The Impact on Oral Communication Competence by Schemata—A Study on the Effectiveness of an Oral Teaching Model Based on Schema Theory*

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According to schema theory, this paper considers the effective language input as the process in that new knowledge is integrated into the old schemata then forms new ones. The successful language output refers to smooth activation of these schemata in brains. In the experiment of testing the effectiveness of an oral teaching model based on schema theory, speaking English course is co-designed with other English courses so that students can set up new schemata with the effective input from other English classes and activate the new schemata in oral English class. By comparing the experiment class performance and that of the control class, we find the communication competence of the experiment class students is improved apparently. The specific achievements include the increase of mean length of utterance, the rise of total number of words and words types, the increase of phrases or chunks in oral productions, and the improvement in grammatical accuracy and complexity.

Keywords: schema theory, oral input, oral output, oral communication competence

Introduction

To improve oral communication competence is always the expectation and learning objective of EFL (English as a foreign language) students and teachers. Thus a variety of teaching methods and theories have been put into use in oral English classes, such as Audio-Lingual Approach, Communicative Approach, and Task-Based Approach and so on. With these, the discussions in oral English class seem bustling. However, instead of being improved as assumed before, most students’ oral English competence stand in still in fact. After the interviews with students and the analysis of questionnaires, EFL students claim that they actually have the eagerness to express and have their own opinions towards the topics, while the common problem is that they do not know how to express them with the shortage of English words and English expressions although all of them have studied English for no less than seven years. When reviewing the teaching models used in English classes, we find in conventional teaching models, we tend to divide the English study and design several types of English

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courses (such as English reading class, integrated English class, oral English class, etc.), and the contents of these
courses are separate and are designed by respective teachers.

Another feature is that teachers in conventional teaching models tend to focus on language output only
and neglect the process of language input in oral English classes. The language input mainly rely on other
English courses and these English courses are designed under the guideline of EGP (English for General
Purposes), which considers grammar and vocabulary study as the centers of English study to develop the
speaking and listening competence of students (Hutchinson & Waters, 1987). Under this guideline, what
students learn are characteristics of extensive topics and large number of scattered words. This kind of
scattered language input makes EFL students hard to collect the useful languages and use them within limited
time, so that they have to rely on the simple words (such as good, well, or bad, etc.) or phrases and repeat them
again and again in expressions. In general the language input in conventional teaching models cannot meet the
students’ needs. Therefore, the communication competence of EFL students stagnates due to the broken
languages and is hard to be improved.

Schema is a vital concept in cognitive psychology. It means that the knowledge is stored in the layers of
organized frames in brains. These frames are often constructed by large amount of knowledge centering on topics.
The process of information storing is the process of restructuring and assimilation—the integrating the new
learned knowledge into the old schemata (Bartlett, 1932).

In the last two decades, schema theory has been widely applied in foreign language teaching and has
obtained fruitful achievements. Many scholars use it to explain the psychological process of foreign language
reading (Johnson, 1981; Hudson, 1990; Carrel & Eisterhold, 1983); some scholars apply it to study the
psychological process of foreign language listening (Conrad, 1985). These researches show that the
background information has close connections with reading and listening comprehension, the capabilities of
activating schemata can compensate for language drawbacks and the reading and listening comprehension can
be improved with a “top to down” method in background information analysis. Till now, the main application
of schema theory in foreign language learning and teaching concentrates on reading and listening fields. The
application in speech field is inadequate. This paper studies the impact on oral English communication
competence by schemata through an experimental research about the effectiveness of an English teaching
model based on schema theory.

The Theory and Oral Communication Competence

Schema Theory and Oral Communication

Schema theory was first introduced in the 18th century and was redefined constantly by some scholars later.
The main idea of schema theory is that people need to connect the new things with the known concepts or
experiences (or background knowledge) when comprehending the new things. The decoding and coding of new
information are determined by the old schemata and by the inosculation between these old schemata and the new
information inputs. Schemata and schema theory are significant to both language input and language output
practices in oral English teaching.

From the perspective of language input, the new information assimilation is a process in which learnt
knowledge interacts with the new knowledge. When we have no schemata related to the new information, the
assimilation or comprehension will be hindered, while with relevant schemata and without effective activation, the new information cannot be assimilated or comprehended as well. This is in accordance with the idea of the second language acquisition theory—only when the language input is comprehensible can the second language acquisition take place (Krashen, 1982). According to cognitive schemata theory, the psychological process of foreign language learning can be described as this: There are “extending activities” in memory networks (frames) in brains. The new information input will be interacting with the conjunction points in the networks (frames). These conjunctions points and networks will be elaborately processed in the intended identification, analysis, and connection. New information will be added and enhanced continuously and the old schemata or networks finally develop into new schemata or knowledge networks (Anderson, 1995). When the new schemata or knowledge networks are deposited in long-term memory, the information input is grasped by students eventually.

From the perspective of language output, we know speaking depends on not only vocal organs, but also the accumulation of knowledge. The schema theory believes knowledge deposited in brains is in forms of schemata. Varieties of new information received by brains are compiled into the networks. The networks include all kinds of schemata including a conception, a word spelling, pronunciation, a fact, a thing, and others. These schemata deposited in memories are in different sizes and have connections with each other. Schemata can be divided into linguistic schemata, content schemata, and formal schemata (James, 1892). Linguistic schemata refers to the language knowledge and the capabilities to use the language knowledge which includes pronunciation, grammar, syntax, and others. This reflects the close relationship between schema theory and communication competence. The relationship is that students can pick up languages and background information related to topics smoothly as long as they activate these schemata successfully.

The Indicators of Oral Communication Competence

The criteria about spoken language competence may vary with different scholars (Galloway, 1987; McNamara, 1996). Higgs and Clifford (1982) proposed RCM (Relative Contribution Model) and suggested that different factors contribute differently to overall language competence at differently levels. In their hypothesized model, vocabulary and pronunciation factors are most important at lower levels, contributions from fluency and grammar increase as the level goes up. At the highest levels, all these four factors and sociolinguistic factor work together for great language proficiency. This paper will adopt this RCM, set language acquisition development indicators from the perspectives of vocabulary, grammatical accuracy, grammatical complexity, and pronunciation.

First is the measurement of vocabulary. The measures include the total number of vocabulary, type-token ratio (the total number of different words to total number of words), and new semantic contents (the utterance of non-repeated complete languages to the total utterance). For example, in a sentence such as “… Yeah, we should… we should care… just as it is, we should care about what we said. It is very important. We can’t tell… we can’t tell… we can’t tell about some personally things”. The new semantic contents are “we should care about what we said”, “it’s very important”, and “we can’t tell about some personally (personal) things”. Their total utterance is 25, while the total utterance of these sentences is 40, so the new semantic content ratio is 62.5%. If EFL students repeat certain opinions simply in oral production, the repeated parts cannot be regarded as new semantic contents. New semantic contents ratios reflect the control capabilities of students on topics to some extent.
The second is measurement of grammar. It includes the grammatical accuracy and complexity. Grammatical accuracy refers to the grammar accuracy of the whole oral productions, and can be expressed by error free T-units to the total number of T-units. T-unit is defined as the independent clauses and clauses affiliated with other clauses (Hunt, 1970). The grammar complexity indicators include: (1) the total number of T-units; (2) the number of clauses per T-unit; (3) the number of phrases(or chunks) per T-unit; and (4) the ratios of each type of sentences, such as simple sentences ratios, compound sentences ratios, complex sentences ratios, and non-complete sentences ratios. These ratios are calculated by dividing total utterance by the total numbers of each type of sentences.

The third is phonological measurement. It consists of three indicators: the average phonological complexity of vocabulary, phonological accuracy, and rate of speech (total number of utterance per minute). The phonological complexity is determined by arranging each word one of the following values: fewer than 3 phonemes = 1; 3-4 phonemes = 2, greater than 4 phonemes = 3, from which an average for each language sample is calculated (Masterson & Kamhi, 1992). Phonological accuracy equals to the number of words with correct pronunciations to the total number of words.

The Experiment

The Oral English Teaching Model Tested in the Experiment

The experiment participants are from the sophomore of Software School of Dalian University of Technology. Choose nine students in each class of the writer according to their grades in CET 4 (College English Test in China). The grades of these 18 students are among 500 to 516. So we can assume their English language competence is similar at the beginning of this experiment. After the one-year experiment, all of them will attend the same oral English test in Software School. We collect their oral productions and make a contrast analysis.

As for the experiment class, the integrated English course, extensive reading course, and oral English course choose the same set of textbooks, *The New Horizontal College English* (2011). This ensures the topics of each English course every week are similar to one another. In oral English class, students are required to recall and list all the language points (vocabulary, phrases, or collocations of words, etc.) and ideas related to the topic they learned in this week from either the integrated English class or the reading class. For instance, in the class of earthquake, students are meant to draw a topic structure with several layers about earthquake (one is the dangers of earthquake, the second is the survival in an earthquake, the third is the descriptions of some famous earthquakes story, and the forth is the equipment for earthquake survival and so on). Then students will catalogue the language points and ideas in this organized structure in group discussions or pair works. During this classification process, the schemata about earthquake in the students’ brains will be made concrete and specified. After that, students are supposed to prepare for a speech about earthquake regarding one certain aspect in one group, then deliver it in front of the whole class and answer questions. Students in other groups may either ask questions or present their own opinions. The objective of these activities is to activate students’ schemata about earthquake and to make the schemata procedural knowledge which students can pick up and use freely after large interactive communications about earthquake.

In contrast, the control class will continue the traditional teaching model. The textbooks of the integrated
English course, extensive reading course, and oral English course will be selected by teachers respectively according to their different preferences and the topics of these three courses in every week have little in common.

Data and Results

The students of the experiment class and the control class learn English under different teaching models in one year and all the students attend the same oral English test at the end of this year. In the oral test, every three students are in one group and the 18 students are arranged in six groups. The test takes the forms of individual questions and group discussions. Every student is meant to answer his own question in one minute and participate in the group discussion in six to seven minutes, so every student produces nearly a three-minute speech. They produce both narrative languages and conversational languages. Their oral productions are recorded, transcribed into words, and analyzed with some indicators of oral language competence. We get the data shown as follows in Tables 1-2.

Table 1

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Scopes of vocabulary</th>
<th>Type-token ratio</th>
<th>New semantic contents</th>
<th>The number of phrases per T-unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vocabulary 1</td>
<td>Vocabulary 2</td>
<td>Academic vocabulary</td>
<td></td>
</tr>
<tr>
<td>The control class</td>
<td>3855 (94.6%)</td>
<td>132 (3.2%)</td>
<td>87 (2.1%)</td>
<td>20.3%</td>
</tr>
<tr>
<td>The experiment class</td>
<td>3108 (84.0%)</td>
<td>228 (6.2%)</td>
<td>108 (9.8%)</td>
<td>29.0%</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.053</td>
<td>0.014</td>
<td>0.137</td>
<td>0.015</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.002</td>
<td>0.000</td>
<td>0.003</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Note. The scopes vocabulary ratios = the number of vocabulary in each scope/total number of vocabulary.

Table 2

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Accuracy</th>
<th>Complexity</th>
<th>Grammar analysis</th>
<th>Phonological analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Error free ratio</td>
<td>The number of clauses per T-unit</td>
<td>Simple</td>
<td>Compound</td>
</tr>
<tr>
<td>The control class</td>
<td>64.9%</td>
<td>0.380</td>
<td>117</td>
<td>3.1%</td>
</tr>
<tr>
<td>The experiment class</td>
<td>85.3%</td>
<td>0.580</td>
<td>90</td>
<td>1.94%</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.015</td>
<td>0.059</td>
<td>1.93</td>
<td>1.1%</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.332</td>
<td>0.065</td>
</tr>
</tbody>
</table>

Notes. Error free ratio = the number error free T-units to the total number; when α = 0.05, simple sentences ratio, compound sentences ratios, complex sentences ratios, and phonological complexity and accuracy are insignificant.

We will make analyses from three perspectives of vocabulary: the frequency of vocabulary use, the frequency of phrases use, and phonological complexity. The verbal features of oral productions can be contrasted by using the Range function of Vocab Profile Software and the *A General Service List of English Words* (1953) set by West. We use two words lists (including the first 1,000 words and the second 1,000 words general service list) and the *Academic Vocabulary List* (2000) of Coxhead in the analyses.
As shown in Tables 1-2, we find, firstly, the average numbers of vocabulary of the experiment class students is higher than that of control class students within the same three minutes. Besides, longer mean length of utterance and more ideas (or contents) related to the topics are produced by experiment class students.

Secondly, from the point of vocabulary scopes, the vocabulary use of experiment class students features the decrease in the total words of the first 1,000 list, the increase in the total words of the second 1,000 list and academic words list. Moreover, the words of the first 1,000 list used by the experiment class students are used in the forms of phrases or chunks rather than single words (it is reflected by the increase in the number of phrases per T-unit). This change shows that the capabilities of experiment class students to master and use foreign languages are getting improved gradually.

Thirdly, the type-token ratios change significantly. As Table 1 shows, the increase in type-token ratios and expansion of the vocabulary scopes shows that the experiment class students can use newly learned and complex words. This ability contributes to the improvement in variety and complexity of oral vocabulary. While the steady and significant increase in new semantic contents demonstrates that the experiment class students can control the topic related discussions by producing effective contents and by avoiding simple repetitions of the same ideas or irrelevant contents to the topics. So it proves effective as for the language outputs of the experiment class students.

Fourthly, the grammar accuracy is improved significantly. While the indicators of grammar complexity change differently. Simple sentences ratios and compound sentences ratios change insignificantly, while complex sentences ratios change apparently. The ratios of the complex sentences with clauses leading by because, if, despite, and that rise obviously.

Finally, the average phonological complexity and accuracy have little differences. This is because all students tend to choose the words whose phonemes are less than three, which ensures the phonological accuracy.

**Discussion**

From the experimental data analyses, we find the students’ oral communication competence in the schema oral teaching model has been improved significantly. This improvement features an increase in total number of oral vocabulary and a rise in the number of phrases or idioms, which make the oral productions of EFL students close to native expressions. Moreover, the same increases in the variety of words and new semantic contents illustrate that students can integrate the knowledge they learn in several English courses to form new schemata systematically. Keeping the schemata in mind by memorizing their connections between each other, they can pick up relevant knowledge quickly and express their opinions logically (reflected by the increase in complex sentences). While in traditional teaching models, we tend to obey the traditional vocabulary learning method, such as the method—the real vocabulary acquisition stems from the adequate touch with words in various meaningful communicative contexts—introduced by Hudson (1990). However, this method does not work well in real teaching practices, because this kind of vocabulary acquisition demands for rather extensive reading. It is impossible for students, especially for non-English major students. Otherwise, the limited reading constrains the development of students’ oral communication competence. In practical practices, the words and topic-related ideas students learn in different English courses are loose and irrelevant. There are too many schemata need to be set up in their brains so that few real schemata are really set up finally. It is no wonder that
although many EFL students have learned English for several years, they often get a loss at what they should say and how to express their ideas in English.

In the meanwhile, we also find, under the teaching model based on schema theory, the schemata of students have many small schemata about collocations or idioms, which make students to pick up the procedural knowledge naturally and smoothly. It enables student to transfer their focuses from words selections to the accurate forms of languages, so that the oral language accuracy is getting an improvement gradually. It is in accordance with the findings of many Chinese scholars (such as YUAN & GUO, 2010; CHEN & ZHAO, 2010).

At last, we find the EFL students attach greater importance to the language and phonological accuracy rather than the phonological complexity. EFL students would rather use simple vocabulary with few phonemes due to the ease in memorizing both the spellings and pronunciations of words.

In summary, students can systematize what they learn in different English courses logically with the help of schema learning strategies, and set up the new schemata integrating the knowledge into the old schemata. This kind of new schemata does not center on vocabulary but topics, thus students can make improvement in both ideas and in languages. Therefore, it can be considered that the oral teaching model based on schema theory is more effective than the traditional one and the application of schema can enhance the oral communication competence of students effectively.

Conclusions

From the findings of this experiment, we can come into the following conclusions:

(1) As for vocabulary acquisition, the method of memorizing with schemata is more effective than the traditional vocabulary learning method—learning words in context.

(2) Some oral competence indicators of EFL students are improved apparently in the oral teaching mode based on schema theory, including the mean length of utterance, the total number of words, words types, and the number of phrases or chunks, and the grammatical accuracy and complexity.

(3) Different English courses should be designed jointly rather than separately. Since EFL students lack English-speaking environment to use or speak English, the design coordination of English courses enable EFL students to have more opportunities to make practices and to understand the use of certain words or expressions deeply. Only by this way can students set up new schemata quickly and master the foreign language in an effective way.

Having a large amount of schemata and activating them successfully are the keys to improve oral competence of EFL students. Therefore, other than coordinating the English courses, teachers should design different kinds of class activities to help set up and activate their schemata, and students must take initiative in it in order to improve the effectiveness of English classes and their oral competence.

References


