



## Implementation of the Discovery Learning Model-Based Critical Thinking Skills in Thematic Learning at SDIT Al-Khairiyah

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### Abstract

Critical thinking skills are one of the skills that elementary school students must possess. SDIT Al-Khairiyah differs from other schools since it has applied critical thinking skills using the discovery learning model. For this reason, the researchers are interested in researching this school to learn more about applying the discovery learning model based on critical thinking skills. This study thus aims to examine (1) planning, (2) implementation, and (3) evaluation of the implementation of the discovery learning model based on critical thinking skills in the thematic learning of class VB SDIT Al-Khairiyah. The method used was qualitative research, and the data used in this study were obtained through interviews with several sources (principal, teachers, and students), non-participatory observation, and documentation. The results of this study indicated that (1) the teacher prepared lesson plans by considering the characteristics of students and class conditions according to the stages of the discovery learning model. Teaching materials were adapted from learning objectives and learning media used, and then students' worksheets were adapted from student books. (2) The implementation of the discovery learning model included stimulus, problem identification, data collection, data processing, evidence, and conclusions. (3) Class VB students seemed to have critical thinking skills. The characteristics that appeared in students consisted of logical and analytical thinking, having perspectives, actively asking questions, and having curiosity. These results can be examples of good practices to develop critical thinking skills using appropriate methods in elementary schools.

### Keywords:

Critical Thinking Skills, Discovery Learning Model, Elementary School

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## Abstrak

Keterampilan berpikir kritis merupakan salah satu keterampilan yang harus dimiliki peserta didik sekolah dasar. SDIT Al-Khairiyah berbeda dengan sekolah-sekolah lain karena sudah menerapkan keterampilan berpikir kritis dengan menggunakan model discovery learning. Untuk itu peneliti tertarik meneliti di sekolah ini, guna mengetahui lebih dalam proses penerapan model discovery learning berbasis keterampilan berpikir kritis. Penelitian ini bertujuan untuk mengetahui (1) Perencanaan, (2) Pelaksanaan, dan (3) Evaluasi dari pelaksanaan model discovery learning berbasis keterampilan berpikir kritis pada pembelajaran tematik kelas VB SDIT Al- Khairiyah. Metode yang digunakan dalam penelitian ini yaitu penelitian kualitatif. Data yang digunakan dalam penelitian ini melalui wawancara dengan beberapa narasumber (kepala sekolah, guru dan peserta didik), observasi nonpartisipatif, dan dokumentasi. Hasil dari penelitian ini yaitu (1) guru menyusun RPP dengan memperhatikan karakteristik siswa dan kondisi kelas yang disesuaikan dengan tahapan model discovery learning. Bahan ajar disesuaikan dengan tujuan pembelajaran dan media pembelajaran. LKPD juga dibuat disesuaikan dengan buku siswa. (2) Pelaksanaan model discovery learning memuat: stimulus, identifikasi masalah, pengumpulan data, pengolahan data, pembuktian, dan kesimpulan. (3) Siswa kelas VB terlihat memiliki keterampilan berpikir kritis. Adapun ciri-ciri berpikir kritis yang muncul pada siswa yaitu berpikir logis dan analisis, memiliki sudut pandang, aktif bertanya, dan memiliki rasa ingin tahu. Hasil ini dapat menjadi contoh praktik baik pengembangan keterampilan berpikir kritis dengan metode yang sesuai di sekolah dasar

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## Kata Kunci:

Keterampilan Berpikir Kritis, Model Discovery Learning, Sekolah Dasar

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## INTRODUCTION

Learning at the elementary school level in the 2013 curriculum is presented using a thematic-integrative approach. This curriculum brings new changes in learning activities, i. e., the student-centered system. The student-centered aims as learning is carried out with activeness or interactiveness between students in learning activities, while the teacher is only a facilitator.

To foster an active and creative attitude in students, teachers must be able to innovate in their learning. One way is to use a learning model. The importance of teachers using the learning model is as a guide in carrying out learning activities. According to Padamu (in Tethool et al., 2021), the learning model is a conceptual framework with systematic procedures as a reference for conducting learning activities. This framework becomes the plan used to shape the curriculum, design materials, guide the teaching process in the classroom (Harefa et al., 2022), and determine the aims or objectives of each subject (Nurlaelah & Sakkir, 2020). Based on this explanation, it can be determined that the learning model is a reference for planning learning, in which there are instructions or learning steps for the teacher.

One of the learning models used is the discovery learning model. The discovery learning model is student-centered and will lead to active learning. That way, this model aligns with the 2013 curriculum guidelines, namely student-centered. According to Putra & Sujana (2020), the discovery learning model is where students learn to find and solve problems given by the teacher as a facilitator in learning. Meanwhile, according to Hosnan (in Winoto & Prasetyo, 2020), discovery learning is a model that develops students' thinking through discovery, analysis, and the self-solving of problems the teacher gives. In discovery, all students are invited to find out and analyze systematically, critically, and logically (Ariyani & Prasetyo, 2021).

Based on the expert opinion above, it can be concluded that the discovery learning model encourages all students to find, analyze, and find out for themselves the problems the teacher gave systematically, critically, and logically. The purposes of the discovery

learning model, according to Bell (Rahman et al., 2020), are that (1) students are allowed to be actively involved in learning activities; (2) students find tangible and intangible patterns; (3) students also learn to use the question and answer strategy in making discoveries; (4) the discoveries made in learning activities can form students working together effectively, i. e., exchanging information; (5) showing that the skills of the concepts and principles learned are more meaningful.

According to Sinambela (Ana, 2018), the discovery learning model's steps are simulation, problem statements, data collection, data processing, verification, and generalization (conclusion). Judging from the model steps, the discovery learning model is more effective on students' critical thinking skills. In harmony with Winoto and Prasetyo's (2020) study, the ability to think critically in the discovery learning model is better than problem-based learning.

Meanwhile, the notion of critical thinking, according to Rudd, Baker, and Hoover (in Rositawati, 2019), is an approach that uses reason, has specific goals, and uses it to solve problems or respond to questions with evidence and information that lead to solutions that are difficult to dispute. Critical thinking is also a complicated process of examining ideas in a structured manner (Budiono & Utomo, 2020). Broadly speaking, critical thinking is a complex thinking process, logically and systematically, in which it solves a problem and provides a solution to the problem.

These critical thinking skills are not only carried out during learning but can also be applied in everyday life at home and in the community. Hence, critical thinking skills must be applied from an early age. One is in elementary school so that students are used to it and can already solve existing problems (Dewi et al., 2022).

Nevertheless, after the researchers observed in several elementary schools, many students still could not think critically. It was caused by the quality of teachers in providing learning. The teacher gave only theoretical questions too often, while problem-based questions were only occasionally. Thus, it made students accustomed to completing assignments efficiently.

Usually, students who can think critically actively ask questions, think logically, analyze, assess, and find out (Agnafia, 2019). According to Ennis, critical thinking has essential characteristic elements abbreviated as FRISCO: *Focus*, students understand the problems given; *Reason*, students give reasons based on relevant evidence; *Inference*, students conclude by giving appropriate reasons to support these conclusions; *Situation*, students use all the information according to the problem; *Clarity*, students use further explanation related to the conclusions made and provide examples of problem cases; *Overview*, students re-examine thoroughly until the end (Fridanianti et al., 2018). In contrast to the two previous opinions, according to Setyawati, individual characteristics in critical thinking include (1) dealing with problems with specific intentions, (2) analyzing, concluding, compiling ideas based on existing evidence/data, and (3) drawing summaries in handling problems regularly on an objective basis (Susanti, 2021). It can be concluded that the characteristics of critical thinking comprise identifying problems logically in accordance with specific goals, analyzing systematically, drawing conclusions from a problem, responding or commenting on something with full consideration, and daring to tell the truth.

Several factors affecting students' critical thinking skills include 1) physical condition, 2) motivation, 3) anxiety, and 4) intellectual development (Dores et al., 2020). Therefore, teachers should use various models to develop students' critical thinking skills in thematic learning. On the other hand, Sa'dun in *Implementation of Thematic Learning in Schools*, mentioned that according to the Ministry of National Education, thematic learning is basically a model of an integrated curriculum that uses themes by linking several subjects to provide meaningful experiences to students.

One model that develops critical thinking skills is the discovery learning model. In this regard, SDIT Al-Khairiyah is different from other schools. At this school, educators are required to be innovative in learning, one of which is using a learning model. This school has implemented the discovery learning model

in class VB. Therefore, the researchers took this school as a research setting.

Furthermore, the researchers believe this research has originality and novelty compared to previous research. It can be seen from Andari's (2021) research results, which focused on instilling the creative character of students in learning Indonesian and using qualitative methods to obtain data. Then, a study by Winoto and Prasetyo (2020) focused on the effectiveness of the two PBL and discovery learning models on students' critical thinking abilities and employed the quasi-experimental method to obtain data. Eskris (2021) and Mahmudah (2020) also examined the impact of discovery learning and problem-based learning on students' critical thinking skills using meta-analytic research. Furthermore, Marisyah & Sukma (2020) investigated the concept of the discovery learning model in thematic learning in elementary schools, and the type of research is a literature study.

Meanwhile, this study focuses more on implementing discovery learning models based on critical thinking skills in thematic learning. This study hence aims to analyze the planning, implementation, and evaluation of the discovery learning model based on critical thinking skills.

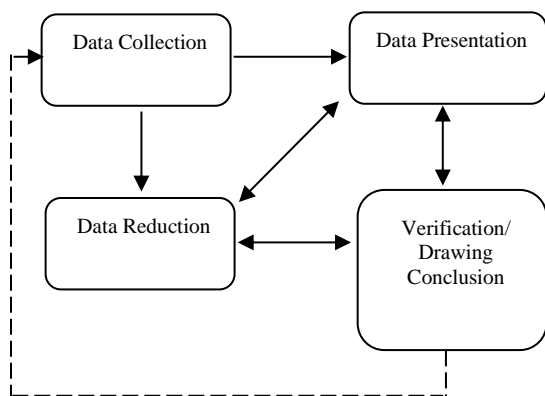
## METHODS

This study used a qualitative approach. This qualitative research refers to examining and analyzing in-depth social phenomena in accordance with existing conditions or naturalistic in a descriptive narrative form.

According to Bogdan and Taylor cited by Moleong in *Metodologi Penelitian Kualitatif [Qualitative Research Method]*, qualitative methodology is a research procedure that produces descriptive data in the form of written or spoken words from people and observable behavior.

The research procedure examined the implementation of the discovery learning model based on critical thinking in thematic learning by connecting the theories of experts and describing in the form of descriptions in accordance with the data and facts found in the field. Thus, answers could be obtained from the research results. Researchers also participated in the field to record things that

happened, interviewing informants, and carry out research problem analyses so that they arrived at data processing in completing research reports. Researchers did their analysis in the field. The following is an example of an analysis of the Miles and Huberman model.



**Figure 1.** Miles & Huberman Model of Analysis

1. Data reduction  
Data reduction is the same as summarizing, choosing the main things, focusing on the essential things, and then looking for themes and patterns as temporary conclusions. Data reduction was carried out repeatedly during the research process.
2. Data presentation  
After the data were reduced, the data were then presented. This data can be presented in graphs, tables, and the like. In presenting data, the researchers could do it in the form of short descriptions, charts, and others.
3. Drawing conclusions  
The third step was concluding and verifying. Thus, this conclusion answered the problem the researchers had formulated since the beginning. However, it might or might not be because the problems and problem formulations in qualitative research are temporary and can develop after the research is in the field.

In this case, the researchers used three data collection techniques: interviews, observation, and documentation. The following is an explanation of each data collection technique:

1. Interview  
The researchers used the interview method to obtain in-depth data from sources

directly involved in the problem under study to determine how the subject interpreted the situation and phenomena that occurred, which could not be found through the observation method.

In this study, the researchers conducted structured interviews equipped with interview guidelines. Then, the researchers listened carefully and recorded what the informants (source persons) conveyed: the school principal, class VB teacher, and 25 students. Then, the researchers took four samples from the class. The researchers recorded the interview activities using a device.

## 2. Observation

The researchers used the observation method in this study to find out directly what was happening in the field regarding implementing discovery learning models based on critical thinking skills in thematic learning. The type of observation carried out by the researchers was non-participatory, where the researchers only had a role in observing, so they were not involved in learning activities. The data taken by the researchers were by observing the teacher and students in class VB during the thematic learning process.

## 3. Documentation

In this study, to do research that can be trusted for its truth, the researchers also used the documentation method as valid and relevant evidence in accordance with what happened in the field. This documentation could be in the form of photos or pictures and writings such as diaries and activity journals, thus helping researchers to make observations and interviews.

The researchers employed source, technique, and time triangulations in this study. In source triangulation, the researchers used three informants to check the truth: the principal, the VB class teacher, and the VB students. For technical triangulation, interviews and observations were utilized. Meanwhile, technical triangulation was used three times: morning, afternoon, and evening.

## RESULTS AND DISCUSSION

### Planning Discovery Learning Model-Based Critical Thinking Skills in Thematic Learning

Before carrying out learning activities, the teacher must develop a lesson plan. A lesson plan exists so that a learning activity is well organized. Lesson planning is also a trigger for achieving predetermined learning objectives. The learning process takes place effectively and efficiently because of the careful planning of learning. As is the case in preparing to learn using the discovery learning model based on critical thinking skills in the thematic learning of class VB at SDIT Al-Khairiyah. Here is one of the lesson plans made.

Figure 1. Lesson Plan with Discovery Learning Model

The teacher made a learning plan, starting with a lesson plan. In this case, the teacher prepared a lesson plan considering the factors influencing students' critical thinking skills. They are 1). Physical conditions, if the physical condition is temporarily disturbed

when faced with a situation that requires careful thinking to solve problems, students will not be able to concentrate appropriately; 2). Motivation, with motivation, when doing the learning, such as giving stimulation, it makes students excited to do something; 3). Intellectual development, in this case, a person can respond to and solve a different problem. Some are responsive, and others are less responsive according to their level of development.

It corroborates with the opinion of Rubenfeld & Scheffer (in Sutriyanti & Mulyadi, 2019) that mentioned that other factors that can affect a person's ability to think critically are a person's physical condition, self-confidence, motivation, feelings of anxiety, habits or routines carried out, intellectual development, consistency or determination, feelings or emotions, and experiences usually conducted routinely while working.

Additionally, making lesson plans is not easy because one has to consider the principles of preparing lesson plans. It is in line with what was conveyed by Mrs. Eli as the VB class teacher, saying that it was necessary to consider several things, such as paying attention to student characteristics, school conditions, and class atmosphere. It aligns with the opinion (Setiana, 2019), including adjusting to the conditions or situation of the class and the characteristics of the students, encouraging students to be active in learning activities, developing a culture of literacy and numeracy, providing feedback and follow-up, the existence of linkage and integration between Core Competencies and Basic Competencies, learning materials, learning activities and assessments, and developing information and communication technology.

After making the lesson plan, the teacher also prepared teaching materials. Making teaching materials were adjusted to the learning objectives and the media-supported learning activities, such as projectors, PPTs, and others. The last was to make a student worksheet to evaluate the learning activities. Lesson plans that had been prepared were then realized during the learning process. The lesson plan had a section of activities or learning steps. In this section, the process of



learning activities carried out by the teacher will be seen in detail and directed.

### **Implementation of the Discovery Learning Model-Based Critical Thinking Skills in Thematic Learning**

There are six stages in learning using the discovery learning model (Marisyah & Sukma, 2020), including 1). stimulation (providing stimulation), where at this stage, the teacher provides stimulation in the form of questions related to the material and makes students confused, motivating them to want to find out for themselves by reading sources and others. 2). Problem statement (problem identification): at this stage, students identify a problem given by the teacher. 3) Data collection; students collect as much relevant information as needed at this stage. 4) Data processing: at this stage, students process data searched for in the previous stage by trying to formulate answers to the hypotheses they have made. 5) Verification: at this stage, students are asked to prove whether or not the statements or hypotheses they have made are factual. 6) Generalization (conclusion): Students and teachers conclude this stage.

The researchers observed five times in class, but not all used the discovery learning model. For observations that did not use the discovery learning model, the researchers observed class conditions and students' ability to think critically. The researchers also saw that the VB class students were still less active in their learning since the teacher used the lecture and assignment method.



**Figure 2.** Learning Situation without the Discovery Learning Model

Meanwhile, when the teacher used the discovery learning model, the learning atmosphere was student-centered. It was where students actively asked questions, could

think logically and analyze, had curiosity, and had an assessment of the problems the teacher gave. The researchers then took 4 out of 25 VB class students as samples in this study: NSD, MR, HKH, and MAA. The documentation can be seen in Figure 4 below.



**Figure 3.** Learning with the Discovery Learning Model

### **Evaluation of the Implementation of the Discovery Learning Model-Based Critical Thinking Skills in Thematic Learning**

The researchers observed in class VB five times, but not all observations used the discovery learning model. For observations that did not use the discovery learning model, researchers carried out observations of class conditions and students' critical thinking competencies. The researchers also saw that class VB students were still less active in their learning. Moreover, when the teacher asked students to come forward in front of the class, class VB students kept quiet, and no one wanted to put themselves forward except to

point fingers between friends. Then, the learning was one-way or teacher center, meaning that only the teacher was active in learning activities. When the teacher explained the material, the researchers saw that not all students noticed it. Even so, some students were active in learning, such as HKH, AH, and MAA.

The first observation after implementing the discovery learning model revealed the following. Students could think critically, as seen when students found out more about the human respiratory organs and how humans work in breathing. Students actively asked questions about human breathing and answered questions that the teacher gave, such as MA and HKH. Both of them enthusiastically answered the teacher's questions and participated in today's lesson, seen from their activeness in learning. They both could think logically, as seen in discussions with each other's groups expressing their opinions.

Meanwhile, NSD and MR could quite think logically with their group because they only occasionally participated in discussions. The four of them also could do individual assignments given by the teacher with quite good results. Also, they could analyze the problems given by the teacher. It could be seen when the teacher asked students to make questions and answers according to their reading text.



**Figure 4.** Student Activities Discussing with Groups

The third observation after using the discovery learning model uncovered that students could think critically, seen when students could build their mindset by finding out the causes, symptoms, and how to treat influenza, bronchitis, tonsillitis, and pneumonia and then making a chart or mind map. The researchers saw collaboration between students, such as MAA, HKH, NSD, and MR, even though they also liked to joke. They could also do individual tasks well. Students were also able to be creative by performing creative dances using props. For example, NSD was enthusiastic about representing their group in practicing the *Manuk Dadali* dance. Meanwhile, MAA practices the fan dance.



**Figure 5.** Students Practicing Traditional Dances Based on Group Creations

After applying the discovery learning model, the fourth observation showed that students could think critically. It could be seen when students found the concept of the characteristics of story drawing works. Then, students made pictures of stories according to the theme chosen by the group. Here, the researchers saw MR and NSD occasionally helping but mostly joking. Meanwhile, MAA and HKH worked seriously, although they occasionally joked with their groups. They were capable of doing individual tasks well. Also, they could analyze the problems given by the teacher. It could be seen when the teacher asked students to analyze the suitability of pictures and story text.

Judging from the results of observations of data collected by the researchers, the discovery learning model could develop students' critical thinking skills. Meanwhile, the characteristics of people who think critically, according to Mai Leicester and



Denise Taylor, are as follows: (1) Asking questions, (2) having a point of view (Students can assess an issue and defend their opinion), (3) Rational (Giving a logical and real reason according to the evidence he gets), (4) Finding out, and (5) Analysis (Cysarah et al., 2021).

From the characteristics of critical thinking mentioned above, the researchers found results that using the discovery learning model could develop one's critical thinking skills. It is because, within it, several stages require students to think critically about the problems given by the teacher. Apart from critical thinking, the benefit is that students were active in learning activities. The researchers conducted open interviews with VB class students about whether they could do the assignments the teacher gave. Then, they answered that they could because the assignments submitted were related to the learning given. However, many also answered; two students were quite capable of doing their assignments but were still occasionally guided by the teacher.

This discovery learning model has drawbacks and strengths. According to Noer (Eskris, 2021), the drawbacks are 1) it takes much time, and not all students want to think for themselves; 2) Many students cannot follow the steps of discovery learning; 3) This model only applies to specific subjects; 4) Not all teachers have the ability to use this model. Meanwhile, the advantages align with the opinions of Darmawan and Dinn (in Marisya & Sukma, 2020): 1) helping students improve cognitive process skills for finding keys to learning success, 2) fostering students' enjoyment because of the growth of successful searches, 3) students can develop quickly according to the speed and style of learning, 4) students can strengthen their self-concept and gain confidence in working with their friends, 5) students will better understand basic concepts and ideas better, 6) helping develop memory and transfer in a new learning process with the results of previous findings, 7) encouraging students always to think and work hard on their initiative, and 8) can develop individual talents and skills according to their respective potentials.

This theory is consistent with the results of interviews with classroom teachers that applying the discovery learning model had both advantages and disadvantages. Judging from its shortcomings, not all students could follow the stages of this model, such as RI and NA, and it took time to implement it. Meanwhile, the advantage is that students could instill their thinking skills, especially in critical thinking, and students were active in their learning.

## CONCLUSION

Based on the results of the discussion of research conducted using observation and interview data collection techniques that the researchers have described regarding the implementation of the discovery learning model based on critical thinking skills in the thematic learning class VB SDIT Al-Khairiyah, the following conclusions could be drawn as follows.

Planning the discovery learning model in thematic learning is to make a good and correct lesson plan. In this case, the teacher prepared a lesson plan by considering the factors affecting students' critical thinking

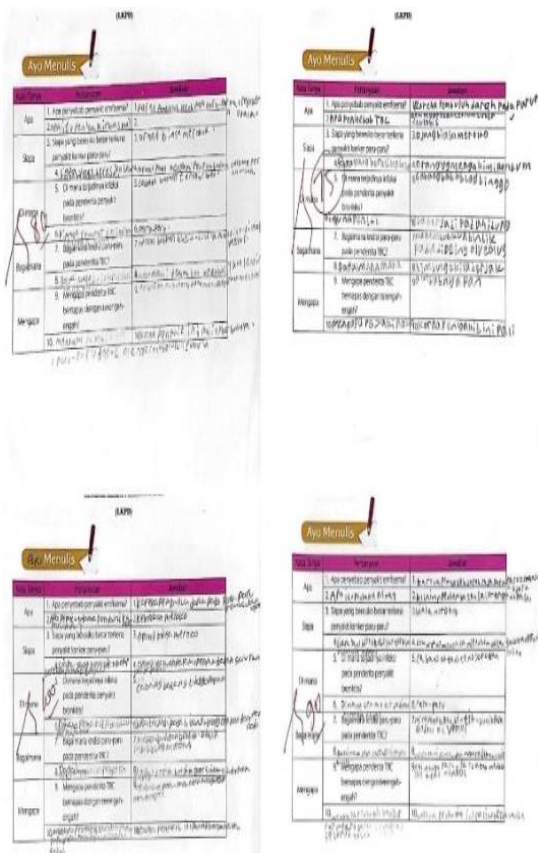


Figure 6. Results of Student Worksheets That Students Have Done

skills: physical condition, motivation, and intellectual development (Hanifah et al., 2022). In making lesson plans, it is also necessary to consider several things: paying attention to the characteristics of the students. Then, the class conditions and lesson plan design using the stages of the discovery learning model are looked at. After making a lesson, the teacher also prepared teaching materials. In making teaching materials, it was adjusted to the learning objectives themselves, and then the media supported carrying out learning activities, such as projectors, PPTs, and others. The last is to make a student worksheet to evaluate the learning activities.

Then, the implementation of the discovery learning model contains six stages, including providing stimulus, identifying problems, collecting data, processing data, proving, and drawing conclusions. The assessment was carried out by observing the class VB teacher.

Evaluation of the implementation of the discovery learning model in thematic learning to develop critical thinking skills of VB class students at SDIT Al-Khairiyah included the benefits of learning; students could play an active role during the learning process and do the assignments given by the teacher. In critical thinking skills, students could ask questions, have high curiosity, have a point of view or assessment of the problems given by the teacher, think rationally and logically, and analyze a problem.

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