The Effectiveness of Teaching Reading to Civil Engineering Students in National Institute of Technology Malang Using Two Strategies

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ABSTRACT
Reading comprehension is important in learning but it is very difficult to define and to achieve. The purpose of this study was to try both approaches (inductive and deductive) to teach reading in order to determine which one is more effective for Civil Engineering students of ITN Malang. This study is conducted in Civil Engineering Department of National Institute of Technology, Malang. Two classes participated in this study. There are 15 students in each class. All of them are freshmen. One class learned reading deductively, and the other learned inductively. To assess the students’ improvement, a series of two test papers were used. From the tests given, it can be found that teaching reading inductively and deductively has equal effectiveness. However, the students taught using the deductive approach performed better in certain questions.

Keywords: Reading , Inductive and Deductive Approach

INTRODUCTION
Reading comprehension is important in learning but it is very difficult to define and to achieve. It involves a psycholinguistic process which starts with a linguistic surface representation encoded by a writer and ends with meaning constructed by the reader (Carrell, 1988). Thus, reading demands active mental activities which require prerequisite knowledge (e.g. schematic and systemic) of the readers to process the text. Schematic knowledge is the knowledge of language skills such as words, phrases, sentences, clauses and discourse whereas systemic knowledge is the knowledge of the subject matter.

Readers who decode text in written form need to use suitable reading skills to help probe and comprehend the text. Thus, there is an essential interaction between language and thought in reading. The ability to read involves so many aspects of knowledge (such as language, cognition, life and learning) and no one can claim to have the correct view of what is crucial in reading.
Deductive learning is a more instructor-centered approach to education. Concepts and generalizations are introduced first to learners, followed by specific examples and activities to support learning. Lessons are generally conducted in lecture form with minimal dialogue between educators and their learners.

Deductive learning refers to a method of teaching that may be more suitable in introductory level courses who need a clear foundation from which to begin with a new language item. Learners who are accustomed to a more traditional approach to learning and therefore lack the training to find rules themselves may struggle with this method.

An inductive approach involves the learners detecting, or noticing, patterns and working out a 'rule' for themselves before they practise the language.

Teaching grammar in an English as a Foreign Language (EFL) class plays an important role, mainly in terms of enabling students to achieve linguistic competence (Huang, 2005). Thus, finding a suitable method to teach it has been a subject of debate (R. Ellis, 2006; Thornbury, 1999). One of the most controversial and unanswered questions regarding effective language learning is the issue of whether grammar is taught deductively. This implies that the debate has always focused on how grammar could be taught explicitly, through a formal presentation of grammatical rules, or implicitly, through natural exposure to meaningful language use (Nassaji & Fortos, 2011).

In this regard, Larsen-Freeman (2015) investigated whether students learn language rules best by giving them information deductively or by reading textbooks, or if students are better off being given examples from which they find out the rules inductively by themselves. One learning approach would favor induction, with the added benefit that students learn how to figure out the rules on their own. She also states that repeated examples could lead students to induce a rule, but it is also possible that language patterns are stored in learner’s brain and may arise when they need to use the language. Therefore, the suggestion when teaching grammar deductively is to give students reasons as opposed to presenting rules, which may seem arbitrary, but they allow learners to see why things are the way they are; thus, reducing the opportunity of grammar explanations (Larsen-Freeman, 2000).

The purpose of this study was to try both approaches (inductive and deductive) to teaching reading in order to determine which one is more effective for Civil Engineering students of ITN Malang. In this regard, despite the fact that educators and authorities are aware of the importance of learning English and have adopted several measures to improve this process, students do not obtain the desired EFL proficiency level (El Comercio, 2017).

Therefore, the present study focuses on exploring the difference in effectiveness between the inductive and deductive approaches to teach reading to Civil Engineering students in ITN Malang. Additionally, the effectiveness of rapport during the English lessons was also assessed. The research questions to be
answered were the following: 1) Which of the two approaches is more effective for teaching reading?

**METHOD**

This study is conducted in Civil Engineering Department of National Institute of Technology, Malang. Two classes participated in this study. There are 15 students in each class. All of them are freshmen. One class learned reading deductively, and the other learned inductively. To assess the students’ improvement, a series of two test papers were used, as described below. The teaching input for the deductive group consisted of a set of instructions and exercises. On the other hand, the inductive group was given a total of two reading articles each with a set of content-oriented (not language-oriented) comprehension questions.

**Table 1. General Outline of the study**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Deductive</th>
<th>Inductive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Pre-Test</td>
<td>Paper 1 with 10 reference questions</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Intervention</td>
<td>Instruction from the teacher and a reference exercise</td>
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<tr>
<td></td>
<td>Assessment</td>
<td>Paper 2 with 10 reference questions</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Intervention</td>
<td>Instruction from the teacher and a reference exercise</td>
</tr>
<tr>
<td></td>
<td>Assessment</td>
<td>Paper 3 with 10 reference questions</td>
</tr>
<tr>
<td>Phase 4</td>
<td>Post-Test</td>
<td>Paper 4 with 10 reference questions</td>
</tr>
</tbody>
</table>

**Table 2. Titles, length and sources of the articles used in the study**
Drivers Think They Drive Better Than Others

Title of Article | Length | Source
--- | --- | ---

Chocolate is Good for Your Heart

Title of Article | Length | Source
--- | --- | ---
Chocolate is Good for Your Heart | 254 words | http://www.BreakingNewsEnglish.com/1004/100402-chocolate.html

Facebook Creator is Time Person of the Year

Title of Article | Length | Source
--- | --- | ---
Facebook Creator is Time Person of the Year | 258 words | http://www.BreakingNewsEnglish.com/1012/101216-mark_zuckerberg.html

Toyota Recalls More Cars Over Safety Fears

Title of Article | Length | Source
--- | --- | ---

RESULTS AND DISCUSSION

The result shows that teaching reading deductively and inductively both have strength and weakness. It is shown that when the students learn reading deductively, they can create their own imagination while studying without any explanation first from the teacher. Teacher does not need more time to teach for it makes the students easier to understand the concept of the materials. However, it is beneficial only for students who have high cognitive learning style. Sometimes it is difficult for the students to understand the abstract concept without any brainstorming from the teacher. Deductive approach likely causes that memory is more important than understanding. Moreover, students will learn passively by keeping waiting to the teacher’s commands. Deductive approach does not appropriate to be given to the students who have low thoughts.

In teaching reading inductively, it is shown that the students have more preparation before the learning process because teacher presents the information of the materials through illustrations. When the students are able to illustrate the
material, they will directly have some questions for the teacher. This will raise the
students understanding. Inductive learning is very effective to make the students
active to give questions and answer. However, the weakness is that the teacher must
be creative in questioning and in creating a good atmosphere in the class.

From the tests given, it can be found that teaching reading inductively and
deductively has equal effectiveness. However, the students taught using the
deductive approach performed better in certain questions.

CONCLUSION
Understanding reference words is one of the most important reading skills
required by college or university students in order for them to fully comprehend
academic reading texts. Without this skill, it would be quite difficult for them
to gain knowledge through reading at the university. Therefore it is crucial that
teachers apply the ‘right’ approach when teaching reference words to their students.

The above findings suggest that the deductive and inductive approaches
are about equally effective in the teaching and learning of reference words and
phrases in academic reading. However, a closer scrutiny reveals the deductive
approach results in a more mechanical strategy. Although the students taught using
the deductive approach performed better in certain questions, it does not
necessarily mean that they have better understanding of the articles. They may be
able to get the right answers but without full understanding what the article
is about.

The inductive approach, on the other hand, produces a slight edge in
handling the more atypical kind of referencing which requires processing of
the information in the text. Based on our results, the inductive approach seems
to instill better reasoning ability among the students, although the deductive
approach, namely the spelling out of rules, also helps.

To gain further insight into the problem, further research could be
conducted in which the students are actually asked to explain how they arrived
at their answers.

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