

## The Effect of Project-Based Learning Methods on Students' Ability in Developing Research Instruments of CDA

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### Abstract

The better the collaboration in developing a classroom discourse analysis (CDA) research instrument, the better the research instrument's preparation outcomes. Thus, this study aims to determine the effect of project-based learning methods on students' ability to develop discourse analysis research instruments in the Indonesian Language Education Masters Study Program at the University of Bengkulu. The One Groups Pretest-Posttest Design was utilized in this work as an experimental approach utilizing pre-experimental designs (non-designs). The data collection technique used was a test technique in the form of a performance test to arrange research instruments of CDA. The steps for analyzing the data are by giving an assessment score, calculating the average student score, testing the normality of the data, and testing the hypothesis with the Paired Sample T Test using SPSS 24. The results showed a significant effect of project-based learning methods on students' abilities in composing a discourse analysis research instrument for Indonesian Language Education Study Program graduate students. The influence is indicated by the Sig value (2-tailed) of 0.00 is smaller than 0.05. Students have mastered the ability to compose classroom discourse analysis research instruments, namely making transcriptions of spoken discourse into written text, compiling guidelines for classroom discourse analysis in the form of work analysis tables and coding, and compiling interview guidelines.

**Keywords:** *Effects, project-based learning methods, the ability to compose classroom discourse analysis research instruments*

### Introduction

Study of improvement in the preparation of research instruments in learning is only limited in the form of training and not yet in the form of research. For example, a study conducted by Marwa & Herlinawati (2019) regarding training in developing research instruments in the form of non-tests and a study conducted by Fadilla & Salim (2021) regarding training in developing quantitative research data instruments with SPSS. The preparation of research instruments is a necessary step in the research process because it serves as a tool for collecting research data (Triwidayati, 2018). The scientific level of a study is also determined by how well the research instruments

are prepared (Tamah & Lie, 2019). A researcher should be well-versed in the process of preparing research instruments.

Masters level students must also be equipped with mastery in the preparation of research instruments. It is done to provide students with additional competency in conducting research activities in the form of a thesis. Also, because researchers use the research instrument to measure natural and social phenomena resulting from observing activities, it is essential to understand that the success or failure of thesis research depends on the quality of the instruments compiled (Sugiyono, 2017). For this reason, it is essential to provide learning outcomes in mastering the preparation of research instruments for students.

The results of observations on semester 2 students for the 2021/2022 academic year still have difficulties composing qualitative research instruments, especially for classroom discourse analysis (CDA). The preparation of classroom discourse analysis is still experiencing problems, namely the coding process and data interpretation process because these two things have their level of difficulty for a researcher as the main instrument (Purwoko, 2008; Schiffirin, 1994; Sinclair & Coultard, 1975). Therefore, action is needed by providing project-based learning methods so that students and teams in small groups experience the process of preparing the research instrument for themselves.

The project-based learning method is a learning activity in which students work in groups or teams to solve problems by being given openness and the opportunity to apply various knowledge gained to work on a project together in order to produce an authentic product (Krauss & Suzie, 2013). In this case, the project is to develop a research instrument for classroom discourse analysis. With students given the opportunity in groups to complete a project to develop research instruments, students will directly understand every step taken in preparing the instrument. Apart from that, group members also provide input to each other so that the instrument can be appropriately arranged.

The project-based learning method, also known as a project-based group learning method or (team-based project) in Kepmendikbud RI Number 3/M/2021, is the first option used in every learning process opposed to the second option, precisely the case-based learning method (case methods). Of course, the project-based learning method is the better choice among the two learning methods recommended in Kepmendikbud RI Number 3/M/2021. It is because the project-based learning process is appropriate for allowing students to master the preparation of research instruments for classroom discourse analysis. Using project-based learning methods, students will directly experience preparing research instruments through project activities (Wahyuni, 2020; Wagirun & Irawan, 2019).

The project-based learning method has been proven to increase the cognitive, affective, and psychomotor abilities of English literature students because it goes through the following stages: 1) problem recognition by determining basic questions; 2) preparation of project design; 3) preparation of work plans; 4) project implementation and project monitoring; 5) testing results through presentations; and 6) evaluation and reflection (Fatmawati, 2018; Okyranida, 2020). The project-based learning method can also assist students in developing meaningful knowledge and skills by providing authentic assignments and work, as well as open planning and investigation. Then, through the project-based learning method, students can build knowledge through projects in the form of real-world experiences and interpersonal cognitive negotiations that take place in a collaborative work atmosphere in groups (Santi, 2011).

The project-based learning method has the advantage that each student in the group is given the trust and responsibility to complete their respective assignments, and each group member works together in solving the problems faced and competing to get the best project results to be presented (Krauss & Boss, 2013). It demonstrates the importance of each group member so that students are encouraged to complete the project to develop research instruments. As a result, it is projected that project-based learning methods will have an impact on the ability to establish discourse analysis research instruments for semester 2 students of the Master's Program in Indonesian Language Education at the University of Bengkulu.

The general problem in this study is whether project-based learning methods influence the ability to develop discourse analysis research instruments for students of the Indonesian Language Education Masters Program at the University of Bengkulu. Then, this study aimed to determine the effect of project-based learning methods on the ability to develop discourse analysis research instruments for students of the Indonesian Language Education Masters Program, University of Bengkulu.

The findings of this study can be applied to future experimental research by offering project-based learning technique actions on the material for creating discourse analysis research instruments. Then, the benefits of the results of this study, which are helpful for Discourse Analysis Course lecturers as researchers, are greatly assisted in providing the best experience in improving students' abilities in preparing research instruments by implementing project-based learning methods as suggested by the IQF and MBKM.

## **Research Methodology**

### **Research Design**

The research method used is the experimental method of pre-experimental designs (non-designs). The research design used in this study is the One Groups Pretest-Posttest Design, a research design that is given a pre-test before treatment and a post-test after treatment (Sugiyono, 2017).

**Population and Sample**

The population in this study were Classroom A students in Semester 2 Academic Year 2022/2023 Indonesian Language Education Masters Study Program, FKIP University of Bengkulu. The total population in Classroom A Semester 2 Academic Year 2021/2022 is 19 students consisting of 16 women and 3 men. The research sample, because the population was known and consisted of only one classroom, the classroom was immediately assigned, namely Classroom A Semester 2 Academic Year 2021/2022 totaling 19 students as the research sample.

**Research Variable**

The independent variable (independent variable) or the influencing variable in this study is the project-based learning method. Meanwhile, the dependent variable (dependent variable) or the affected variable is the ability to construct classroom discourse analysis research instruments.

**Data Collection Techniques and Research Instruments**

Data collection techniques in this study use tests. The type of test is a performance test to compile research instruments based on classroom discourse analysis. The test results for compiling research instruments based on classroom discourse analysis will be assessed by referring to the rubric for compiling research instruments based on classroom discourse analysis. Data collection techniques in this study use tests. The type of test is a performance test to arrange research instruments based on classroom discourse analysis. The test results for compiling research instruments based on classroom discourse analysis will be assessed by referring to the following rubrics: 1) preparation of research instruments based on classroom discourse analysis; 2) guidelines for classroom discourse analysis in the form of work analysis tables and coding; and 3) the ability to prepare interview guidelines.

**Instrument Validity Test**

The validity of the performance test instrument in compiling classroom discourse analysis research instruments was tested using content validity. Content validity was measured by measuring the achievement of the questions by paying attention to the learning achievement indicators of the ability to construct discourse analysis research instruments in the semester lesson plan derived from the curriculum in the Discourse Analysis Course. The questions prepared to contain content that consists of 3 indicators: 1) the ability to make transcriptions of spoken discourse into the written text; 2) the ability to develop guidelines for classroom discourse text

analysis in the form of work analysis tables and coding; and 3) the ability to prepare interview guidelines.

### **Data Analysis Technique**

Teknik analisis data dilakukan dengan menilai kemampuan menyusun instrumen penelitian analisis wacana kelas per individu, menghitung uji normalitas data, dan uji signifikansi pengaruh menggunakan pengujian statistik dilakukan dengan statistik parametrik dengan uji Paired-Sample t-Test dengan perhitungan menggunakan SPSS 24, Data analysis techniques were carried out by assessing the ability to construct research instruments for classroom discourse analysis per individual, calculating the normality test of the data, testing the significance of the effect using statistical test software SPSS 27 version, and drawing conclusions by rejecting  $H_0$  if the significance (2-tailed)  $\leq \alpha 0.05$  means that there is an effect of project-based learning methods on the ability to develop discourse analysis research instruments for postgraduate students of the Indonesian Language Education.

## **Findings and Discussion**

### **Findings**

#### **1. Learning Steps in the Material of Developing Research Instruments of Classroom Discourse Analysis Using Project-Based Learning Methods**

The learning steps in the material for compiling research instruments of classroom discourse analysis using project-based learning methods are aligned with the semester lesson plans prepared. The following are the learning steps on the material for compiling research instruments of classroom discourse analysis using project-based learning methods. The first step is forming groups consisting of 3-4 students for one group, and the number of groups there are 5 groups. Group division using the <https://wheelofnames.com> application so that it becomes more exciting and has a value of justice. Each group that has been formed is continued by selecting the head of each group by way of deliberation to reach a consensus.

The second step is strengthening the material. Reinforcement of the material is carried out by each group working on the task of making a summary of three concepts, namely: 1) making a transcription of spoken discourse into the written text; 2) the preparation of guidelines for classroom discourse text analysis in the form of work analysis tables and coding; and 3) preparation of interview guidelines. The lecturer, as a facilitator, provides the primary reference sources that will be used as summary material, namely the following books.

1. Purwoko, H. (2008). *Discourse Analysis: Kajian Wacana bagi Semua Orang*. Jakarta: PT Indeks.
2. Schiffrin, D. (1994). *Approaches to Discourse*. USA: Blackwell Publishing.

3. Sinclair, J. & Coulter, M. (1975). *Towards an Analysis of Discourse: The English Used by Teachers and Pupils*. London: Oxford University Press.

Then, the accompanying references that will be used as summary material are digital reference sources in the form of journals and books originating from the following sources.

1. <https://uk.sagepub.com/en-gb/eur/the-coding-manual-for-qualitative-researchers/book273583>
2. <https://www.birmingham.ac.uk/Documents/college-artslaw/cels/essays/csdp/Atkins4.pdf>
3. <https://search.crossref.org/>
4. <https://www.pdfdrive.com/>
5. <https://www.gutenberg.org>
6. <https://openlibrary.org/>
7. <https://archive.org/details/texts>
8. <https://manybooks.net/>
9. <https://www.bookyards.com/en/welcome>

The lecturer accompanies the group in finding information about material from the various digital reference sources above. After the group made a summary, each representative presented their results to the classroom and discussed between groups. Then, after the group discussion, the lecturer provided material reinforcement on compiling research instruments of classroom discourse analysis. After students have conceptually understood compiling research instruments of classroom discourse analysis, proceed to the third learning step.

The third step is determining the fundamental questions resulting in an invention or product. This step was conducted with the lecturer asking, "Have you compiled research instruments of classroom discourse analysis? The second question is can students prepare research instruments for classroom discourse analysis? Then, the third question is, do students know the purpose of compiling research instruments of classroom discourse analysis? After that, it was followed by the lecturer confirmed that each group would carry out the discovery through the project of compiling research instruments of classroom discourse analysis.

The fourth step is to develop a project plan. At this stage, the lecturer directs each group to prepare project plans starting from forming a work team tasked with 1) making transcriptions of spoken discourse into written texts, 2) preparation of the guidelines for classroom discourse text analysis in the form of work analysis tables and coding; and 3) preparation of interview guidelines. The work team is divided into tasks of who will make reports and presentation materials using PowerPoint. A lecturer in the division of labor within the group accompanies each group member in each group.

The fifth step is compiling a project schedule. At this stage, each group prepares a project schedule which is given two weeks or 14 days of project implementation time. The project schedule is prepared to start from the preparation of research instruments of classroom discourse analysis, the preparation of the project results report, the preparation of presentation materials, and the project results presentation schedule. In compiling the project schedule, the lecturer accompanies each group and directs them in making the project schedule in the form of a schedule table every day for fourteen working days. With assistance and direction from the lecturer, it shows that each group can adequately arrange the project schedule according to the project target.

The sixth step is to oversee the work process and the project's progress. At this stage, the lecturer is assisted with an evaluation instrument for the implementation process and project progress carried out by each group. Each group submitted the results of the progress of each step of the project to the Bengkulu University e-learning, namely on the <https://elearning.unib.ac.id/> page. The results of the lecturer's supervision activities on the process and project progress show that each group actively carries out the project stages and reports each project's progress at <https://elearning.unib.ac.id/>. Even in this case, the lecturer must always remind each group via WhatsApp.

The seventh step is evaluating the results of the project with group presentations. At this stage, previously each group had submitted project results reports and presentation materials at <https://elearning.unib.ac.id/> so that the project results reports could be assessed via <https://elearning.unib.ac.id/> and later will be delivered in classroom. The presentations from the five groups were done utilizing group discussions in which each group presented according to a predetermined time, where each group was given 25 minutes. The results of group presentations showed that students were able to compile research instruments of classroom discourse analysis starting from 1) making oral discourse transcriptions into written texts; 2) preparation of the guidelines for classroom discourse text analysis in the form of work analysis tables and coding; and 3) preparation of interview guidelines. It is just that some groups still experience errors in transcribing oral discourse, especially in using punctuation and writing words. Then, in preparing interview guidelines, interview questions were still not aligned with the indicators that should be asked. After all the group presentations, the lecturer gave awards to each group by giving prizes in the form of stationery made in the form of gifts from the first best order to the fifth best order. At this stage of giving prizes, it was seen that all students were happy and touched by the achievements of the projects they had achieved in a solid team.

The eighth phase is to assess experiences through individual and group reflection. The lecturer evaluates the learning experience at this stage by providing opportunities for each individual and group representative to provide testimonials on their learning experiences through projects such as compiling classroom discourse analysis instruments. Consequently, each comprehends the process of developing research instruments of classroom discourse analysis even though testimonies from group representatives indicated that some group members were not working optimally. To overcome this problem, the lecturer reinforces to students that the joint commitment of each group member determines success in project work. If there are members who experience problems, the other members help each other, and the role of the team leader also determines the success of a project.

Using the project-based learning method, the eight learning steps are carried out for six offline meetings assisted by PowerPoint media and the University of Bengkulu e-learning media. Since there are only 2 credits for each meeting, face-to-face meetings are 2x50 minutes, namely 100 minutes, 2x60 minutes for independent assignments, and 2x60 minutes for structured assignments. **The first meeting** was carried out specifically for steps 1) group formation, 2) material reinforcement, and 3) determining the fundamental questions that result in an invention or product. **The second meeting** is for steps 4) preparing the project plan and 5) preparing the project schedule. **The third and fourth meetings**, step 6) oversee the project work and progress process. **The fifth and sixth meetings** are 7) assessing project results with group presentations and 8) evaluating experiences through individual and group reflection. Implementing the project-based learning method takes a long time, and the lecturer as a facilitator must accompany each group at each stage and constantly remind the work team leader to complete the project according to a predetermined schedule.

## 2. Results of Pre-Test and Post-Test Score

The pre-test and post-test scores of students' ability to construct discourse analysis research instruments are as follows.

**Table 1.** Pre-Test and Post-Test Scores of Students' Abilities in Compelling Discourse Analysis Research Instruments

No.	Respondent	Pre-Test Score	Post Test Score
1	AM	74	84
2	AA	75	85
3	DS	72	82
4	DZ	74	82
5	DF	73	83
6	EL	75	85
7	EA	74	80



8	FR	74	84
9	KS	73	83
10	KH	74	84
11	LA	70	81
12	NE	78	86
13	NF	74	84
14	RP	73	84
15	SA	72	82
16	WF	71	81
17	YP	75	84
18	LK	74	81
19	WI	70	82
Mean		73,42	83

The table above shows that students' scores in composing research instruments of classroom discourse analysis increased from the pretest with an average score of 73.42 to 83 in the post-test. The increase in student scores in composing research instruments of classroom discourse analysis from the pre-test to the post-test was 9.57 points. This increased ability is due to the provision of action in the form of project-based learning methods in learning to compose research instruments of discourse analysis for classroom students of the Indonesian Language Education Masters Study Program. The abilities that students have mastered in preparing research instruments of classroom discourse analysis in composing instruments are 1) researchers in making oral discourse transcriptions into written texts, 2) guidelines for classroom discourse analysis in the form of work analysis tables and coding, and 3) interview guidelines.

### 3. Prerequisite Analysis Test Results

The results of the normality test using SPSS 24 from the pre-test and post-test data on the ability to compose research instruments of classroom discourse analysis show that the research data is usually distributed with a significance value of 0.116 pre-tests greater than 0.05 and a post-test value of 0.345 greater than 0.05. The results of research data that are typically distributed can be shown by the Shapiro-Wilk test using SPSS 24 as follows.

**Table 2.** Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Score_Pretest	.199	19	.046	.921	19	.116
Score_Posttes	.204	19	.037	.947	19	.345

a. Lilliefors Significance Correction

#### 4. Paired Sample T-Test Results

The results of the t-test with the Paired Sample T Test were assisted using SPSS 24 with the results of the Sig. (2-tailed) of 0.00 is less than 0.05, indicating a significant effect of project-based learning methods on the ability to construct discourse analysis research instruments for Indonesian Language Education Masters Program students. The following are the results of the Paired Sample T Test with SPSS 24.

**Tabel 3.** Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	Pre-Test Score	-9.57895	1.42657	.32728	-10.26653	-8.89137	-29.269	18	.000
	Post-Test Score								

#### Discussion

The results showed a significant effect of the project-based learning method on the ability to construct discourse analysis research instruments for Indonesian Language Education Masters Study Program students. The influence is indicated by the Sig value (2-tailed) of 0.00 is smaller than 0.05. For this reason, in this experimental study, the research hypothesis was accepted by rejecting  $H_0$  and accepting  $H_a$ . There were differences in the ability to construct classroom discourse analysis research instruments before and after being given project-based learning methods. The results of this study explain that the project-based learning method is not only able to improve students' critical thinking skills (Nasobandi, 2022; Suteja & Setiawan (2022); Umam & Fauziah (2022); Seftiani, et al. 2021), but also has an impact on students' abilities in compiling research instruments of classroom discourse analysis.

The application of project-based learning methods carried out by lecturers in learning to compose discourse analysis research instruments has been maximally carried out by following the steps proposed by Fatmawati (2018), Okyranida (2020), Mulyasa (2014), Abidin (2016), Fancher (2019), Krauss & Boss (2018), including 1) group formation; 2) material reinforcement; 3) determining the fundamental questions that result in an invention or product; 4) preparing project planning; 5) prepare a project schedule; 6) overseeing the process of work and progress of the project; 7) assessment of project results with group presentations; and 8) evaluation

of experiences through individual and group reflection. These eight steps were carried out during six meetings conducted offline, assisted by PowerPoint media and University of Bengkulu e-learning media.

Students have mastered developing discourse analysis research instruments, namely 1) researchers in making oral discourse transcriptions into written texts, 2) developing guidelines for classroom discourse analysis in the form of work analysis tables and coding, and 3) developing interview guidelines. With students able to compile research instruments as part of the research process that functions as a data collection tool, students' research abilities will also be good (Triwidayati, 2018). In addition, the scientific level of research depends on whether or not the research instruments are compiled, so it is hoped that students conducting research will produce scientific research that contains novelty values (Tamah & Lie, 2019).

Research instruments of classroom discourse analysis compiled by a small number of students were still lacking, namely when transcribing spoken discourse into writing, especially the use of punctuation marks and common words, composing guidelines for classroom discourse analysis text in the form of work analysis tables and coding, as well as interview questions that still do not match the indicators asked. The weaknesses of these students in making indicators of aspects will be analyzed based on the research problem formulation set. It is hoped that the concept-strengthening process will be clarified in the future, and additional time will be needed in the project implementation process. In addition, lecturers should be maximized the project learning process at the stage of supervising the project work process and progress by providing reinforcement and awards so that students better understand the process of preparing text analysis guidelines (Fatmawati, 2018; Okyranida, 2020; Mahfud & Zaenuddin, 2018; Aini, Suandi, & Nurjaya, 2019).

## **Conclusion and Suggestion**

The results showed a significant effect of the project-based learning method on the ability to construct discourse analysis research instruments for Indonesian Language Education Masters Study Program students. The influence is indicated by the Sig value (2-tailed) of 0.00 is smaller than 0.05. The ability to develop discourse analysis research instruments that students have mastered are composing written text transcripts, guidelines for documentation analysis and coding, and composing checklists.

Based on the findings of this study, project-based learning may be employed as one of the learning strategies, particularly in material that generates works or products. As a result, lecturers at the Indonesian Language Study Program can apply project-based learning approaches in other areas that are creative or at the C-6

thinking ability level: creating. In addition, in implementing the project-based learning method, it is necessary to provide intensive assistance by lecturers and provide awards at each stage.

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