The Effects of Inductive-Deductive Grammar Instruction on Students' Grammatical Accuracy

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ABSTRACT

The research investigated the effect of inductive-deductive teaching instruction developed from the five-step procedure by Widodo (2006). To be more specific, this research attempted to explore the significant difference between the combined inductive-deductive approach and conventional approach (deductive approach only) on the EFL students' grammar achievement. A quasi-experimental design specifically non-equivalent group design was applied in this research in which the two experimental and control groups were compared. The subject of this research was the first-year university students of UIN Alauddin Makassar who were registered in the intensification program of English language. The instruments used were the initial and final tests of students. The results showed that after treatment, the experimental group increased by 0.36 or 36% and the control group was only 0.22 or 22%. In conclusion, there were significant achievement differences between the two groups after undergoing treatment: the combined inductive-deductive approach (experimental group) and deductive approach (control group).

1. Introduction

In teaching four language skills whether it is productive skill or receptive skill, grammar plays important role. The problem is many people rule out the importance of grammar in writing or speaking. If this, the meaning brought by sender will bring a different meaning by the receiver. Considering the importance of grammar, it is necessarily crucial for teachers to apply an appropriate approach for students.

There are still two debatable approaches namely conventional (deductive) or modernist (inductive) approach. Richards et al (1985) claimed that inductive learners are not taught rules directly but are left to discover – or induce – rules from their experience of using the language while in deductive method, the rules of grammar are dictated to the students and then particular examples are given.

As known that inductive and deductive approach produce different result on learning English that is probably caused by several factors in the previous paragraph, Widodo (2006) introduced inductive-deductive approach for teaching grammar in the form of five step procedures. Collaborated with his own experience, he tried to incorporate the term of practice and consciousness-raising, explicit and implicit knowledge, and deductive and inductive approach. His research focused particularly on teaching tenses and modals.

Nevertheless, the tense was only specifically about present perfect tense. Therefore, the researcher was eager to wider the research by applying those inductive-deductive grammar instructions with another kind of tense. To see the effect of this approach, there was conventional classroom in which teachers use only deductive method in teaching English as the comparison of the experimental classroom.

2. Research Objectives

The research objective was to explore the effect of inductive-deductive approach compared with deductive approach on the EFL students' achievement of their grammatical accuracy.

3. The Scope of the Research

Inductive and deductive approaches are always differentiated in some research. However, the researcher tried to combine these two methods by applying the five-steps procedure created by Widodo (2006) that was applied in the perfect tense and then, trying to apply the procedures in the simple present tense.

4. Literature Review

4.1 Reviews of Related Research

A research had been conducted to 38 Iranian female students by Montazeran (2014) and it shows that inductive approach results significant improvement on students' test. However, this research is limited only to female. For wider consideration, Alzu'bi (2015) also did research that supports inductive approach after comparing the subject of elementary and university level. This research strengthens the view of individual differences between adult and young learner. The interesting thing is that mostly students prefer this approach when speaking because of the existence of many examples from teachers. Also, the support from the ministry of education in Jordanian is proven by many training courses to make teachers familiar with inductive approach.

However, Sik (2015) states that deductive approach is preferable for adult learners and instructor's impression and works better with their academic success and proficiency. Another research is Amirghassemi's research (2016) on Iranian EFL learners that shows that there is significant difference regarding their accuracy but no significant differences in oral fluency. The other interesting point is that the notion of discovery learning is quite alien to people in Iran as a whole. This indicates that the government also has their own duty to bring teacher familiar with it and teacher should be independently search the up-to-date information to make students notice it.

This part also tries to outline that all kind of approach is useful. As found by Tammenga (2014), the findings show that any kind of grammar instruction (explicit and non-explicit forms) is more effective than no grammar intervention/exposure. In line with this, Jean (2013) had proven that there is no relationship between inductive and deductive style. Moreover, Mallia (2014) also proves that there is only minimal difference between deductive and inductive groups. She emphasizes that the underpinning of local contextualization for both group is the only matter.

The presentation of grammatical rules can be spoken or written. Eisenstein (cited in Long & Richards, 1987) maintains Widodo's procedures (2006) for teaching grammar that the inductive approach tries to utilize the very strong reward value of bringing order, clarity and meaning to experiences. Widodo's approach involves learners' participating actively in their own instruction. In addition, the approach encourages a learner to develop her/his own mental set of strategies for dealing with tasks. In other words, this approach attempts to highlight grammatical rules implicitly in which the learners are encouraged to conclude the rules given by the teacher.

Widodo had proposed a procedure for teaching present perfect tense in which the activities involve five steps: building up students' knowledge of the rule or rule initiation, eliciting functions of the rule or rule elicitation, familiarizing students with the rule in use through exercises or rule practice, checking students' comprehension or rule activation, and expanding students' knowledge or rule enrichment.

By using the same five-step procedures above, the researcher plans to apply those steps that was applied to perfect tense to be used in simple present tense. In the first step, the researcher begins the study by giving some questions communicatively and some examples about daily activity in the form of simple present tense to let students guess what materials will be taught. For the second step, the students are shown the functions of simple present followed by examples explicitly. By looking at these two steps, Widodo had applied integrated approach in teaching deductively and inductively.

Nevertheless, the following three steps will allow a good repetition for memorizing the materials. The next step is the application of exercise to make students familiar with the rule. The activities are written question, verb correction, sentence transformation, sentence making with existed composition, error recognition and correction. Then, the four step is to check students' comprehension by asking them make sentences without composition except time signals such as today, always, never, in the morning, etc. Finally, the last step stands for the larger use of this tense in the form of identifying pattern of simple present in the text and comparing the quite-similar form of sentence based on its meaning.

4.2 Concept of Grammatical Accuracy

In Longman dictionary, accuracy is the ability to do something in an exact way without making a mistake and the ability of being correct or true. In addition, students can advance their level of English by producing written work that

employs the grammatical structures they have learned. Although it is unrealistic for nonnative students to expect to reach very good accuracy (and many native English speakers may have similar difficulty), they should aim to continuously improve their writing accuracy, in order to make their work readable and efficient.

5. Findings and Discussion

There were several steps to analyze the data. First, the researcher looked for students' achievement by calculating the pre-test and post-test scores in both groups. Then, the researcher measured significant difference of the scores from experimental group and control group by using parametric or nonparametric technique of statistical calculation by using SPSS after getting the result of normality and homogeneity test to find out whether the mean difference between experimental and control group were significant or not and to know how much both groups differed. Each step would be presented as follows:

a. Description of Pretest, Posttest, and Gain Scores

To determine the kind of analysis applied in this research, the researcher tested the normality and homogeneity of students score by subtracting the posttest score with the pretest score. To make a clear description, here are the scores of students in both pretests, posttest, and gain of experimental and control classrooms.

Table 1. Experimental & Control Groups' Scores

No	Experiment		Control		Gain	
	Pretest	Posttest	Pretest	Posttest	Experiment	Control
1	14	32	34	66	18	32
2	31	63	28	45	32	17
3	37	60	49	66	23	17
4	37	66	53	54	29	1
5	48	60	9	36	12	27
6	35	72	19	54	37	35
7	28	50	36	37	22	1
8	62	70	53	80	8	27
9	58	88	61	75	30	14
10	44	61	20	48	17	28
11	43	73	42	43	30	1
12	36	58	43	45	22	2
13	39	72	43	45	33	2
14	26	35	35	44	9	9
15	24	37	40	61	13	21
16	36	64	21	43	28	22
17	57	64	19	36	7	17
18	39	50	21	40	11	19
19	29	66	37	51	37	14
20	35	66	11	15	31	4
21	46	62	29	39	16	10
22	78	92	43	50	14	7
23	67	89	53	70	22	17
24	76	90	37	51	14	14

25	41	74	40	53	33	13
26	31	38	-	-	7	-
27	96	99	-	-	3	-

Table 2. The Mean Scores of Group's Achievement

Group	Pretest	Posttest	Gain	N Gain	Interpretation
Experiment	44.11	64.85	20.66	0.36	Medium
Control	35.04	49.88	14.84	0.22	Low

From the raw scores, it can be seen that 27 students from experimental groups achieved as much 0.36 or 36 % in the classification of medium achievement with mean score 20.66. Meanwhile, 25 students from control group got as much 0.22 0r only 22 % that is categorized as low achievement with mean score 14.84. This difference indicated that group that had experienced inductive-deductive approach got the higher achievement than control groups with conventional approach (deductive approach). After categorizing the students' achievement in both groups, the study further counted to know the significant difference of both experimental and control groups.

To determine whether the parametric or non-parametric statistical tool was used for data analysis, the researcher first tested the normality and homogeneity of the scores of experimental and control groups. The scores were the gain of posttest and pretest for each experimental and control groups. If the p value is higher than level of significance, it indicates that the gain scores are normal and homogeneous. If so, the data analysis would use the parametric test. If not, the data would apply nonparametric test.

Table 3. Tests of Normality

Data	Respondent	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig	Statistic	Df	Sig
	Experiment	134	27	200*	944	27	155
	Control	099	25	200*	947	25	220

This is a lower bound of the true significance

Table 4. Test of Normality Using IBM SPSS Statistics 22

Data	Respondent	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig	Statistic	Df	Sig
	Experiment	134	27	200*	944	27	155
	Control	112	23	200*	939	23	174

Table 5. Test of Homogenity of Variance Using IBM SPSS Statistics 22

	Levene Statistic	Df1	Df2	Sig
Data Based on Mean	.287	1	50	.594
Based on Median	.257	1	50	.614
Based on Median and with adjusted df	.257	1	48.858	.614
Based on trimmed mean	294	1	50	.590

The normality test shows that experimental and control group has the similar p value 0.2000 which is statistically higher than significance level of 0.05 which means that data distribution of pretest and posttest scores from both groups are normal. As the data distribution is normal, it indicated that the data had represented the population that was the first-year students of UIN Makassar who were registered in PIBA program. Then, it is continued to see the homogeneity test

of both groups. The data shows that the p value is 0.594 higher than significance level 0.05 That indicated that data of both groups were homogeneous. Because of the homogeneity and normality characteristics, the researcher applied the parametric test of independent sample t-test to see the significant difference between the experimental group after applying inductive-deductive and the control group after applying deductive approach.

b. Independent Samples Test

To see whether the data is different significantly or not, both scores of experimental and control classrooms were compared using independent sample t –test. Below is the result of the test.

Table 6. Result of Independent Sample Test Using IBM SPSS Statistics 22

Data	Levene's Test Equality of Variences	t-Test for Equality of Mean					
	f	sig	1	Df			
Equal variances assumed	287		2.066	50	044	5.827	2.821
Equal variances not assumed			2.067	795	044	5.827	2.819

From the table, result of independent sample t-test, the data from Levene's test shows that the p value of sig (2-tailed) is 0.044. As the p value is less than significance level 0.05. It indicates that there is significant difference achievement from the gain scores of pretest and posttest scores of both groups between the experimental group after applying inductive-deductive and the control group after applying deductive approach.

Table mean scores of experimental and control groups are also different. After applying inductive-deductive approach, experimental group after has mean score of 44.11 while control group after applying deductive approach has mean score of 35.04. This means scores' difference indicated that both groups have different initial ability. By this consideration, both achievements were tasted based on their gain score or the increasing score from their pretest scores to their posttest.

As a result, experiment group increased as much as 0.36 or 36 % and control group had only 0.22 or 22 % increase. Although this study only focused on seeing the significant difference of control and experimental groups, three possible major reasons of this different achievement can be drawn based on the findings namely time use, students' initial ability, and procedures of teaching.

1. Time Use

The process of teaching duration took different number of meetings for both groups. Experimental group spent 3 days of learning while control group spent only 2 days. These ways were chosen considering that it had been enough to outline the materials of simple present tense in the experimental group with the application of five steps procedures by Widodo (2006) while control group had only 2 main rules (verbal and nominal sentences).

2. Students' Initial Ability

Table 16 also shows that both groups had a different initial ability. It might indirectly affect their mean scores difference. However, this research was still valid as what was measured was their gain not their result or posttest. This was probably this the weakness of the research but this could hint the future researchers to employ the same initial ability of students.

3. Procedures of Teaching

The five steps procedure offered by Widodo (2006) was written gradually from easy to hard level. The existence of many exercises was the main key of this procedure that tried to elaborate the students' consciousness and unconsciousness with the integration of deductive and inductive approaches. The existence of practice emphasized repetition that could make students master the language unconsciously. Widodo (2006) said that it was generally accepted that practice can facilitate accuracy and fluency. Both could be achieved through controlled and semi-controlled activities or practices of grammar.

On the other hand, the more exercises allowed students' awareness consciously to be aware of pattern of simple present tense that may enrich their sentence making with different context. Ellis (2002) defines consciousness raising as

an attempt to equip learners with an understanding of a specific grammatical feature, to develop declarative (describing a rule of grammar and applying it in pattern practice drills) rather than procedural (applying a rule of grammar in communication) knowledge of it.

The control group started by telling the students about the learning materials that would be offered, simple present tense. By mentioning this name of tense, some had sounded as if she / he had been bored to learn the same thing many times since junior or senior high school, even though their pretest showed that she/he had some mistakes. Moreover, by showing the rules on the whiteboard at first as if they had to memorize the rules in which looked like mathematical patterns. Furthermore, in deductive approach they needed to produce many examples after following the presented rules. This way could bring benefit for certain learning styles of the students. In relation to this, it was discussed more in the second research question.

Those possible major causes indicated that that the use of inductive-deductive approach that brings effect as much 36 % was due to the strength of this approach such us the longer time needed that trained the students into more practice, students' knowledge that eases the researcher to comprehend them, and the Widodo's procedures (2006) of those five steps that indirectly build their conscious and unconscious learning.

6. Conclusion

The application of inductive-deductive approach by following the five-steps procedure has affected the students' achievement on their grammatical accuracy after compared with deductive approach as found that experimental group through inductive-deductive approach has the higher achievement than control group through deductive approach. This research could be an alternative approach of teaching simple present tense or learning another tense form. Different classroom situations may bring different results. It could be from teacher, students, environment, or learning materials. That is why, another aspect analyzed in this research focused on students itself known as learning style in which this research focused on cognitive style.

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