

## The Implementation of Discovery Learning in EFL Writing Classroom

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### ABSTRACT

Discovery learning is one of the teaching methods implemented in the 2013 curriculum. However, there has not been much discussion regarding how to implement discovery learning in the realm of English learning. Hence, this research aims to scrutinize the implementation of discovery learning to develop students' writing skills. To achieve the goal, qualitative research in form of case study design was employed, involving classroom observation as the data collection technique. The data were obtained from the third graders in in one of senior high schools and analyzed inductively. The results showed that all stages of discovery learning were carried out through stimulation, problem statements, data collection, data processing, verification and generalization. However, it was found that through the implementation of discovery learning, there were students who were passive in the class and not engaged. Teachers need to consider the ways how to attract students' interest in discovery learning for example by using multimodal sources such as giving more videos and pictures. The pedagogical implications of these findings will be discussed.

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## 1. INTRODUCTION

The discovery learning method has many benefits for student's learning capacity. First, this method makes students active in class, students learn not only by listening or reading the material provided, but students learn actively in class (Mosca & Howard, 1997). In addition, students are also active in expressing their thoughts in strengthening learning concepts so that students' self-confidence unconsciously increases (Febrian & Astuti, 2018). Second, Students solve problems by seeking new knowledge and providing solutions based on data processing. Students learn new information by seeing how it can be applied to challenges in their daily lives (Burns & Ellis, 1970; Saab et al., 2005). Third, the contrivance learning method makes students feel happy and satisfied when students participate in experiments, because they help each other with what they do, experience, and discuss with other students (Erdal & Ongel, 1993). Fifth, the discovery learning method helps students understand the basic principles and organization

of the scientific field, as well as the need for student participation in their own education (Nurdiansyah & Fahyuni, 2016). Lastly, due to their independence and capacity to independently investigate more complex problems, discovery learning methods help students better apply the knowledge they have acquired to various contexts (Klahr & Nigam, 2004). In short, students participate actively, pleased, comprehend, independent, more confident, and directly solve problems using discovery learning methods. Because the learning process involves contemplation, ideas, investigation, and observation, students actively seek new information.

However, some of the issues that might arise while using discovery learning techniques. First, the instructor still mostly uses the lecture and assignment techniques and has not completely included active and creative learning in immersing pupils (Yuliana; 2018). Second, instructors and students still struggle to comprehend and use this technique correctly (Khasinah; 2021). Third, in order to focus on what they have learned, students need to be able to keep track of the procedures they have learnt (Case, 1998; Kirschner et al, 2006). Fourth, the utilization of discovery learning techniques in the classroom is hampered by the present school system, which includes standardized testing, class sizes, curriculum, and grade levels. (Mussa; 2021). Fifth, the majority of students and teachers only use verbal information, and prior studies did not employ any specialized listening techniques, such as discovery learning, which is thought to be an effective technique. Despite this, listening pedagogy has not used these techniques frequently (Anderson et al., 2018; Kobayashi, 2012; Yang & Wu, 2012). Finally, tales about discovery learning in the setting of English as a foreign language that include the viewpoints of instructors and students are very uncommon in digital listening research (Budianto, Azmi, Putera : 2021). The conclusion is that there are still issues with integrating the discovery learning technique in education.

The Discovery Learning Model is a way to learn to understand concepts, meanings, and relationships through an intuitive process for finally coming to a conclusion, Budiningsih (2005:43). The discovery learning model has its own characteristics, so differences with other learning models can be found. Here are the three main characteristics of learning with discovery learning, namely: exploring and solving problems to create, combining and generalizing knowledge, learner-centered, and activities to combine new knowledge and already available knowledge. Then, This discovery method is a component of the education implementation as heuristic learning, namely a learning model consisting of methods designed to make process-oriented students being active: leading by them, finding by them, and making their own reflections during their learning activities. Bruner (1961) suggests that the students learn through active participations using concepts and principles in order to get knowledge. It is necessary for students to make some discovery with the belief that a true learning is through personal discovery. Hosnan (2014) describes the steps in discovery learning as: 1) giving a stimulus; 2) identifying problems; 3) collecting data; 4) processing data; 5) verifying, and 6) making conclusions.

Many previous studies have been conducted regarding the topic of Discovery learning. Some of them (Touran Ahour, 2015; Palupi, 2015; Hasibuan, 2018) focus on emphasis is on the considerable influence and impact of using the discovery learning approach on students' speaking ability to attract students' curiosity and stimulate them to engage and participate in speaking English. A study (Leili Darakhani, 2020) focuses on the connections among controlled discovery learning, personality characteristics, and developing self-confidence in speaking. Another researcher (Vajarwati, 2022) focused on the objective, material, phase, and analysis of teaching speaking skills employing a discovery learning approach. The study (Zauma, 2021; Pirdayanti, 2022) focused on the impact of video-based & audio-visual media learning on the speaking skills of young learners. Then some researchers (Priyanka, 2021; Rasyid, 2021) focus on the accuracy and efficiency of the discovery learning model design in improving

understanding of speaking skills and pronunciation concepts. On a different aspect, the research (Wahyudi, 2019; Batubara, 2019; Fahmi, 2019; Wati, 2020) focuses on creating discovery-based speaking evaluations to promote and teach learners the ability to think critically and innovate. Some researchers (Krisnawati, 2015; Sofeny, 2017; Sarimanah & Suhendra, 2019) focus on applying discovery learning approaches to improve extrovert and introverted pupils' verbal script writing abilities. The study (Simamora, 2018; Purwaningsih, 2020) focused on the impact of discovery learning on pupils' problem-solving abilities. Students' problem-solving abilities and personalities improved dramatically. A study (Nadira Saab, 2005) concentrates on application to determine which communicative actions are commonly utilized in the educational discovery process. Another study (Efrini, 2016) investigates the application of the discovery learning approach using a scientific methodology. Therefore, much research is being done on the discovery learning method.

Much research covers Discovery Learning to improve students' critical thinking in listening, speaking, reading, and writing, the many studies mentioned above. Yet, there is currently limited study on how to make students more involved in the class. Many students become inactive in courses due to difficulties in comprehending and applying this strategy appropriately. The researcher must undertake the following investigations, each with a different topic; The objective of this research is to investigate how Discovery Learning is implemented in the teaching writing.

## **2. METHOD**

In this chapter the researcher provides the research methodology of the study. This chapter will also present about research design, research site and participant, instruments, and data analysis.

### **Research Design**

This research was guided by Creswell (1998) because it aims to uncover the hidden meaning within a process or circumstance as perceived and interpreted by people. The study falls under the category of qualitative research because it examines phenomena in their natural settings while attempting to comprehend or interpret them regarding their significance for society (Denzin&Lincoln, 2004). According to Peshkin (1993), Qualitative research is expected to shed light on the nature of a situation; the method is meant to help develop fresh ideas and concepts and recognize issues in particular circumstances. Meanwhile, (Mason, 2002) states that the goal of qualitative research is to be able to investigate different facets of social processes in institutions, discourse, or working relationships, as well as the importance of the meanings that are produced.

Based on the classification of research design, this study falls under the category of a case study because, for certain aspects, this research's characteristics are comparable to those of the case study. First, the case study established qualitative method research (Stake, 2000). Second, a case study is defined as a phenomenon that takes place in a specific setting (Miles & Huberman 1994). Thirdly, a case study aims to get as much detailed information as possible about an occasion, person, or procedure (Baboucarr & Soaib, 2014). Fourth, help explain why some external and internal elements are significant or insignificant predictors of a learning process, according to the fourth point (Yin, 2003). Last, the next step is the study of situations occasionally through in-depth data collection using various rich informational sources (Merriam, 1998). This research resembles a case study because of some qualities listed above.

### **Research Site & Participation**

For numerous reasons, a public senior high school in Garut was chosen as the research location. This institution is one of the most popular schools accredited by A. This school was selected for the study project because it meets the requirements for research and has been using the Discovery Learning approach since the 2013 curriculum was implemented.

Purposive sampling was used to recruit thirty-three students for this investigation. This class was picked because it fit the research requirements after viewing the lesson plan in which this class was one of the courses that will be treated using the Discovery Learning approach.

### **Instrumentation/Data collection**

In this study, observation teacher-researcher and semi-structured interviews were chosen. The use of observation teacher-researcher to observe, investigate and describe an event that takes place in actual life without any subtractions and modifications to a specific population as well as identify and verify interview data (Padmawati, 2021). The tools aim of semi-structured interviews to promote depth and vitality while facilitating the emergence of new concepts whose research validity will be strengthened by gathering data with a wealth of explanation and analysis (Hussey and Hussey, 1997; Dearnley, 2005). The interview was only conducted once in this case. Which attempts to conduct in-depth research based on source comprehension to design large-scale surveys, confirm a viewpoint for it to be validated, and develop an overall research strategy (Adams, 2015).

This study used diagnostic tests to analyze and determine how effectively participants grasp a material beyond what they already know after receiving treatment. In this case, the value is determined by the post-test probability in comparison to the pre-test possibility; an effective diagnostic test result has a high post-test possibility when the pre-test possibility is low (Kim & Jeon, 2019 ). In the study (Gurung, Makineli, Spijker, & Leeflang, 2020 ) diagnostic tests are used to determine how accurate the treatment is for participants who have varied understanding conditions of a material; this test compares the findings of the first test to the results of the last test taken. The diagnostic test also assesses sensitivity and specificity:

- Sensitivity is the number of correctly categorized diagnostic test studies divided by the total number of diagnostic test trials to calculate sensitivity.
- Specificity was evaluated as the number of non-labeled non-diagnostic test studies divided by the total number of non-diagnostic test studies.

### **Data Analysis**

This qualitative data were analyzed using inductive analyzing, a qualitative research technique for categorizing data based on themes that arise from the raw data (Hsieh & Shannon, 2005; Thomas, 2006). While numerous past studies have concentrated on various themes, inductive analysis is appropriate for this study (Thomas, 2006). We chose this technique due to the scarcity of research on the benefits of adopting Discovery Learning to promote in teaching writing.

We conducted our analysis in two stages: a descriptive stage and an interpretive stage. At the descriptive stage, we aimed to ascertain what the participants comprehended and noted. Then, using several categories of student answers findings, we retrieved and organized the answers. Data identification and management are made simpler by this approach. Focusing on interpretive coding pertinent to the study question is also helpful. At the interpretive stage, our goal is to evaluate the intentions and implications of participants in each category. As part of this phase, we read each answer sheet from the study that had been done and created brief phrases to express the interpreted meaning of specific statements (Elo, 2008). New codes are developed and updated as new substances are discovered. Then an interpretative code list is

created to code all response sheets. The aim is to define the main character, which the participants frequently author. Three categories of interpretive codes are used; the lower, middle, and upper groups. They are evaluated based on the appropriateness of the language and grammar used in their written responses. We computed the average score as a final step to establish how well each participant understood.

### 3. RESULTS AND DISCUSSION

Research findings and discussion of this study are presented in this section.

#### Results

As the research findings, there are six stages which has been implemented on March 08, 2023, in one of the classes at the third level, of high school in Garut.

#### Stimulation

In the stimulation stage, learning has been carried out by starting to ask questions about offering help. This question is intended to find out students' prior knowledge about the metric to be given. The teacher says "Okay kids I want to ask you, have you ever helped your friends who are having difficulties? Well, if you want to help your friend, what expression do you use to offer help?".



*Figure 1 The figure above shows that students are in the stimulation stage, where the teacher provides a stimulus by asking students about the material to find out their prior knowledge.*

#### Problem Statement

At the problem statement stage, students are given a short video providing opportunities for students to identify problems related to the material of offering help. After that, students are asked to make a temporary answer regarding the conclusion of the video that students have seen. The teacher says "What expressionn can we use to offer or respond to help based on the video you have watched?".



*Figure 2 The figure above shows that students are in the problem statement stage, where the teacher provides a video about the material to be discussed, and after that, the teacher asks students what they can conclude from the video they have seen.*

### **Data Collection**

At the data collection stage, it was carried out by giving a mini-test to all students to work on the questions that had been given about offering help. This mini-test is given to prove whether the students' answers are correct or not. The teacher said "Okay children, now I want you to try to work on the questions that I have written, you have to fill in the expression offering help or the expression accepting or rejecting the offer of help that is still empty in the dialog. Come on, who wants to try first?".



*Figure 3 The figure above shows that students are in the data collection stage, where the teacher provides stimulus and material through the problem statement stage. The teacher gives a mini-test to find out how well students can capture the material they have learned.*

### **Data Processing**

At the data processing stage, it has been carried out to analyze the data by inviting discussions with students related to the material of expressions offering and responding to assistance. If there have misunderstandings among students, then the teacher's job is to straighten and explain again so that students understand well. In addition, the teacher's job is to ask about what has been the difficulty of students in learning the material and if students have difficulties, the teacher's job is to help students overcome these difficulties. The teacher says, "So children, what are some expressions we can use when we want to offer our services to people who need help?".



*Figure 4 The figure above shows that students are in the data processing stage by discussing, after which the teacher analyzes the knowledge that students have discovered and straightens out students' understanding if there is a misunderstanding of the material they have learned by providing an explanation*

### **Verification**

In the verification stage, it has been started by giving examples of dialogues to ensure students' understanding of the material that students have found by analyzing the dialogues. The teacher has given an example of accepting and refusing help, then the teacher says "What response is given in the dialog to accept or refuse help?".



*Figure 5 The figure above shows that students are in the verification stage, where the teacher gives an example of dialogue and asks students to analyze the dialogue. This stage aims to determine whether students understand or not the material that has been given.*

### **Generalization**

At the generalization stage, it has been carried out asking students to be able conclude by developing verification results based on their understanding of the material that has been found during the learning process. The teacher said, "Okay kids I ask so what did you get from today's material?".



*Figure 6 The figure above shows that students are in the last stage, which is generalization, where the teacher asks students to conclude their understanding of the material that they have found. After that, the teacher also provides conclusions to clarify the students' understanding.*

## **Discussion**

### **Stimulation**

From findings above, it is seen that this stage was done the teacher poses several questions regarding delivering assistance to start learning and connecting students' prior

knowledge during the stimulation stage. This is consistent with Bruner's (1986) idea of the stimulation stage, which states that teachers begin teaching and learning activities by asking questions that lead to preparedness for problem-solving. Stimulation at this stage is intended to encourage students to become more active in their exploration of the content. At this point, some pupils can answer the teacher's questions smoothly, while others continue to struggle. The function of this stage is to supply learning interaction conditions which can develop and help students in exploring material. Then, previous studies (Touran Ahour, 2015; Palupi, 2015; Hasibuan, 2018) focus on emphasis is on the considerable influence and impact of using the discovery learning approach on students' speaking ability to attract students' curiosity and stimulate them to engage and participate in speaking English. In this case, Bruner (1960) in Mendikbud (2013) provides stimulation by using the questioning technique. Asking questions to the students can expose students to the internal conditions which encourage their exploration. The teacher asks the students a question for example " Have you ever helped your friends who are having difficulties? or "if you want to help your friend, what expression do you use to offer help?".

### **Problem statement**

From the findings above, it can be seen that this stage, is in accordance with the theory of Bruner's problem statement stage (1986), where the teacher provides opportunities for students to identify difficulties with the learning material. The teacher gives students the opportunity to see the video that has been given. Then, the teacher asks students to remember what expressions are said when offering or responding to help friends. The teacher also asks the students to make a reason why they chose it. Finally, students write a problem statement, meaning their problem describes an activity or a place. This stage serves to provide opportunities for students to identify as many problem agendas as possible related to the material, then choose one of them and arrange it in the form of a hypothesis. As in the previous study, A problem statement is chosen and then formulated in the form of a question or hypothesis, i.e. a statement as a temporary answer to the questions proposed, after providing the student with the opportunity to identify as many agendas as possible that are relevant to the lesson material (Syah 2004: 244). According to a previous study (Rodriguez, 2016), the problem statement plays an essential role because it can assist focus a more coherent and directed investigation in circumstances where there is little evidence, allowing the investigation to undertake an effective analysis. The problem statement will outline the basic facts of the problem: what took place, when it took place, where it unfolded who observed the event, how it became known, how much the scale of the problem is, and why the problem is crucial.

### **Data Collection**

From findings above it is seen that this stage was done through during the data collection stage, the teacher assigns a test to pupils, who work on it in groups with their peers. This can provide pupils with possibilities to gain information based on their understanding. This is consistent with Bruner's (1986) data collection theory, in which students undertake experiments or explorations while the teacher provides opportunities for students to get as much relevant information as possible to check whether or not the hypothesis is accurate. Some students had trouble filling out the test at this point because they did not grasp the topic. Then, previous studies (Syah, 2004: 244) The teachers provide the students the chance to gather as much relevant data as they can to support the hypothesis, whether it is true or not, while the exploration is still underway. At this point, the validity of the hypothesis itself will be



determined by the responses to the hypothesis-related questions. Learning in groups, on the other hand, can make kids more active, according to one of the students, who think:

*“Pendapat saya pribadi, kegiatan berkelompok dalam kelas dapat menjadi pengalaman yang bermanfaat dalam pembelajaran bahasa Inggris. Berkelompok memungkinkan siswa untuk berinteraksi dengan teman sekelas dalam konteks bahasa Inggris yang nyata dan relevan. Dalam kelompok, siswa dapat berlatih berbicara, mendengarkan, membaca, dan menulis dalam bahasa Inggris dengan saling mendukung dan berbagi pengetahuan. Selain itu, berkolaborasi dengan orang lain dalam kegiatan berkelompok dapat meningkatkan motivasi dan keterlibatan siswa dalam pembelajaran. Hal ini juga dapat memperluas pemahaman siswa tentang budaya dan perspektif yang berbeda melalui interaksi dengan teman sekelas yang berasal dari latar belakang yang beragam.”*

The function of this stage is to answer the questions or to prove whether a hypothesis is right or no, so that students are given a change to collect many relevant information, read literature, observe objects, interview, and do experiments.

### **Data Processing**

From findings above it is seen that this stage was done through at the data processing stage, the teacher asks students to write answers on the board and then discuss them together. After that, if there are errors in the answers that students write, the teacher straightens and gives a brief explanation. This is in line with Bruner's theory (1986) regarding the data processing stage, which is an activity that involves analyzing the data and information received by students and then interpreting it. At this stage, there are still some errors in the answers from students and also, some students are still not brave enough to write their answers on the blackboard for fear of being wrong. Learning by involving all students to participate in discussions can help make learning easier, this is by the opinions of students, who think:

*“Sesi diskusi dengan teman dapat sangat efektif dalam memfasilitasi pembelajaran. Melalui diskusi, siswa memiliki kesempatan untuk berbagi ide, pemahaman, dan sudut pandang mereka tentang topik yang sedang dipelajari. Diskusi juga dapat membantu siswa melihat berbagai perspektif dan mendapatkan wawasan baru. Selain itu, berdiskusi dengan teman juga dapat membangun keterampilan komunikasi, kerja sama, dan pemecahan masalah. Namun, penting untuk memastikan bahwa diskusi tersebut terarah, termoderasi dengan baik, dan melibatkan partisipasi aktif dari semua anggota kelompok agar efektif.”*

Data processing is also known as coding or categorization, which serves as concept formation and generalization. From these generalizations, students will gain new knowledge about alternative answers or solutions that need to be logically proven. Then, the previous study (Djamarah, 2002: 22) All information gathered from readings, interviews, observations, and so on will be processed, randomized, classified, and tabulated, even if it is calculated in a certain way and interpreted at a given confidence level.

### **Verification**

From findings above it is seen that this stage was done through in the verification stage, the teacher provides several examples of dialogs about offering help, including accepting help and declining help. In this stage, the teacher asks students to be able to distinguish and classify which sentences include accepting and declining. This is in line with Bruner's theory (1986) regarding the verification stage, where students conduct a careful investigation to determine whether or not the hypothesis is proven based on the results of data processing. At this stage students can distinguish well which parts include offering, declining or accepting help. According to Bruner, verification has purpose in order learning process would run well and creative if teacher gave a change to students to discover a concept, theory, rule or

comprehension through the example of their daily activity. According to the previous study (Schmidt, A. Et, al., 2013) the verification stage will aid the data that was already gathered to be beneficial and focused on the reliability of each data item, where the results will indicate the verification of data findings, thus increasing the possibility of validity. Verification data provides the necessary details to confirm the accuracy of the information with the same level of security as all other verification data.

### **Generalization**

From findings above it is seen that this stage was done through at the generalization stage, the teacher asks students to be able to conclude about their understanding of the material that has been obtained and the teacher's task here is to reinforce the conclusions that students have made. This is in line with Bruner's theory (1986) regarding the generalization stage, students draw conclusions that can be used as general principles and apply them to similar events or situations by considering the results of verification. Then, in line with previous study (Wahyudi, 2019; Batubara, 2019; Fahmi, 2019; Wati, 2020) focuses on creating discovery-based speaking evaluations to promote and teach learners the ability to think critically and innovate. The basic concept of generalization is then determined based on the results of verification. Learning by formulating material according to students' perceptions can be carried out effectively, this is by students' opinions that:

*“Ya, cara pembelajaran yang mendorong siswa untuk merumuskan atau menyimpulkan materi baru yang mereka temukan dapat menjadi efektif. Proses merumuskan atau menyimpulkan materi memungkinkan siswa untuk secara aktif terlibat dalam pembelajaran dan mengembangkan pemahaman yang lebih mendalam. Dengan meminta siswa untuk merumuskan atau menyimpulkan, mereka harus memproses informasi, mengorganisasi pikiran mereka, dan mengungkapkannya dengan kata-kata mereka sendiri. Hal ini dapat membantu memperkuat pemahaman mereka dan memperdalam konsep yang dipelajari.”*

## **4. CONCLUSION**

Based on the findings of this study, it can be deduced that the teacher implemented discovery learning through all stages, namely stimulation, problem statements, data collection, data processing, verification, and generalization. However, during the practice at the stimulation stage, children still appear passive, so this is contrary to the concept of discovery learning. With notes, the teacher is expected to pay attention to the methods or strategies so that the child is not passive in stimulation by involving multiple multimodal sources such as gestures, audio, video, and photos. So that learning in class is more meaningful.

## **REFERENCES**

- Adams, W. C. (2015). Conducting Semi-Structured Interviews. *Handbook of Practical Program Evaluation*.
- Asimiran, B. N. (2014). Case Study as a Choice in Qualitative Methodology .
- Batubara, I. H. (2019). Improving Student's Critical Thinking Ability Through Guided Discovery Learning Methods Assisted by Geogebra. *International Journal for Educational and Vocational Studies*.
- Creswell, J. W. (2007). Second Edition QUALITATIVE INQUIRY & RESEARCH DESIGN Choosing Among Five Approaches.
- David Chan & Neal Schmitt, J. M. (1998). Understanding Pretest and Posttest Reactions to Cognitive Ability and Personality Tests.
- Dearnley, C. (2005). A reflection on the use of semi-structured interviews . *Nurse Researcher*.
- Denzin, N. &. (2004). Handbook of Qualitative Research.
- Diyah Kusuma Wati, A. Y. (2020). The Influence of Collaboration of Discovery Learning and ARIAS on Students' Critical Thinking Abilities. *Journal of Primary Education*.
- DR, T. (2006). A general inductive approach for analyzing qualitative evaluation data. *Am J Eval*.

- E. Purwaningsih, S. P. (2020). THE EFFECT OF STEM-PjBL AND DISCOVERY LEARNING ON IMPROVING STUDENTS' PROBLEM-SOLVING SKILLS OF THE IMPULSE AND MOMENTUM TOPIC. *Jurnal Pendidikan IPA Indonesia* .
- Efrini, M. (2016). DISCOVERY LEARNING METHOD BASED ON SCIENTIFIC APPROACH IN CURRICULUM 2013 IN TEACHING ENGLISH AT SENIOR HIGH SCHOOL.
- Elo S, K. H. (2008). The qualitative content analysis process. *J Adv Nurs*.
- Eri Sarimanah, F. I., & Suhendra, M. N. (2019). THE IMPLEMENTATION OF DISCOVERY LEARNING MODELS IN ENHANCING SPEECH SCRIPT WRITING SKILLS FOR STUDENTS. *Lingua Cultura*.
- Fahmi, I. S. (2019). DISCOVERY LEARNING METHOD FOR TRAINING CRITICAL THINKING SKILLS OF STUDENTS. *European Journal of Education Studies*.
- Fathi Falaha Zauma, S. A. (2021). The Effectiveness of Discovery Learning Model using Audio-Visual Media. *Journal of Primary Education*.
- Geer, J. g. (1991). DO OPEN-ENDED QUESTIONS MEASURE "SALIENT" ISSUES? .
- Gurung, P., Makineli, S., Spijker, R., & Leeflang, M. (2020) . The Emtree term “diagnostic test accuracy study” retrieved less than half of the diagnostic accuracy studies in Embase . *Journal of Clinical Epidemiology* 126.
- Hasibuan, N. O. (2018). THE EFFECT OF APPLYING DISCOVERY LEARNING MODEL ON THE STUDENTS' SPEAKING ACHIEVEMENT.
- Kim, R., & Jeon, B. (2019) . Science of performing diagnostic tests . *Parkinsonism and Related Disorders*.
- Krisnawati, E. (2015). THE IMPLEMENTATION OF TEACHING WRITING USING DISCOVERY LEARNING TO THE EIGHTH GRADE STUDENTS AT SMPN 1 GROGOL IN ACADEMIC YEAR 2014/2015.
- Leili Darakhani, P. R. (2020). Investigating Guided Discovery Learning and Personality Traits; Focusing on Speaking Confidence. *Language and Translation*.
- Luh Mitha Priyanka, I. N. (2021). Preview-Review Bilingual Instructional Tools Development with Discovery Learning Model Setting to Enhancing Student's Conceptual Understanding and Speaking Ability.
- Mason. (2002). Qualitative Researching.
- Merriam, S. B. (1998). Qualitative research and case study applications in education: Revised and expanded from case study research in education. .
- Miles, M. B. (1994). Qualitative data analysis: An expanded source book.
- Nadira Saab, W. R. (2005). Communication in collaborative discovery learning. *British Journal of Educational Psychology* .
- Ni Putu Ayu Pirdayanti, P. K. (2022). The Impact of Videos Based Discovery Learning Towards Young Learners' Speaking Skill During Pandemic Covid-19. *Jurnal Pedagogi dan Pembelajaran*.
- Padmawati, R. S. (2021) . Observasi atau Observasi Partisipasi dalam Penelitian.
- Palupi, D. (2015). THE EFFECT OF DISCOVERY LEARNING ON THE STUDENTS SPEAKING ABILITY OF THE TENTH GRADE AT SMKN 2 KEDIRI ACADEMIC YEAR 2014/2015.
- Peshkin. (1993). The Goodness of Qualitative Research. . *Educational Researcher*.
- Roni Wahyudi, D. R. (2019). Developing Discovery Learning-Based Assessment Module to Stimulate Critical Thinking and Creativity of Students' Speaking Performance. *English Education Journal*.
- Rustam E. Simamora, S. S. (2018). Improving Students' Mathematical Problem Solving Ability and Self-Efficacy through Guided Discovery Learning in Local Culture Context. *INTERNATIONAL ELECTRONIC JOURNAL OF MATHEMATICS EDUCATION*.
- Shannon, H. &. (2005). Three approaches to qualitative content analysis. *Qual Health Res*.
- Sofeny, D. (2017). THE EFFECTIVENESS OF DISCOVERY LEARNING IN IMPROVING ENGLISH WRITING SKILL OF EXTROVERTED AND INTROVERTED STUDENTS. *Jurnal Penelitian Humaniora*.
- Touran Ahour, L. M. (2015). THE IMPACT OF FORM FOCUSED DISCOVERY APPROACH ON EFL LEARNERS 'SPEAKING ABILITY. *Modern Journal of Language Teaching Methods*.
- Tuckman, B. W. (1993). The Essay Test: A Look at the Advantages and Disadvantages .
- Vajarwati, I. (2022). THE IMPLEMENTATION OF TEACHING SPEAKING SKILL THROUGH DISCOVERY LEARNING METHOD.
- Yin, R. (2003). Case study research: Design and methods. 3rd ed. .
- Yulianti Rasyid, H. S. (2021). The Effect of the Discovery Learning Method On Students' Learning Results Understanding Speaking Materials. *Advances in Social Science, Education and Humanities Research*.