The first is the ape-man stage, which ended about 300,000 years ago (The typical representative is Peking man). The second is the ancients stage (Neanderthals, also known as early Homo sapiens, died out about 35,000 years ago). The third is the Neo-human stage (also known as late Homo sapiens in 10,000 years ago). The fourth is the modern human stage (since 10,000 years). We assume that the proto-speech roots mainly generated in the first ape-man stage, imagine their lives, and select 20 proto-speech roots [22].

B. Universality

Universality is the universality of human languages. Chomsky and Berwick believe that language is the result of human evolution [23].

C. Reproductivity

A proto-speech root can generate a huge vocabulary family, that is to say, if a proto-speech root cannot give birth to a vocabulary family, it is not a real proto-speech root. The meaning of a proto-speech root is ambiguous and therefore polysemous. For example, "papa" can mean father, baby or baby talking. Polysemy of proto-speech root is the basis and precondition of semantic differentiation. The fundamental reason for polysemy in every stage of language development is the contradiction between sound and meaning. That is to say, the infinite meaning with finite phonemes is the reason of polysemy.

D. Perpetuity

The perpetuity of proto-speech roots will not disappear as time goes by, though the vocabulary or its meanings derived from proto-speech roots may vanish. The perpetuity of proto-speech roots is from the basic activities of human beings. For example, the basic necessities of life is permanent, but their ways and means will change.

V. PROTO-SPEECH ROOTS HYPOTHESIS METHOD

Proto-speech Roots Hypothesis puts the word in a relatively complete development chain, which nearly explains a word's whole life. The reproductivity of a proto-speech root determines that a proto-speech root can generate multiple roots and root variants, which can produce many derivations and compound words, so that a proto-speech root will finally build a huge vocabulary family. Students learning Proto-speech Roots Hypothesis Method may totally understand the origin of words and memorize a huge vocabulary family derived from the proto-speech roots. It enables students to understand the relationship between sound and meaning of English words since its birth. For example, the proto-speech root "papa" has derived and set up a large vocabulary family of father.

“Pa” is “ba” in Chinese, while “pa” in English. This is the rule of similar sounds having similar meanings. “Pa” is a bilabial sound, which is also the easiest sound for human to pronounce. In fact, babies making “pa” sound does not really mean father, but just an easy sound to produce. The process of infants learning to speak can be seen as a repetition of human language development. “Pa” is the simplest and most primitive sound, so we can treat it as a proto-speech root, but its meaning is vague and polysemous.

“Pa/Ba” from baby is a polysemous word, which can be regarded as a cognitive pattern, including three aspects. One refers to “dad” that is from the children’s point of view. The second means “baby” from the perspective of fathers, which is a way of naming by sound. In Chinese, it becomes “baobao (宝宝)”, while “baby” in English. The third is that children learn to speak. The fuzzy proto-speech root has developed along these three directions, differentiating into roots and root variants, and finally a large vocabulary family of father (See Table I).

TABLE I. VOCABULARY FAMILY OF FATHER (*MEANS BOUND ROOT)

Proto-speech Root	Meaning of Roots	Root Variants	
“Pa/Ba”	Adults	par, *peo and *pop means dad or people.	Vocabulary Family of Father
		*pot, *pos means power.	
		*par means protection.	
		*pare means bear, feeding and food.	
	Babies	pal, pupil babe	
	Speaking	*parl, babble	

VI. METHODOLOGY

A. Research Objective and Hypothesis

The objective of this research is to explore the effects of two vocabulary methods -- Proto-speech Root Hypothesis Method and Root-affix Method on learning the meaning of new English words by English majors using MOOC in private universities in Henan Province, China. The specific objectives are:

1) *Do Proto-speech Root Hypothesis Method and Root-affix Method have the same positive effect on learning the meaning of new English words? If not, which one is more positive?*

2) *What is the attitude of English majors students in private universities in Henan Province to the two methods?*

We assume that the Proto-speech Root Hypothesis Method and Root-affix Method will have positive effect on learning new English words’ meaning, but the Proto-speech Root Hypothesis Method may be better than Root-affix Method, because Root-affix Method only analyzes word formation, while Proto-speech Root Hypothesis Method further explains the original relationship of words between the sound and meaning.

B. Research Sample

64 (10 male, 54 female) freshmen in English majors from Class 1 and Class 2 of School of Foreign Languages

in Shengda University -- a well known private university in Zhengzhou, Henan Province, China -- participated in the research (See Table II). 32 students in middle level of each class were selected. They have similar English learning background: they have started learning English since grade 3 in primary school, and have been learning English for 9.5 years. The analysis of the scores of the main English courses shows that there is no significant difference in their English level in each class.

TABLE II. PRE-TEST RESULTS OF TWO CLASSES

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. 2-Sided	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
S	c								
e	Equal variances assumed	0.142	0.707	1.261	62	0.212	2.219	1.760	-1.299 5.737
	Equal variances not assumed			1.261	61.879	0.212	2.219	1.760	-1.299 5.737

C. Research Materials

100 words were selected from the Contemporary College English Book 2 [24], which they have to learn next semester and suitable for them. In order to avoid intentional preparation, students were not told to be tested in advance and they were encouraged to learn new words to improve their English abilities.

D. Research Method and Tool

The research was conducted in two independent research groups -- Class 1 employs Proto-speech Root Hypothesis Method while Class 2 is Root-affix Method. According to the different vocabulary methods, we made two vocabulary courses, each of it including 14 lessons, which consists of about 10 new words. Both of the two courses have been set up on UMOOC -- a Massive Open Online Course Teaching Platform of Shengda University. Students learned at least one hour everyday for two weeks and were encouraged to review the former words before learning the new ones according to Ebbinghaus Mnemonics. The independent variable is vocabulary method (Proto-speech Root Hypothesis Method and Root-affix Method). The dependent variable is the effect of learning new words’ meaning. Online vocabulary tests were used to measure learning effectiveness. Due to the COVID-19, students had an early holiday, but they had accumulated rich online learning experience, so the experiments and tests were done at home.

The vocabulary test consists of 100 multiple-choice questions, each involving a target word whose meaning is consistent with the course on UMOOC. There are 4 choices for each question, and there is only one correct answer. One point is for a correct answer and zero point is for a wrong answer. The test would be sent online in the class WeChat group before the exam, and the answers would be submitted online. Before the test, students were told that the exam was only a self-test and score only

means how many new words learnt. The test lasted 60 minutes to prevent looking up any words.

E. Research Process

After 2 weeks vocabulary learning, 64 samples from 2 classes were tested for vocabulary. On the second day, the researcher conducted a short online video interview with them to know their attitudes and opinions on the two different vocabulary teaching methods.

F. Research Results

The average score of Class 1 in vocabulary test was 73.4 and Class 2 was 67.4. It shows that students learned the meaning of new English words through both vocabulary methods. The results of independent sample T-test indicates a significant difference between the two mean scores ($t = -3.04$; $df = 62$; $p = 0.003$), which shows that the Proto-speech Root Hypothesis Method is more beneficial to learn new words meaning than Root-affix Method.

TABLE III. ANALYSIS OF TWO CLASSES VOCABULARY TEST

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. 2-Sided	Mean Difference	Std. Error Differenc	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	0.420	0.519	-3.040	62	0.003	-6.000	1.973	-9.945	-2.055
	Equal variances not assumed			-3.040	61.888	0.003	-6.000	1.973	-9.945	-2.055

G. Interview Results

In the online video conversation, we asked the sample about their attitudes towards two types of vocabulary teaching methods.

Whether the two vocabulary teaching methods can help them to learn the meaning of new English words effectively: 82.6% of the sample stated that Proto-speech Root Hypothesis Method is more interesting and vivid, and is helpful for them to learn the meaning of new words; 17.4% of the sample were not sure about this, and they, to some degree, had difficulties in understanding the relationship between sound and meaning and the development of vocabulary. 64.1% of the sample thought that Root-affix Method could help remember new words, and 35.9% thought that Root-affix Method only work may you have a certain accumulation of relative knowledge. On the whole, the sample agrees more with Proto-speech Root Hypothesis Method than Root-affix Method. We also know that the sample generally believes that the Proto-speech Root Hypothesis Method is helpful for vocabulary learning and memory, but a small number of students think that Proto-speech Root Hypothesis Method needs to learn a relatively complete vocabulary family and study more about the development and change of vocabulary, which is difficult, to some extent. They are not sure about whether it is worth to learn relatively more

words of a vocabulary family in order to remember the meaning of some target words well. In general, students hope teachers can explain Proto-speech Root Hypothesis Method more in class. The results of the interviews reflect that English majors from private universities in Henan Province generally affirm Proto-speech Root Hypothesis Method.

VII. CONCLUSION AND RECOMMENDATION

Hypotheses of this research were verified proving statistically significant increase in test scores. This research mainly explores the effect and learners' attitudes on two vocabulary methods -- Proto-speech Root Hypothesis Method and Roots-affixes Method -- on learning the meaning of new English words by English majors in private universities in Henan Province, China. The results show that Proto-speech Root Hypothesis Method and Roots-affixes Method have different effects on learning new words meaning. Proto-speech Root Hypothesis Method is more helpful for learners to learn and understand English words meaning, especially the origin and development of the relationship between sound and meaning of words, which strengthens the semantic coding of new words, and is beneficial to learn words meaning. The significance of this study is to preliminarily reveal the positive effect of Proto-speech Root Hypothesis Method on vocabulary teaching of English majors in private universities in Henan Province, China. In vocabulary teaching, we should well make use of the origin and development of the high iconicity of sound and meaning of words, that is, the motivation of simple linguistic symbols, to learn new words meanings effectively. Of course, in vocabulary teaching, we should also combine various teaching methods according to the situations to improve students' interest and ability of vocabulary learning and quantity of it.

This research also had its limitations, because all the experiments were conducted online, so the ratio between item number and time of the test were a bit more intense than those of the offline. The strength of learning motivation, the frequency of repeated learning of new words, the majors of the learners, especially the one that whether the difficulty of learning a relatively complete vocabulary family mentioned in the interview would affect the new word learning of some students, all these issues need further research and discussion.

CONFLICT OF INTEREST

The author declares no conflict of interest.

REFERENCES

- [1] D. A. Wilkins, *Linguistics in Language Teaching*, E. Arnold, 1987.
- [2] L. P. Wei, "Teaching academic vocabulary to English Language Learners (ELLs)," *Theory and Practice in Language Studies*, vol. 11, no. 12, pp. 1507–1514, March 2021.
- [3] K. Diller, *The Language Teaching Controversy*, Rowley, Mass.: Newbury House Publishers, 1978.
- [4] B. C. Laufer, Lautern, and M. Nordman, "25 what percentage of lexis is essential for comprehension," in *Special Language: From Humans Thinking to Thinking Machines*, Clevedon: Multilingual Maters, 1989.

- [5] J. F. Xu and R. A. Nie, "Comprehensive survey and analysis of the English ability of freshmen in China's key universities: A case study of 2014 freshmen," *Foreign Language World*, vol. 5, no. 1, pp. 18–26, October 2016.
- [6] Q. F. Wen, "Differences in methods between successful and unsuccessful English learners," *Foreign Language Teaching and Research*, vol. 6, no. 3, pp. 61–66, June 1995.
- [7] Y. S. Huang, "What should be emphasized in college English reading class," *Foreign Languages*, vol. 3, no. 2, pp. 7–11, June 2011.
- [8] Q. Tang, "The effectiveness of dictation method in college English vocabulary teaching," *Theory and Practice in Language Studies*, vol. 2, no. 7, pp. 1472–1476, January 2012.
- [9] H. Q. He and Y. F. Deng, "The mental lexicon and English vocabulary teaching," *English Language Teaching*, vol. 8, no. 7, pp. 40–45, July 2015.
- [10] R. F. Gao, "The vocabulary teaching mode based on the theory of constructivism," *Theory and Practice in Language Studies*, vol. 11, no. 4, pp. 442–446, August 2021.
- [11] Q. Pan and R. J. Xu, "Vocabulary teaching in English language teaching," *Theory and Practice in Language Studies*, vol. 1, no. 11, pp. 1586–1589, January 2011.
- [12] V. Kempe, P. J. Brooks, and S. D. Christman, "Inconsistent handedness is linked to more successful foreign language vocabulary learning," *Psychonomic Bulletin & Review*, vol. 16, no. 2, pp. 480–485, April 2009.
- [13] H. Wei, "Research on vocabulary teaching in college English," master's thesis, School of Education, Southwest University, July 2009.
- [14] H. Zhang and L. J. Jiao, "The adjustment and effects of vocabulary teaching strategies in flipped classroom," *Creative Education*, vol. 7, no. 14, pp. 1966–1973, March 2016.
- [15] Higher Education Steering Committee, Ministry of Education, *National Standards for Teaching Quality of Undergraduate Majors in Colleges and Universities (I)*, Beijing, China: Higher Education Press, 2018.
- [16] J. Zhang and Y. Q. Chen, *A Compendium of English and Chinese Comparative Grammar*, Beijing, China: The Commercial Press, 2005.
- [17] Y. T. Cheng, *Guoluo Translingual Chi, Qing Dynasty, 1725–1814*.
- [18] B. Y. Ma, *A New Edition of English Lexicology*, Kaifeng, China: Henan University Press, 2009.
- [19] Writing Group of English Syllabus for Non-English Majors, *English Syllabus for Postgraduate Students*, Chongqing, China: Chongqing University Press, 1993.
- [20] Tem4 vocabulary (new syllabus) print-Baidu library. (2021). [Online]. Available: <https://wenku.baidu.com/view/7e2dbc1bfc4ffe473368ab4f.html>
- [21] Tem8 vocabulary-Baidu library. (2021). [Online]. Available: https://wenku.baidu.com/view/07d055ebb8f3f90f76c66137ee06eff9aff8495e.html?fixfr=5AyxP0te4udnQ3ZRF00ckg%253D%253D&fr=income3-wk_go_searchX-search
- [22] N. H. Yuval, *A Brief History of Humankind*, Beijing, China: Citic Press, 2016.
- [23] R. C. Berwick and N. Chomsky, *Why Only Us: Language and Evolution*, Cambridge, Massachusetts: The MIT Press, 2016.
- [24] L. M. Yang, *Contemporary College English Volume 2*, Shanghai, China: Foreign Language Teaching and Research Press, 2020.

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