The effects of grammar teaching to children has been known little to English teachers and researchers in Taiwan even though our government has incorporated English education into primary school curriculum for years. The insufficient research findings revealed the necessity to explore Taiwanese elementary school students’ acquisition of English grammar. The researcher, along this line, aimed to investigate the effects of the grammar teaching approach on Taiwanese students’ acquisition of English grammar.

Sixty-four students from Shingang Primary School were randomly selected and assigned to inductive and deductive approach groups. Both groups received a twelve-week treatment with inductive and deductive instructions respectively. The data collection instruments consisted of interviews evaluating students’ learning attitude toward the treatments, one pre-test and two post-tests examining students’ comprehension and retention of the acquired grammar. The research findings suggested that students in both approach were capable to comprehend and acquire the target grammar and that the students in the deductive approach group outperform those in the other group. In addition, the students in both inductive and deductive approach group possessed both positive and negative learning attitude toward English.

Key words: deductive approach, inductive approach

INTRODUCTION

In Taiwan, English has been the main foreign language learned in elementary school, junior high school, and senior high school, and English grammar has been a focus in English teaching and tests. Most English teachers believe in the importance of grammar, and they instruct grammar in class as well (Lai, 2004). However, a focus as English grammar may be, most EFL (English as Foreign Language) learners still find it difficult to learn, and a more urgent issue coming along with this problem is the need of finding out a more effective teaching pedagogy.

A controversy over the issue— which grammar teaching pedagogy is more effective—has been long debated, particularly for the two pedagogies—deduction and induction (DeKeyser, 1995; Fischer, 1979; Nagata, 1997). Do EFL learners benefit more from deductive approach where grammatical rules given first and then examples presented? Or would EFL learners obtain more complete grammatical knowledge when taught in inductive
instructions where the learners are left to induce grammatical rules on their own? With the deductive approach, learners were capable to acquire grammatical rules lacking in their native language with only a few examples (Dekeyser, 1994, 1995; Hammerly, 1975; Richards et al, 1985). However, Shaffer (1989) pointed out that students, instructed with the deductive approach, might not accurately apply the learned rules in the language use due to the reason that they did not completely comprehend the target concepts. Inductive approach, on the other hand, built more intrinsic motivation by allowing students to discover rules by themselves, contributed to learners a communicative feel for some aspect of language before comprehending the grammatical rules (Brown, 1994), and leaded to longer and better retention (Fisher, 1979; Hammerly, 1975).

Along this line, the researcher carried out an experiment to examine the effects of inductive and deductive approach on the 6th graders’ English grammar acquisition. The effects evaluated in this research included the contribution to students’ retention on the grammatical rules, the accuracy of the application on grammatical rules, and their learning attitude toward English grammar acquisition in the learning process.

**LITERATURE REVIEW**

**The Effects of Deductive and Inductive Approach**

Brown (1994) in his text appeals that inductive approach “comforts more easily to the concept of interlanguage development in which learners progress through possible stages of rule acquisition.” In addition, it leads students to build more intrinsic motivation by allowing students to induce the rules rather than being told them. The process of discovering rules enhances retention (Bruner, 1961). Furthermore, Hammerly (1975) estimates that about eighty percent of the Spanish and French grammar rules can be acquired through inductive approach. Krashen (1982) addresses that language acquisition occurs only through comprehensive input but explicit rules. In addition, Krashen (1981, 1992) claims that most of L2 knowledge is primarily unconsciously obtained through environment exposure.

However, Ausubel (1963) and Carroll (1964) believe that providing learners precise rules can enhance the speed of learning, which coincides with the research results of Galotti, Komatsu, and Voelz (1997). Furthermore, the other study appeals that college students benefit more when they are offered explicit explanations of rules than when they are expected to discover the rules themselves (DeKeyser, 1995). Norris and Ortega (2000), investigating and comparing the effectiveness of L2 instruction carried out in research and published between 1980 and 1998, indicate that explicit instruction (referring to deductive instruction) is more effective than implicit one (referring to inductive instruction) as well. In French, Erlam (2003) carried out a study involving three classes of teenagers to examine the effects of deductive
and inductive instruction on the acquisition of French direct object pronouns, and results reveal a significant advantage for the group of deductive instruction.

As for the latest research in Taiwan, Wang (2002) investigated 81 senior high school students’ collocation patterns learning by using concordances with inductive and deductive approach respectively. The study result reveals that students under the inductive approach instructions outperform the ones under the deductive approach. Another investigation carried out by Chan (2004) over college students on their verb-noun collocation learning shows that the inductive method is relatively more effective than the deductive method as well.

METHODOLOGY

Research Questions

The following research questions were addressed in the proposed study.
1. Do the participants in inductive and deductive approach instruction benefit significantly in grammar acquisition?
2. Do the participants in inductive and deductive approach instruction differ in the application accuracy and retention on the acquired grammar?
3. What do the participants in inductive and deductive approach instruction feel towards the grammar instruction?

Participants

The study was conducted at Shingang Primary School. Sixty-four students at grade 6 were randomly selected and divided into two groups, inductive and deductive approach group. The participants in both groups had an analogous entry behavior in terms of their proficiency in English and first understanding of the target grammar.

The Treatment

Grammar rules were chosen from Kang Hsuan English textbook for the 6th and 7th graders in Taiwan in 2005. The treatment lasted for 12 weeks. The participants in each group received two instructions every week. The duration of each class was 40 minutes, which was the same as the standard class duration for elementary school students.

The instruments
**The pretest.** The pretest was to examine the participants’ first understanding of the grammar in the experiment and was the same as the following posttests.

**The posttests.** The posttests were two grammar comprehension tests. The first posttest, Posttest I, was to evaluate their grammar learning achievement. To ensure the validity of the posttest for the main research, the researcher carried out SPSS to examine the criterion-related validity between the students’ previous school academic records in English and the posttest I. The results in Table 1 appealed high correlation .549 at the .001 level (p=. 000), which announced high validity to this grammar comprehension test, Posttest I. The second posttest, named Posttest II, was the same one as Posttest I. It was to examine the students’ retention of the learned grammatical rules so that it was carried out six weeks later from the first posttest.

**The interview.** The researcher held six ten-minute interviews after the whole instruction was finished. Ten participants, 3 from each group, were randomly chosen. The interviewing data were collected using digital voice recorder and later were transcribed into transcripts afterwards for further analysis.

Table 1. Correlations Between Pretest and Posttest in Main Study

<table>
<thead>
<tr>
<th>SARE*</th>
<th>Pearson Correlation</th>
<th>SARE</th>
<th>Posttest I</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>64</td>
<td></td>
<td>64</td>
</tr>
</tbody>
</table>

* SARE stands for the participants’ school academic records in English
** Correlation is significant at the 0.01 level (2-tailed).

**Data Analysis**

The data collected were analyzed by utilizing t-test to determine the main effects of the inductive and deductive approach on the accuracy of the students’ grammatical application and their retention of the acquired rule. In addition, qualitative analyses were adopted to analyze the interviews.

**RESULTS**

**Benefits of Inductive and Deductive Approach**

Table 4.1 illustrates the means and standard deviation of the students’ scores of the pretest and posttest I, evaluating whether they benefited from the inductive approach.
instruction. The t-test reveals a very significant effect at t value < -1.645 and p< .01 level. In another word, the participants in inductive approach made a significant gain in verb acquisition.

Table 2. T-test for Examination of the Effect of Inductive Approach

<table>
<thead>
<tr>
<th>Groups</th>
<th>Measure</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>Pretest</td>
<td>32</td>
<td>35.000</td>
<td>16.232</td>
<td>-5.539**</td>
</tr>
<tr>
<td></td>
<td>Posttest I</td>
<td>32</td>
<td>53.125</td>
<td>21.593</td>
<td></td>
</tr>
</tbody>
</table>

* is the initials for inductive approach group

**p< .01

Table 3 demonstrates the means and standard deviation of the students’ scores of the pretest and posttest I, evaluating whether they benefited from the deductive approach instruction. It is also shown in Table 3 that there is a highly significance at t value < -1.645 and p< .01 level, which suggested that the participants in deductive approach also had a significant gain in verb acquisition.

Table 3. T-test for Examination of the Effect of Deductive Approach

<table>
<thead>
<tr>
<th>Groups</th>
<th>Measure</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA</td>
<td>Pretest</td>
<td>32</td>
<td>34.063</td>
<td>15.421</td>
<td>-5.568**</td>
</tr>
<tr>
<td></td>
<td>Posttest I</td>
<td>32</td>
<td>59.063</td>
<td>23.467</td>
<td></td>
</tr>
</tbody>
</table>

* is the initials for inductive approach group

**p< .01

Comparison on Application Accuracy and Retention

Table 4 presents the means and standard deviation of the scores of posttest I, examining the participants’ accuracy over the target verb tenses. The t-test indicates that there was a significant difference at t value <-1.649 and p< .05 level. In other words, the participants in inductive and deductive approach group differed significantly from each other on the test. In addition, the students in deductive approach group outperformed those in the other one.

Table 4. Comparisons of Means for the Effects of Inductive and Deductive Approach on Accuracy

<table>
<thead>
<tr>
<th>Measure</th>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest I</td>
<td>IA</td>
<td>32</td>
<td>47.186</td>
<td>18.003</td>
<td>-2.271*</td>
</tr>
<tr>
<td></td>
<td>DA</td>
<td>32</td>
<td>59.062</td>
<td>23.467</td>
<td></td>
</tr>
</tbody>
</table>

*p< .05
Table 5 presents the means and standard deviation of the scores of posttest II examining the participants’ retention over the acquired verb tenses. The t-test reveals no significant difference at t value >-1.649 and p> .05 level, which implied that the participants in inductive and deductive approach group did not differ significantly from each other on the test.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest II</td>
<td>IA</td>
<td>32</td>
<td>38.436</td>
<td>15.680</td>
<td>-.760</td>
</tr>
<tr>
<td></td>
<td>DA</td>
<td>32</td>
<td>41.875</td>
<td>20.231</td>
<td></td>
</tr>
</tbody>
</table>

Note: The mean difference is significant at the .05 level.

**Qualitative Inquiry Towards the Learning Attitude**

The researcher primarily asked the six participants, three in each group, the following four questions.

1. How do you like the lessons in this experiment?
2. What interests you most?
3. What do you think of your learning attitude, motivation, and achievement towards these lessons?
4. Are you willing to attend to more lessons like this? Why or why not?

The qualitative analyses in the following were separately shown in according to inductive and deductive approach group. Some background information and performance in the tests about the six participants were offered in Table 4.14.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Participant</th>
<th>Gender</th>
<th>Level</th>
<th>Pretest</th>
<th>Posttest I</th>
<th>Posttest II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inductive</td>
<td>A</td>
<td>Male</td>
<td>Medium</td>
<td>40</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Female</td>
<td>High</td>
<td>50</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Female</td>
<td>High</td>
<td>50</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Deductive</td>
<td>D</td>
<td>Female</td>
<td>High</td>
<td>30</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Male</td>
<td>Medium</td>
<td>40</td>
<td>90</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Female</td>
<td>High</td>
<td>40</td>
<td>90</td>
<td>70</td>
</tr>
</tbody>
</table>

**The participants in inductive approach group**

Two out of the three students, Students A and B, had negative response towards the instructions, whereas the other student, Student C, thought positively of the lessons.
On one hand, Students A and B both confessed that the lessons were difficult and they were not able to induce any similarity or difference among the sentences, as student B specifically pointed out “the lessons are difficult…I can’t find out what the teacher wanted me to find out among the sentences.” In addition, even if they truly found out certain rules, they were not sure about themselves and did not know how to use the rules, as Student A said “sometimes I was sure I found something in common or something different in-between…but I was not sure about my findings…I did not know how to apply the findings.” Accordingly, the inductive approach instruction made them confused.

What’s more, both Student A and B expressed low motivation and learning attitude for the whole lessons here were low. They even pointed out their unwillingness to attend to the similar lessons.

On the other hand, Student C possessed positive response to the lessons. As she pointed out “it was interesting to find out the rules…the discovering process was interesting…I felt a sense of achievement when I found out the rules.” The lessons to her were easy, as she claimed that it was easy to observe and apply the verb rules. However, she also confessed, “the greatest difficulty was to memorize them.” Even so, Student C thought she had positive learning attitude in the instructions and was willing to take the same instruction again.

The participants in deductive approach group

To the participants in deductive approach group, two out of three interviewed students, Student D and E, showed positive attitude to the deductive approach lessons, while the other student, Student F, expressed no special changes or feelings.

Students D and E approved the learning effects brought by the instructions. Student D was under the impression that “the lessons were easy and was easier than the school English lessons,” and Student E said “I like the grammar. They're easy and interesting.” They both proposed optimistic learning attitude toward the English lessons. “I think I like the English lessons,” said Student E, who once expressed she used to be fond of English before the experiment. Student D, not firmly, but still claimed, “I think (pausing for a while) I may say I like the instruction.” They both thought they would attend to the analogous lessons on English grammar.

On the other hand, though, Student F announced that the lessons depressed her learning willingness because she thought she did not acquire the rules well. Student F thought she could only understand probably half of the lessons and was not sure about what the grammar was about. Furthermore, she proposed, “English grammar are so troublesome…For example, one verb has different tense forms…so troublesome.” Besides, she admitted it was hard to memorize the forms. Student F, along this line, considered she disliked the English lessons in this experiment. She confessed she never liked English, and her feelings for English were
not changed after the deductive approach instruction. At the end, She expressed low motivation for taking any similar lessons at the end.

CONCLUSION AND DISCUSSIONS

From the results presented, the following significant discussions on the findings concluded were worthy being proposed here.

First, the results that the students in both inductive and deductive approach instruction benefited significantly further suggested that elementary school English teachers might adopt either grammar teaching method because both methods are significantly helpful for students.

Second, the result that inductive approach was significantly helpful to students supports Brown’s statement (1994) that inductive approach is suitable for language acquisition, as it was shown that the students in the inductive approach instruction benefited significantly.

Third, even though both approaches were helpful to students, the finding that deductive approach instruction helped the students significantly outperform the students in the inductive approach was opposing to the previous findings proposed respectively by Chan (2004) and Wang (2002) in Taiwan. They both pointed out that the participants in inductive approach group benefited more than those in the other group. The diverseness between the findings of this current research and these of Chan’s and Wang’s may be due to the participants’ age and learning skills.

The participants in Chan’s and Wang’s were senior high school and college students individually, whereas in this current research the participants were just elementary school students. There was a great age gap in-between, and different ages might be through different mental learning stages according to Piaget, which might further caused diverse learning consequence.

Additionally, senior high school and college students have been through a series of education training for more than a decade and have developed better learning skills than elementary school students have. Therefore, the factor of learning skills might be another supportive point to explain why senior high school and college students in Taiwan had better performance in inductive approach, a self-discovery learning method, whereas elementary school students had greater gain from deductive approach, a more teacher-leading learning method.

Being different from Chan’s and Wang’s, these research findings are similar to Erlam’s (2003), as he pointed out that inductive approach was more significant than deceptive approach. And the possibility might be due to the closer age gap, as Erlam investigated a group of students at an average age of 14 and this research studied the participants at that of 12. The similar findings between these two pieces of researches might additionally offer a stronger point to support the idea that deductive approach instruction might be more suitable
for elementary school students to learn English verb tenses as a foreign language.

Finally, as the qualitative interview suggested that the participants had both positive and negative responses towards both inductive and deductive approach. And in total, most students possess positive learning attitude towards English grammar.

**ENGLISH REFERENCES**


CHINESE REFERENCE

Chan, T. P. (詹敦珮) (2004)。電腦輔助語言教學對於大學生學習英文動詞與名詞搭配詞之效能研究。清華大學外國語文學系。碩士論文。
Chang, C. C. (章嘉珍) (1999)。台灣之大學生英文作文文法錯誤批改成效之個案研究。國立清華大學。外國語文學系。
Lai, S. J. (賴淑菁) (2004)。臺灣地區中學英語教師對於文法教學的信念。臺灣師範大學英語研究所。碩士論文。
Wang, L. Y. (王麗月) (2002)。演繹法與歸納法使用語料庫學習關聯字之比較。雲林科技大學應用外語系。碩士論文。