

The Acquisition of Words' Meaning Based on Constructivism*

Yingyu Lin

School of Arts and Law, Dalian University of Technology, Dalian, China

Abstract—Students do need opportunities and guidance to acquire the meaning of the word and make the words active. Constructivism stresses that word meaning cannot be assimilated by the child in a ready-made form but have to undergo a certain development. The acquisition of the words meaning depends on the cooperation between the student and the teacher. The aim of this paper is to expound how we can take advantage of the theory of Constructivism to help the students acquire the meaning of the words. Constructivists hold that education should be concerned with helping people to make their own meanings and teachers should present learners with problem-solving activities. Students are hosts. Teachers are instructors and helpers. They emphasize students' important role in learning. Only when we adopt this, can we improve students' thinking ability and realize the sustainable development in students' acquisition of vocabulary.

Index Terms—words' meaning, acquisition, constructivism, assimilation

I. INTRODUCTION

Constructivist theories have formed the bedrock of popular educational theory. To the constructivist, learning is essentially a matter of storing information for later recall. The typical school curriculum is based on a structure where important knowledge is identified for the students to acquire, often expressed in the form of task analyses and behavioral objectives. Based on these, nowadays, the predominant and typical teaching model is direct instruction model, meaning that the teacher's central role in the classroom is to transmit knowledge to learners and students must directly absorb information. Instructivists emphasize that the student's role is reception and compliance, while teachers' performance in front of students is critical. Under the guidance of this model, in many school districts, teachers are evaluated for their ability to establish "effective" eye contact, use different kinds of questions, and so forth. The whole teaching process is a process of disassembling knowledge into small bits for students to comprehend.

The traditional model of teaching vocabulary attaches too much importance to teachers' role and neglect the students' creativity and activeness. The result of the traditional teaching model is that students memorize English words in isolation seldom linking words' meaning with their actual need. This kind of learning makes students' active vocabulary very limited. Their limited active vocabulary hinders them from speaking fluently and writing appropriately. So what students need is not only to broaden their vocabulary but also to change their passive vocabulary into active vocabulary in order to express themselves more clearly and appropriately in a wider range of situations. In order to attain this aim, when words are taught, teachers should not only be concerned with students understanding of the meaning of the words, but also the understanding of the contexts in which the words are used. Cognitive theories, perceive learning of any other kind as a meaningful process and involves the establishment of a relationship between the word outside and the word meaning in the cognitive structure which reside in the mind of the learner.

II. REPRESENTATIVES OF CONSTRUCTIVISM

Constructivism emphasizes the importance of what the learner to any learning situation as an active meaning-maker and problem-solver. The learners play the central role in classroom teaching. Teachers must emphasize the critical role that experiences or interactions with the surrounding environment play in students' learning. The following are the Representatives of Constructivism concerned with the acquisition of words' meaning. All the cognitive approaches or models are closely related. When one is used, the others are also embedded in it.

In Piaget's theory, assimilation is the process by which incoming information is changed or modified in our minds so that we can fit it in with what we already know (Piaget, 1972). Accommodation, on the other hand, is the process by which we modify what we already know to take into account new information equilibrium between subjects (Piaget, 1972). To Piaget, learning process occurs just because of the reciprocal effects of assimilation and accommodation, constantly forced to attain an active and objective states.

Vygotsky's most widely known concept is probably the zone of proximal development (Williams, M. & Burden, R. 1997). It suggests that the teacher should set tasks that are at a level just beyond that at which the learners are currently capable of functioning, and teach "principles that will enable them to make the next step unassisted" (Williams, M. &

* This paper is funded by the Fundamental Research Funds for the Central Universities.

Burden, R. 1997, p. 66). In other words, the tasks chosen by the teachers must be challenging to the students. In this way, students' cognitive ability can be cultivated.

Ellis (2003) thinks that "connectionism emphasizes the interaction between linguistic knowledge and real world knowledge" (P.22). Lewis (1993) mentions in early period of studying, we should provide students with linguistic materials from the real world. According to Elman et al (1996), the expansion of the new words is to assimilate the new words into the neural networks. The connectionist theory assumes that lexical information is stored in networks of nodes. The process of creating (binding) form-meaning relationships occurs when neural networks are strengthened over time as the learner frequently encounters the item in the input. Connectionist view of lexicon not only explains how lexical knowledge is constructed and acquired, but also has a profound influence on the teaching of English vocabulary.

III. EXPERIMENTS

The current research is an experimental study focusing on the applicability of cognitive approaches or models to the acquisition of words' meaning. It aims at raising learners' awareness of expanding their active vocabulary and promotes the students' language competence. An experimental group is involved in a one-term training program apart from traditional instructions, while a control group is only exposed to the latter.

1. Objective

The objective of this experiment is to find out whether there was strong evidence to infer that the new teaching approaches to vocabulary were superior to the traditional one in developing students' acquisition ability of words' meaning.

2. Subjects

Subjects are 2013 freshmen from two parallel classes in Dalian University of Technology.. One class consists of 38 students, while the other contains 37 students. The two classes are both non-English majors. The average scores of vocabulary of the two classes in the pre-test are 10.4 and 10.5 (the total is 20) respectively. Their starting-point is the same. In order to make the experiment more accurate and convincing, thirty students are selected in each class. The students are listed according to their academic number. Among every five students, the first four are chosen and the last one is dropped. For the first class, the first two students of the last three are chosen. For the second class, the last two students are chosen. They are taught by the same teacher and have four classes every week.

3. Procedures

The experiment extends from September of 2013 to July of 2014. During this year, both classes receive two-period teaching on vocabulary every one week. The experiment consists of four processes:

(1) Before the experiment, a pre-test is used to find out whether the students have a good command of English words, and whether there are any differences between these two classes.

(2) And then practice two teaching methods independently in the chosen classes. In experimental class, concept attainment model is used. In the other, traditional teaching model (direct instruction model) is used.

(3)After teaching each unit, a post-test is followed to find out whether concept attainment model is effective in vocabulary teaching.

4. Experimental Instruments

A pre-test before training is designed dealing with how proficient the students are in commanding the words, to know whether these two classes are in the same starting-point. The students of these two classes are told that they should treat the test seriously because it is closely related to their final score. And they are monitored by two teachers. So the result is very convincing.

A post-test is designed to inspect whether there is any difference in the commanding of English words between the experimental classes and control classes, after training in a complete distinctive way.

5. Purpose and Hypotheses

Different teaching approaches are adopted in the above-mentioned two classes to inspect which approaches are more effective in helping the learners to acquire the new vocabulary and activate their old vocabulary. Prior to conducting the experiment, two hypotheses are made. One is null-hypothesis. The other is alternative-hypothesis.

(1) Null-hypothesis: the new teaching model which is based on the cognitive theories are less effective in vocabulary teaching than direct instruction model which is adopted widely nowadays by most of the teachers.

(2) Alternative-hypothesis: the new teaching model based on the cognitive theories is more effective in vocabulary teaching than the traditional approaches. They can really contribute to the improvement of the learners' language competence.

6. Teaching Practice

The whole process of teaching based on cognitive theories is presented in details. And all the above-mentioned theories are employed in the process. Since the traditional approach is familiar to us, it will not be presented in details.

Class task is that students find the contexts in which the words are used and activate their passive vocabulary. Teachers present the definition and explanation of the words, and ask questions concerned with the words learnt. Students provide examples and contexts in which words are used. Through the interaction among the students and the interaction between the teacher and the students, students acquire the usage of the words and learn the related contexts.

The final task is to write and translate a short paragraph. It is expected that this writing and translation should enable students to use the vocabulary they have studied in a realistic context, and that they could be motivated to learn even more vocabulary they feel they need to accomplish the task. The completion of the final task for homework will also help to reinforce and revise the vocabulary learnt, giving students a better chance to store the items in their long-term memory. The final task will be explained before the teaching of vocabulary in which they should notice what kind of context the words are used in.

(1) Class Presentation

Experimental class is given courses as followings by focusing on students' cognitive development. Take unit two in College English (Integrated Course 1) published by Shanghai Language Education Press as an example to show how the course is conducted based on the cognitive theories. The procedure of instruction is given to a full play.

(1) The Procedure of Instruction

First, divide all the words into six groups according to the different features of the words through group discussion and the interaction among the students and between the teacher and the students. The result of the classification is listed in Class Presentation.

Second, help the students acquire the different features of words in each group through class activities.

Finally, let the students write and translate a short paragraph. Students are required to employ the new words as many as possible in their paragraphs and translations.

II. Class Presentation

The First Step: group the words

Six Groups:

Group One: words carrying connotative meanings: urge, or something, kid, guy, kind of or sort of, shrug, urge, hang out

Group Two: words associated with the rules of the formation of the words: available, neighborhood, sorrowful, unpack

Group Three: words having synonymous relations: estimate, keep up, correspondence, a couple of, postpone

Group Four: hyponymy: tough, awful, skip, available

Group Five: verb Phrases: come up, go by, choke up

Group Six: words concerned with collocations: be lost in, go ahead, know by heart, might just as well, practically, all the way, lose touch, on one's mind, keep in touch with, reference, absolute, reunion, every now and then, mostly, in the distance, right away, unpack

The Second Step: class activities:

Group One:

Connotative meaning: the meaning of a word is primarily what it refers to in the real world. This is often the sort of definition that is given in a dictionary. A less obvious component of the meaning of an item is its connotation: the associations, or positive or negative feelings it evokes, which may or may not be indicated in a dictionary definition. So a more subtle aspect of meaning that often needs to be taught is whether a particular item is the appropriate one to use in a certain context or not. It is useful for a learner to know that a certain word is common, or relatively rare, or tends to evoke positive feelings or negative feelings or tends to be used in writing but not in speech, or is more suitable for formal than informal discourse, or belongs to a certain dialect.

For this group of words, the Piaget's concept attainment approaches, interactionist approaches and connectionist approaches are employed.

Example: the teaching of the verb "urge" is presented as follows:

First, teachers guide the students to pay much attention to the English explanation of urge "try very hard to persuade". And then let the students to provide examples through discussion. Students list the following examples (some grammatical mistakes have been corrected).

- [1] He urged me to accept his invitation.
- [2] They urged us to go with tem.
- [3] Salesmen usually urged people to buy the things they sell.
- [4] My mother urged me to do my homework.
- [5] Who urged you to do such things?
- [6] I was urged to do the things against my will.
- [7] He was urged to steal the money.
- [8] Children are easy to be urged.
- [9] Workers are urged to finish the work quickly.

Students are required to discuss all these examples and point out the examples that evoke positive feelings and the examples that evoke negative feelings under the guidance of the teacher.

The result is as follows:

Examples (evoke positive feelings)

[1][2][4][9]

Examples (evoke negative feelings)

[3][5][6][7][8]

After that, the teacher points out that [1][2][4][9] are good examples while [3][5][6][7][8] are wrong examples. And

then let the students summarize the attributes of the word “urge”, that is, “urge ” can evoke positive feelings in both speakers and listeners. In conclusion, it has positive connotation. In the situation of [3][5][6][7][8], students better use the word “induce”. “induce” also means “persuade”, but it carries negative connotation.

Mixed Examples:

[10] The leader urged us to hand in our reports.

[11] Three men urged the old lady to buy their rings.

[12] The children are urged to put on their clothes quickly.

[13] The children are urged to steal the apples.

Students identify that [10][12] are the examples for the word “urge” easily. Then let the students use “urge” and “induce” to fill in the blanks.

[14] The trade unions _____ the employer to invest more money in workers.

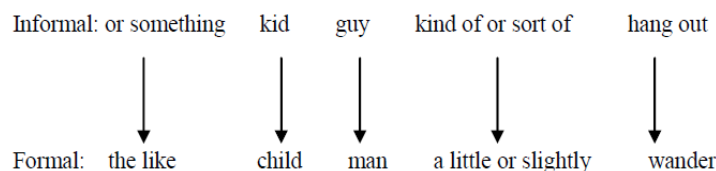
[15] As the competition becomes increasingly intense, the shops are trying all kinds of ways to _____ people to buy.

[16] If he is _____ to buy this house, we will earn more money.

[17] The researcher _____ the students who are lack of self-confidence to change their self-image.

After this practice, students can master the usage of the words “urge” and “induce”.

The presentation of the other words in this group is omitted here, because the procedures of the presentation are the same as that of the word “urge”. The only difference is that they carry different connotative meaning. All the other words except “shrug” are more suitable for informal discourse (explained in the following figure). The word “shrug” can be associated with a certain kind of attitude such as indifference or doubt.



Group Two:

The formation of the words: adding prefix or suffix before or after the words is one of the ways to expand students’ vocabulary. Usually, the prefix or the suffix has its own meaning. The meanings of the prefix or the suffix plus the meanings of the words constitute the meanings of the new words. So it’s necessary to guide the students to grasp the meaning of the new words by identifying prefix or suffix.

For this group of words, Vygotsky’s theory of ZDP, interactionist approaches and connectionist approaches are applied.

Examples: sorrowful, available

Teacher: please pay attention to the English explanations of these two words. And then point out the words which indicate the meaning of the two suffixes “ful” and “able” in the explanation.

Students: “ful” → full of

“able” → be able to be

Teacher: please, guess the meanings of the following words according to the meanings of the two suffixes and the words.

hopeful, fearful, doubtful

acceptable, reliable, usable, teachable

Students: 充满希望的, 充满恐惧的, 充满疑虑的

可接受的, 可信赖的, 可用的, 可教的

Teacher: what’s the meaning of the word “avail” according to the explanation?

Students: “avail” means “use” or “reach”.

Teacher: how to use the word “usable” or “reachable” and give examples

Students: something is usable or reachable, usable or reachable + noun (discussion)

This seat is usable. usable seat

The pen is usable. usable pen

The book is reachable

I’m reachable.

Teacher: based on the usage of “usable”, how should we use “available”

Students’ conclusion: it has the same usage as “usable”.

Teacher’s correction: seat available, pen available

Students’ examples: the book is not available in this city.

If I’m not available, please tell the news to my mother.

Is your cab available?

I’m sorry those shoes are not available in your size.

All the money available has been used.

usually come to the other; similarly, you throw a ball but toss a coin; you may talk about someone being dead tired but it sounds odd to say dead fatigued.

For this group of words, connectionist approaches, interactionist approaches, and Piaget's theory of Assimilation and Accommodation are applied.

Now take the word "unpack" as an example.

First, teachers list all the expressions concerned with the word "unpack" as follows:

- [1] unpack the luggage [2] unpack the door
 [3] unpack the necktie [4] unpack the bootlace
 [5] unpack the bag [6] unpack the window
 [7] unpack the packet [8] unpack the suitcase

Next, divide the students into several groups and then let the students discuss these examples, and correct the negative examples in their own way. The corrections are like this:

- [2] open the door [3] open the necktie
 [4] untie the bootlace [5] open the bag
 [6] open the window

Call one student to explain the correction.

The answer is that "luggage, packet, and suitcase" have the same attribute, that is, they can hold clothes and other things. So these three words can be used together with the word "unpack". Following this, the teacher gives the English definition: take out (things) from (a suitcase, etc). According to this explanation, students know that the word "bag" can also be used after "unpack".

Then the teacher listed the following collocations:

- [1] untie the necktie\bootlace [2] unlock the lock
 [3] unfasten the seat belt [4] undress the clothes
 [4] unload the truck [5] unsay the words

II The Analysis of the Data

(1) Data Obtained From the Pre-test

Testing Differences between Two Population Means

To test difference between two population means, we make:

Null hypothesis:

$$H_0: \mu_1 = \mu_2$$

Alternative hypothesis

$$H_1: \mu_1 \neq \mu_2$$

Suppose two populations are both normally distributed and their standard deviations are equal. The value of the common standard deviation (s) is estimated by

$$s = \sqrt{((n_1-1)s_1^2 + (n_2-1)s_2^2) / (n_1+n_2-2)}$$

This estimate is used in the calculation of the test statistic, t as follows:

$$t = (X_1 - X_2) / \sqrt{(s^2 / n_1 + s^2 / n_2)}$$

This statistic has a t -distribution with n_1+n_2-2 degree of freedom (df) whenever the null hypothesis is true.

sample1		sample2	
\bar{X}_1	14.37	\bar{X}_2	12.77
s_1	3.26	s_2	4.23
n_1	30	n_2	30

$$(df=n_1+n_2-2=58, t=1.64, 0.05 < p < 0.1)$$

The probability of the two sample means coming from populations with the same mean is between 0.05 and 0.1. Hence we accept null hypothesis, that is, there was no significant difference in vocabulary ability between the two sample groups.

(2) Data Obtained From the Post-test

To test the effectiveness of the new approaches to vocabulary building, we designed an experiment.

Subject: two same-sized independent samples ($n=30$), with one being from a population under the new teaching guidance (sample 1) and the other coming from the traditional population (sample 2).

Problem: aiming to find out whether there was strong evidence to infer that the new method was superior to the traditional one in developing students' word-building ability in English.

Process: practicing two teaching methods independently and then holding an immediate quiz respectively at the end of one learning unit.

Tool: a paper quiz with 20 incomplete sentences, translation and writing. Students were asked to take a multiple choice to complete each statement.

GROUP DIFFERENCE IN VOCABULARY ABILITY AT THE END OF ONE LEARNING UNIT

New method		Traditional method	
\bar{x}_1	13.90	\bar{x}_2	11.86
s_1	3.09	s_2	3.26
n_1	30	n_2	30

(df= $n_1+n_2-2=58$, $t=2.48$, $p<0.01$)

From the collected data could be made a major interpretation: there was strong evidence to infer that the new method was superior to the traditional one in developing students' English active vocabulary acquisition ability. A minor discovery was that the new approaches would cause less discrete degree ($s_1 < s_2$), and therefore would be more accessible to students as a whole.

IV. CONCLUSION

The thesis has explored the scientific model of English vocabulary teaching and learning in view of the cognitive theories. Through the experiment, the conclusion is made that only when students' cognitive system is involved in learning, can students have a good command of English words.

The mistakes committed in students' compositions and translations reveal that students' active vocabulary is very limited. So it is necessary to renovate teaching approaches to vocabulary. And the result of the experiment shows the feasibility and the validity of the cognitive teaching model. The interaction is helpful for the students to construct their personal meaning of the words. Only when the students assimilated the words into their own schemata, can they use it freely.

This kind way of teaching can help students cultivate a proper learning habit. That is, they should learn the words in meaningful contexts and get rid of the habit of memorizing the words in isolation.

REFERENCES

- [1] Bornstein, M. H. and J. S. Bruner. (1989). *Interaction in human development*. Hillsdale, NJ: Erlbaum.
- [2] Ellis, R. (2003). *Task-Based language learning and teaching*. Oxford: Oxford University Press.
- [3] Elman et al. (1996). *Rethinking innateness: a connectionist perspective on development*. Cambridge, MA: The MIT Press.
- [4] Lewis, M. (1993). *The lexical approach*. London: Language Teaching Publications.
- [5] Piaget, J. (1972). *The principles of genetic epistemology*. New York: Basis Books.
- [6] Piaget, J. (1974). *To understand is to invent*. New York: Viking Press.
- [7] Richards, J. (1985). *The context of language teaching*. Cambridge: CUP.
- [8] Schmidt, R. (1994). Deconstructing consciousness in search of useful definitions for applied linguistics. *AILA Review*, 11, 11-26.
- [9] Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics*, 10, 209-231.
- [10] Spada, N. (1987). Relationships between instructional differences and learning outcomes: process-product study of communicative language teaching. *Applied Linguistics*, 8, 137-161.
- [11] Storch, N. (2001). How collaborative is pair work? ESL tertiary students composing in pairs. *Language Teaching Research*, 5, 29-53.
- [12] Williams, M. & Burden, R.L. (1997). *Psychology for language teachers: a social constructivist approach*. Cambridge: Cambridge University Press.
- [13] Willis, J. (1996). *A framework for task-based learning*. Harlow: Longman.
- [14] Yalden, J. (1987). *Principles of course design for language teaching*. Cambridge: Cambridge University Press.

Yingyu Lin was born in Tie Ling, Liaoning Province, China in 1972. She received her Master Degree in linguistics from Liaoning Normal University, China in 2005.

She is currently an associate professor in the School of Arts and Law, Dalian University of Technology, China. Her research interests include discourse analysis and second language research.