



THE EFFECT OF INDUCTIVE LEARNING APPROACH IN TEACHING GRAMMAR

Linguistics

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ABSTRACT

This study was aimed to investigate how inductive learning approach affect the students' achievement in learning English and to analyze the perception of students of the use of inductive learning approach. The research method employed was mixed research where quantitative and qualitative data were taken from the control and experimental classes using pre-test and post-test assessment, in depth sampling interview and class observations as research instruments. The subject of the study involved a program named PIBA in UIN Alauddin, Makassar where 2 English classes were purposively taken as samples to be treated using deductive and inductive approach in teaching grammar with integrative skills. The study has given some outcomes as follows: based on the performance achieved by the students of the pre-test and post-test in both classes, the inductive approach was more effective to the students' achievement compared to the deductive class. The result of the study also indicated that based on the interviews, students' gave positive perception for inductive learning approach.

KEYWORDS

inductive approach. Grammar teaching, achievement, university students

1. INTRODUCTION

English as a foreign language is an international means of communication in the world. Among other languages, English has been the most spoken language in this globalization era. Therefore, English language competency has been undeniably important for an individual in order to compete for a better opportunity for a better living. English is a compulsory subject for secondary school students in Indonesia. Unfortunately, despite studying English for six years in junior and senior high school, overall Indonesian students exhibit low proficiency in English upon graduation from senior high school. Students in Indonesia acquire their English language competency from two big streams of study environment, formally and informally. Indonesian National Education Policy requires schools providing English Education from Elementary schools. Formally, students will acquire their English from formal schools at Elementary to Senior High Schools. In this formal schools the curriculum has been designed for teachers and students to interact in their lessons for at least 2 hour meeting in a week. Eventually, this is not enough. Most students who would finally be fluent in their English are students who spend time studying English informally in the form of courses, trainings and extra classes. In these places students can enhance their English acquisition. Unfortunately, not all students are capable in joining this informal classes due the time and financial restrictions. This phenomena reflects the condition before these students enter universities, colleges or other higher learning institution.

Rahman, (2005) had investigated the fluency of university students and discovered that only 40,15 % of the grammar skills in general achieved which they are classified as low in grammar mastery. This situation has made Indonesian graduates becomes less competitive in global working environment.

Furthermore, Yassi (2012, 2013) found that the average English language proficiency of English Literature students in the first year of Hasanuddin University's is at the lower intermediate level. This impacted the low competency of students in the classroom at university level. The phenomenon of the low English competence of college graduates in Indonesia will affect their competitiveness both nationally and internationally. Therefore students' opportunity in obtaining scholarships were low due to the English requirement of the scholarship supporter. Suhartina (2012) discovered in her research findings that the first-year English proficiency students who chose English majors at several private universities in Makassar such as UMI, UNISMUH, YPUP and 45 University were on average still at elementary level (44.43%).

This research had tried to highlight one program of The Language Center in an Islamic state university, Universitas Islam Negeri Alauddin Makassar (UIN AM). This program was designed to

encourage the mastery of English at the very beginning of the university study by students after their enrollment. This program is termed as PIBA (Program Intensifikasi Bahasa Asing) translated in English as Foreign Language Intensification Program. This program is aimed to meet the needs of having English as one of the standard skills in performing studies in higher education after high school. The objectives of PIBA are to accelerate the learning of foreign language skills (Arabic and English), to increase students' moral skills, increase their core competency and communication skills.

RESEARCH OBJECTIVES

Based on the research questions above, research objectives are formulated as statements below.

1. To investigate how deductive and inductive learning approach affect the students' achievement in learning English.
2. To analyze the perception of students of the use of inductive learning approach.

Significance of the research

Practically, this research is expected to become significant to other language educators because the expected output of this research will be recommendations in English learning process particularly how inductive and deductive learning approach can make a difference in the teaching and learning environment of English language education. Theoretically, the proposed learning approach can furthermore contribute to the design of more explorative English teaching approach in higher education in Indonesia especially in PIBA program.

2. RELATED LITERATURE REVIEW

English teaching as a foreign language has been an essential topic of research in the area of instructional pedagogy. Teaching grammar in general uses theoretical approaches to develop and promote the students success in the learning environment. Among the approach, method and learning strategies, deductive and inductive term have been used. Yassi (2014) in his research stated that the topic of grammar teaching or focus on forms in the field of second language education has become an interesting issue in the last decade. DeKeyser in Yassi (2014) notes that "grammatical teaching that focuses on form or forms is beneficial for certain situations, and certain learners". A number of research on English Language Teaching (ELT) have shown that there is no conclusive approach on how to teach grammar best to the learners. Therefore choosing the proper teaching approach between deductive and inductive grammatical teaching is very significant.

Research on this deductive and inductive approach had been debated since the era of early stages of English learning. One of the most

interesting controversies in second language teaching is the question of whether deduction or induction should be used in the teaching of grammatical structures (Hammerly, 1975). In line with Hammerly, Fischer (1979) confirmed that many foreign language expert and teachers have long debated the value of a deductive or inductive approach in the teaching of grammatical structures. Many of them stated that a deductive approach in which the explanation of a grammatical principle precedes its application is more logical and leads to a higher degree of certainty of grammatical knowledge while others claimed that an inductive approach in which the students discover the grammatical principle for themselves has a greater impact and leads to longer retention.

Furthermore, the theoretical approach is both inductive and deductive approach developed by Rivers and Temperley, (1990). Deductive approach applied by Rivers and Temperley represents a more traditional style of teaching in the grammatical structure or teacher-centered approach. On the other hand, the inductive approach seems to be more modern style of teaching where the grammatical rules are presented in the real language context or learner-centered approach. Moreover, Brown (1994) defines inductive way as a way in which one stores a number of specific instances and induces a general law or rule or conclusion that governs or subsumes the specific instances. Deductive way refers to the continuous presentation of rules, generalizations, principles, or examples of the rules as they apply in specific instances.

In the context of language learning either as foreign or second language deductive and inductive approach have acquired focus on how to handle certain types of students. The deductive and inductive approaches have been used interchangeably with some terms such as traditional and modernist approach (Sik, 2015), rule-driven teaching and rule-inferred teaching (Mahjoub, 2015), teacher centered and student centered (Silvia, 2006). Glaser, (2013) elaborates the slight terminological difference on the explicit learning instruction as similar to deductive learning and implicit learning instruction is the same as inductive approach learning.

Silvia (2006) in her research elaborated two very distinct and opposing instructional approaches, inductive and deductive. Both approaches can offer certain advantages. The deductive approach derives from deductive reasoning where the concept goes from general to specific. Rules, patterns, principles are presented first, and then moves to the examples. Deductive approach which is also known as rule-driven teaching enjoys the following advantages: 1. The deductive approach goes straightforwardly to the point and can, therefore, be time-saving. 2. A number of rule aspects (for example, form) can be more simply and clearly explained than elicited from examples 3. A number of direct practice/application examples are immediately given. 4. The deductive approach respects the intelligence and maturity of many adult learners in particular and acknowledges the role of cognitive processes in language acquisition. 5. It confirms many learners' expectations about classroom learning particularly for those who have an analytical style.

On the other hand, deductive approaches have some disadvantages: 1. beginning the lesson with a grammar presentation may be off-putting for some learners, especially younger ones. 2. Younger learners may not be able to understand the concepts or encounter grammar terminology given. 3. Grammar explanation encourages a teacher-fronted, transmission-style classroom, so it will hinder learner involvement and interaction immediately. 4. The explanation is seldom as memorable as other forms of presentation (for example, demonstration). 5. The deductive approach encourages the belief that learning a language is simply a case of knowing the rule.

An inductive approach starts with some examples from which a rule is inferred. In grammar teaching, teachers present the examples at the beginning then generalizing rules from the given samples. Inductive grammar learning commonly happens for native speakers of English, where they can produce a grammatically correct utterance but they do not know the rules underlie it. Inductive approach is often considered to have the following merits: 1. Learners are trained to be familiar with the rule discovery; this could enhance learning autonomy and self-reliance. 2. Learners' greater degree of cognitive depth is "exploited". 3. The learners are more active in the learning process, rather than being simply passive recipients. In this activity, they will be motivated. 4. The approach involves learners' pattern recognition and problem solving abilities in which particular learners are interested in this challenge. 5. If the problem solving activity is done collaboratively, learners get an opportunity for extra language practice.

The disadvantages are: 1. the approach is time and energy-consuming as it leads learners to have the appropriate concept of the rule. 2. The concepts given implicitly may lead the learners to have the wrong concepts of the rule taught. 3. The approach can place emphasis on teachers in planning a lesson. 4. It encourages the teacher to design data or materials taught carefully and systematically. 5. The approach may frustrate the learners with their personal learning style, or their past learning experience (or both) would prefer simply to be told the rules. (Silvia, 2006).

There are some research in favor of deductive approach such as Sik (2015), Mallia (2014) and Asriany (2013) while inductive approach resulted by Akram (2014), Astrid (2011) and Kuder (2009). Other than in favor of inductive and deductive approach, there were also research in favor for both approaches such as Mahjoub (2015), Behjat (2008), Erikson (2014), Chalipa (2013) and Yassi (2014).

3. RESEARCH METHODOLOGY

This research used mixed research methodology. Mixed methods research is a style of research that uses procedures for conducting research that are typically applied in both quantitative and qualitative studies. The purpose of these designs is to build upon the synergy and strength that exists between quantitative and qualitative methods in order to more fully understand a given phenomenon than is possible using either quantitative or qualitative methods alone.

Population and Samples

In this research, the writer used purposive sampling taken from the first year students. There were 2 classes chosen from the whole PIBA program for the academic year of 2017/2018 as the subject of the research. The first class was from Physics Department Faculty of Science and Technology treated using deductive approach and acted as a control group. The other class was from Islamic Guidance and Counseling Department Faculty of Communication treated using inductive approach and acted as an experimental group. The control class was slightly higher in number of students of 36 and the experimental class consists of 24 students.

Research Instrument

The research instrument used in this study were pre-test, post-test, class observations and in depth-interview. Quantitative data was collected from students using pre-test, and post-test. Following the quantitative method, qualitative data were collected from class observations and interviews. There were 5 students chosen as interviewees in inductive class.

4. FINDINGS

The findings that discussed below are based on the quantitative data analysis taken from the pre-test and post-test of Grammar Test as well as data acquired from questionnaires for both control and experimental group or deductive and inductive groups. As for qualitative data, result of interview from both groups will be presented.

4.1 The result of data collected through Grammar Test

a. Result of Pre-Test and Post-Test of Deductive Class

Table 1. Result of Pre-Test Post-Test of Deductive Class

No	Sample	Pre-Test	Post-Test
1	DE1	37.00	69.00
2	DE2	25.00	67.00
3	DE3	31.00	42.00
4	DE4	49.00	60.00
5	DE5	43.00	36.00
6	DE6	48.00	42.00
7	DE7	46.00	75.00
8	DE8	56.00	68.00
9	DE9	38.00	57.00
10	DE10	54.00	68.00
11	DE11	32.00	54.00
12	DE12	61.00	62.00
13	DE13	48.00	49.00
14	DE14	31.00	48.00
15	DE15	52.00	61.00
16	DE16	70.00	84.00
17	DE17	61.00	50.00

18	DE18	49.00	74.00
19	DE19	40.00	54.00
20	DE20	56.00	66.00
21	DE21	60.00	73.00
22	DE22	35.00	62.00
23	DE23	56.00	64.00
24	DE24	48.00	66.00
25	DE25	28.00	40.00
26	DE26	57.00	66.00
27	DE27	75.00	79.00
28	DE28	69.00	84.00
29	DE29	75.00	87.00
30	DE30	42.00	64.00
31	DE31	39.00	63.00
32	DE32	69.00	72.00
33	DE33	50.00	66.00
34	DE34	62.00	80.00

Table 1. above shows the result achieved by 34 students in both pre-test and post-test in Deductive Class. The average of pre-test was **49.76** and classified as **fair** or **average** in the scoring classification and the post-test average was **63.29** and classified as **good** category.

b. Result of Pre-Test and Post-Test of Inductive Class

Table 2. below shows the result achieved by 26 students in both pre-test and post-test in Inductive Class. The average of pre-test was **38.85** and classified as **poor** category in the scoring classification and the post-test average was **66.00** and classified as **good** category.

Table 2. Result of Pre-Test/Post-Test of Inductive Class.

No	Sample	Pre- Test	Post-Test
1	IN1	29.00	72.00
2	IN2	56.00	78.00
3	IN3	72.00	84.00
4	IN4	24.00	56.00
5	IN5	50.00	76.00
6	IN6	57.00	76.00
7	IN7	36.00	71.00
8	IN8	44.00	60.00
9	IN9	32.00	62.00
10	IN10	46.00	76.00
11	IN11	25.00	37.00
12	IN12	38.00	61.00
13	IN13	10.00	25.00
14	IN14	28.00	74.00
15	IN15	42.00	84.00
16	IN16	39.00	81.00
17	IN17	40.00	71.00
18	IN18	38.00	65.00
19	IN19	26.00	66.00
20	IN20	43.00	77.00
21	IN21	17.00	35.00
22	IN22	55.00	68.00
23	IN23	44.00	70.00
24	IN24	49.00	83.00
25	IN25	11.00	34.00
26	IN26	59.00	74.00

c. The Mean score of students Pre-test and Post-Test of Deductive and Inductive Class.

Prior to treatment, both Deductive and Inductive Class were given a pretest to find out the students prior knowledge on the lessons. The aim of the test to compare later the score before and after the treatment.

Figure 1. indicates that the mean score of the Deductive Class for the pre-test was 49.76 and the Inductive Class was 38.85. In The Deductive Class, the students scored higher than in the Inductive class or the students in the deductive class showed better prior knowledge compared to the inductive class.

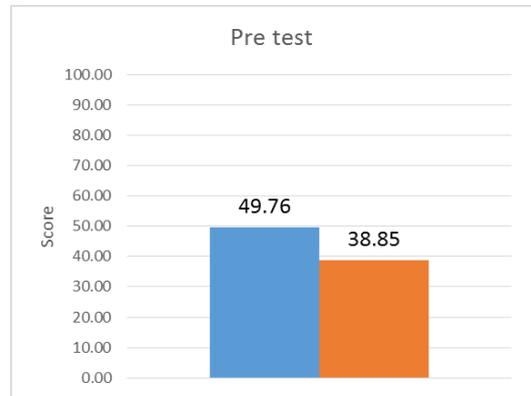


Figure 1. The mean score of Students' Pre Test of Deductive and Inductive Class.

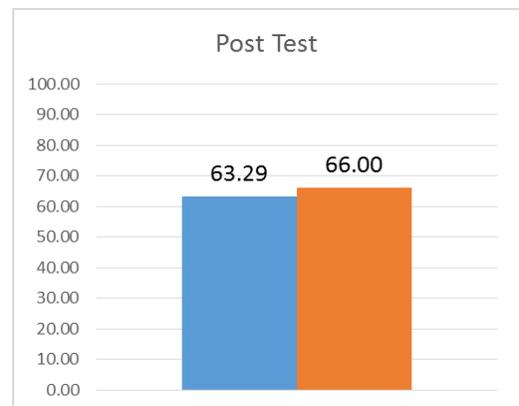


Figure 2. The mean score of Students' Post Test of Deductive and Inductive Class.

The Figure 2 shows that the mean score for deductive class was 63.29 whereas the inductive class scored meanly at 66.00. This means that the inductive class had a slightly higher score compared to the deductive class.

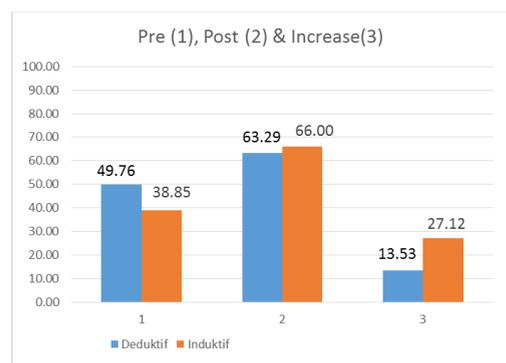


Figure 3. Pre, Post-Test and The increase for each approach

Figure 3 shows The Pre and Post and The increase for each approach that we can see the Pre-test started with average of 49.76 to 63.29 with an increase of 13.53 points whereas the post-test initiated with 38.85 and increased to 66.00 with an increase of 27.12 points.

d. Test of significance (t-test) for both classes.

The hypotheses were tested by using inferential analysis. In this study, a statistical software to analyze the data was used to check the significance difference between the result of students' mean score of pre-test and post-test for both classes.

Assuming that the level of significance (α) = 0.05, the only thing which is needed, the degree of freedom (df) = 58 where $(N1 + N2) - 2$ $(36+24)-2 = 58$. The pre-test and post-test has significant different which therefore can be statistically analyzed further. Since in the pre-test and the post-test of deductive and inductive the probability value was lower than alpha ($0.00 < 0.05$) means $H1$ was accepted and $H0$ was rejected. It is concluded that after giving the treatment to both deductive and inductive class, the student's grammar achievement was statistically different.

4.2 Frequency and Percentage of Students' Result of Deductive and Inductive Groups.

Table 3. Frequency and Percentage of Students' Pre-Test Result of Deductive and Inductive Groups.

No	Classification	Score Range	Pre-Test Deductive		Inductive	
			Freq	Percent	Freq	Percent
1	Very Good	90-100	0	0%	0	0%
2	Good	70-89	3	9%	1	4%
3	Fair	50-69	13	38%	5	19%
4	Poor	30-49	16	47%	12	46%
5	Very Poor	10-29	2	6%	8	31%
	Total		34	100.00%	26	100.00%

It can be seen from the table 4.3 above that pre-test for deductive group, out of 34 students, none of the students could achieve very good score. There were 3 students (9%) score in good category. Nearly 85% the students achieved fair and poor category although more dominant in poor, 16 (47%) while Fair category falls in 13 students (38%). Two students had very poor score.

In the Inductive group, with 26 students taking the pre-test, the students were dominantly in the poor category 12 (46%) nearly half of the total number of students taking the test and 5 students in the fair category (19%). Only one student could achieve good category. A significant number of students had very poor score 8/26 with 31%. In addition, the maximum and minimum score of the Deductive Class was 25 and 75 while the Inductive Class had a maximum and minimum score of 10 and 72.

Table 4. Frequency and Percentage of Students' Post-Test Result of Deductive and Inductive Groups.

No	Classification	Score Range	Post-Test Deductive		Inductive	
			Freq	Percent	Freq	Percent
1	Very Good	90-100	0	0%	0	0%
2	Good	70-89	9	27%	15	58%
3	Fair	50-69	19	56%	7	27%
4	Poor	30-49	6	18%	3	12%
5	Very Poor	10-29	0	0%	1	4%
	Total		34	100%	26	100.00%

The result of the post-test for Deductive Groups from the Table 4.2 above shows the students were dominantly in a fair category with 29 students achieving 56% of the total percentage students taking the test while in good category 9 (27%) students achieved a score of 70-89. It is noted that only 6 (18%) students fell in the poor category.

On the Inductive category, the students were dominantly in the good category with 15 students out 26 reached this score or more than half of the total population, 58%. In the fair category 7 students managed with 27% while poor category achieved by only 3 students (12%). One student couldn't performed well fell in the very poor category. In addition, the maximum and minimum score after the treatment given of Deductive Class was 36 and 87 while The Inductive Class had a maximum and minimum score of 25 and 84.

5. DISCUSSION

The discussion explores the interpretation or the assumption on the findings related to the theory used in this study and discussed based on the findings from the instrument which later used to answer the research questions.

1. The effect of deductive and inductive approaches towards the

students' achievement and motivation in learning English.

How the learning approach could affect the students' achievement can be seen from the result of the pre-test and post-test. The result of the achievement is based from the previous table 4.1 where it is clearly seen that the class competence in the beginning were dominantly in the poor and fair category for the deductive class while for the inductive class was even worse because the competence were mostly in the poor category and a third of the class (31%) from the total of 24 students were in the very poor category. This fact could be interpreted that both the deductive and inductive class students had very low competence of English which probably caused by the weak English learning from high school or internally the students were lack of motivation to study English.

After the treatment, the result was significantly improved although the improvement did not extremely increase but showed very significant change. Table 4.2 showed the frequency and percentage of how many students had moved the competence category. The post-test in deductive class indicated that student general competence had moved from poor and fair category to fair and good category. More than half of the total number of students, 34, were in fair category while 27% of them in good category.

The improvement were obvious despite the fact that it moved only one category higher. As for inductive class the improvement was considered a little extreme where dominantly the students were from very poor to poor category, nearly half of the total students were in poor category and 31% in a very poor category, moved to the 2 upper category from fair to good category even the students were dominantly in good category (58%). This frequency and percentage of student of pre-test and post-test for both control and experimental class or both deductive and inductive approaches had shown that the students' achievement in the form of post-test had significantly increased after the treatment.

Based on the finding on students' grammar Pre-Test of deductive and inductive class, it was found that the prior knowledge of control group or deductive class was better than the experimental group or inductive class. The average score was 49.76 for the deductive class of the total of 34 students participating in this study compared to 38.85 of the inductive class from the overall possible score of 100 and total of 26 students. This average score of deductive class was categorized as poor or below average but this score can be rounded to 50 and could be fit in fair or average category. While inductive class average score fell in the poor category. As mentioned earlier in Chapter III, the students in the control class were from The Department of Physics Faculty of Science. Students from exact departments were assumed in general of having better performance in English subject. On the other hand, the inductive class participants were students from The Communication Department Faculty of Communication and Da'wah. This department background from the participants can be the reason why this experiment class had lower entrance score from Pre-Test.

The treatment given for each approach to the students were in the form of exercise material, discussions, hand out for games and presentation in various mode of pair groups. Upon completion, the students were given post-test with the question set to see the improvement. The result were considered motivating because the score of post-test both in deductive and inductive class were quite high 63.29 while deductive class even higher of 66.00. Although these 2 category of class scores were above average, above 60 points were considered to be above average, but the category were still fell in fair category. This result showed that the increase score of deductive class from 49.76 to 63.29 was 13.53 indicated a very positive improvement of the students. Whereas the inductive class had a big jump from 38.85 to 66 which had 27.12 points difference.

This indicated that the treatment in the inductive class was more effective in increasing the students' achievement than in the deductive class. Based on the class observation, the students in Inductive Class were more enthusiastic and active in the learning process. As Inductive approach focused more on communicative language teaching, students seemed enjoying the class more compared to the observation in the deductive class. This is in line with the findings of some inductive approach favored research, (Akram (2016), Astrid (2011), Khaeruddin (2015), Udin and Ahmed (2012) and Kuder (2009).

Moreover, based on the interview result, the students in Inductive class

said that they discovered the formula themselves. It means that the retention of the material stays longer. As one of the advantages of inductive approach is learners are trained to be familiar with the rule discovery therefore this could enhance learning autonomy and self-reliance (Silvia, 2006).

2. The students' perception on inductive approach.

The objective of in depth-interview is to explore more on certain points that cannot be seen directly from the quantitative data analysis. There are certain questions that can be confirmed to the chosen respondents. This interview should be able to answer the second research question on how do the students perceive the inductive and deductive learning approaches in assisting them to improve their achievement in learning grammar.

Based on the findings from the interview in The Inductive Class four students responded that they liked when the formula was given at the end because they could discover the formula at the end and one student preferred the deductive approach. Moreover, all of the students said that the lessons meet with their needs. They know that English as an international language and they need it for communicating with their friends, tourists and most of them want to go abroad to continue their study.

6. CONCLUSIONS

In answering the research questions based on the result from of the findings and discussions, this study has concluded some points as describe below:

1. Based on the performance of achievement of the students from the comparison of the pre-test and post-test after treatment was given to the control class and experimental class, both class has shown significant improvement where students with poor achievement category can be increased to the above average category after the implementation of both deductive and inductive learning approach. However, based on the increase point from pre-test and post-test, inductive approach was more effective than deductive approach in increasing the students' achievement.
2. Students perception on inductive approach were positive indicated by the result of the class observation and the interview. They need English to communicate with their friends and to continue their study abroad.

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