Comparison of Direct Instruction Model and Problem Based Learning as a Learning Alternative in Tegal Disaster-Prone Area

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Abstract. This study aims at describing the contents of the two learning models; Direct Instruction Model and PBL by comparing the concepts of its application in Indonesian language learning. The research method used is a literature study with reference to Lasswell's theory of "5W". The results of the literacy studies that have been carried out in Elementary School of Mintaragen 2 and Elementary School of Mintaragen 6 with high flood intensity still use the Direct Instruction model as a substitute for face-to-face absence. As an alternative learning model that suits the conditions and situations is the Project Based Learning model. It emphasizes problem-based learning and is adapted to conditions during the flood. This research is expected to give insight for teachers to implement various learning model and take steps that can be applied when a disaster occurs.

Keywords: comparison model, alternative, disaster.

1 Introduction

Indonesia is a country that has a high level of disaster statistics, it is recorded that Indonesia is included in the list of the 35 most disaster-prone countries in the world. Indonesia ranks high for both hydrometeorological and geological hazards. Hydrometeorological disasters (also known as meteorological disasters) are climate-related disasters, such as floods, landslides, tidal waves, cyclones, and droughts. Indonesia is prone to earthquakes, tsunamis, volcanic eruptions, and other geological disasters due to its location between 4 plates: two continental plates: the Eurasian Plate and the Australian Plate; and two oceanic plates: the Philippine Sea Plate and the Pacific Plate. Furthermore, the National Disaster Management Authority has noted that, in 2017, there were 2862 disasters, of which almost 99% were hydrometeorological. These include floods (979), tornadoes (886), landslides (848), forest and land fires (96), droughts (19), earthquakes (20), tidal waves and abrasion (11), and volcanic eruptions (3) [7].

Tegal City is recorded as an area that is included in a disaster-prone area, in 2020 there were hydrometeorological disasters, namely 49 floods and 3 storms or tidal waves, a total of 52 and 12 fires and other disasters 3 times the total disasters that occurred during one year, namely 67. Floods

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are the disaster with the highest intensity in the city of Tegal. Various disaster mitigation and prevention aspects continue to be carried out by the government. In addition, the city government has also collaborated with academics, volunteers, and even all elements of the village government to cope with flood disasters that often occur in the city of Tegal. Disaster management covers certain phases and scales that require different interventions by governments and humanitarian organizations [9]. The impact of the disaster did not only cover the economic sector, but the education sector also experienced a decline in quality, due to delays in the teaching and learning process in schools. A suddenly, disaster causes the unpreparedness of all components involved in learning, whether teachers, students, or all stakeholders in the school. Based on observations made in several elementary schools in Tegal City, when a disaster occurs, all learning activities are automatically closed, because it is not possible to carry out face-to-face learning. The teacher carries out task-based learning and uses the Direct Instruction model. One of the subjects that use the Direct Instruction model is learning Indonesian. In this activity, the teacher only applies the Direct Instruction syntax in the first stage of observation and fifth independent practice. This was done because teachers could not carry out face-to-face meetings when there was a flood in the school. Meanwhile, teachers have an important role in creating effective communication in the classroom [1].

This causes incompleteness in learning that is carried out when a disaster occurs. The learning process is successful if it is supported by adequate facilities, such as teaching materials, learning approaches, and other supporting facilities [10]. Based on the above conditions, it is deemed necessary to have a breakthrough learning model that is in accordance with the situation and conditions. Piaget in [11] believes that children will only learn when they achieve assimilation, accommodation, and balance. Therefore, learning theory helps psychologists and educators to understand complex learning processes. One of the learning models that apply this pattern is Problem Based Learning (PBL) [5] stated in the Northern Illinois University Handbook that PBL was designed by teachers and educators to suit the needs and curriculum used.

Associated with the existing problems, namely the decline in the quality of learning, especially Indonesian language during the flood disaster by using the Direct Instruction learning model, it is seen that the use of the Direct Instruction model is not optimal, because the implementation of the existing steps is not done correctly. Giving assignments with practice questions without any prior explanation causes students to not understand and understand the material. It is seen that there is a need for alternative learning models to meet the class achievement targets that have been determined by the teacher, namely Problem Based Learning (PBL). This model presents a coherent syntax and applies a problem-based learning model around, so that in the event of a flood the material to be delivered can be related to the current conditions. With the efforts in this conceptual research, it is expected to be able to provide an alternative learning model when natural disasters are hydrometeorological types, especially floods in the city of Tegal.

Based on the above background, the problem formulation can be drawn "How is the comparison between the Direct Instruction model and the Problem Based Learning model as an alternative learning of Indonesian in disaster-prone areas in the city of Tegal?".

2 Research Methodology

This research is a descriptive comparison regarding the theory of Lasswell's "5W" Model [8]. The way to describe an act of communication is to answer the following questions: who said what, in which channel? to whom, and with what effect?" which is often known as 5W.

Figure 1. Lasswell's "5W" Model

This study adopts several stages of Lasswell's "5W" Model theory. The same understanding is also expressed by [9] that Descriptive Research is a description of two or more explanations of the research focus then presenting evidence and then comparing "head to head" to see which is stronger. This research method is a literature study to find theoretical references that are relevant to the cases or problems found. This research step begins by comparing the concept of the Direct Instruction model with the Problem Based Learning model as an alternative in Indonesian learning in disaster affected elementary schools. In detail, it will be explained how the teaching steps with the Direct Instruction model are carried out when a disaster occurs, and how it compares with the Problem Based Learning model in Indonesian learning.

3 Result and Analysis

3.1 Natural Disaster Condition

The condition of the Indonesian state as part of a disaster-prone area has resulted in a decline in the quality of learning carried out in schools. This can be seen when the preparations made by teachers in dealing with disasters are still not optimal. The distribution of natural disasters experienced in Indonesia in 2020 was 1,296 consisting of various natural disasters that occurred such as earthquakes, landslides, floods, mountain eruptions, and so on. The highest intensity recorded was flood disaster (495) cases of flooding occurred within one year.

Fig. 2 Map of Indonesia's Disaster Distribution 2020 [3]

The Ministry of Education and Culture and stakeholders have taken a stance related to disasters that often occur in Indonesia, the Ministry of Education and Culture has an active role in disaster risk mitigation through the Disaster Safe Education Unit (SPAB). One of them is to provide educational services that are in accordance with the characteristics of disaster risk and the needs of the education unit.

The city of Tegal is a city located on the northern coast (Pantura), the intensity of flood disasters is very high in the city of Tegal, information reported by the Central Statistics Agency (BPS) of the city of Tegal is hydrometeorological disasters, especially flood disasters 49 times and storm disasters or tidal waves as many as 3 times, a total of 52 and 12 times of fire disasters and other disasters 3 times a total of disasters that occurred during one year, namely 67 times.

Fig. 3 Disaster events in the city of Tegal 2020

The impact of the high intensity of floods caused all economic activities, daily activities, and even educational activities to stop. Several elementary schools in the city of Tegal have stopped face-to-face meetings for the implementation of learning in schools. Among them are Elementary School of Mintaragen 2 and 6. The location of the Elementary School is close to the northern coastal sea in the city of Tegal. The flood that occurred in the area was a tidal flood. The definition of rob itself is

the presence of high sea waves and significantly erodes the land. These floods often occur in coastal areas, natural events that occur due to rising sea levels that inundate most of the land.

3.2 Direct Instruction Learning Model When Disaster Occurs

States that Direct Instruction is how teacher direction and control occurs when the teacher evaluates student work, maintains a central role during instruction, and minimizes non-academic talk [3]. Joyce also mentions the syntax of the Direct Instruction learning model that can be used for teaching and learning activities as follows: 1) Orientation, is the first stage in the Direct Instruction learning model, namely orientation. The intent and purpose of the orientation here are related to how the teacher explains the material to be given; 2) Presentation, at this stage the teacher presents and explains the material related to learning outcomes as clearly as possible; 3) Structured Practice, in this third stage the teacher acts as a guide in the activity of deepening the material and providing input, motivation, and reinforcement to students; 4) Guided practice, this stage is a point for students to hone skills or deepen the material that has been taught by the teacher, the teacher's role in this stage is to monitor and provide guidance if deemed necessary; 5) Independent, the last stage in Direct Instruction syntax is independent learning. At this stage, students are asked to learn independently by doing assignments or exercises given by the teacher.

In connection with the discussion that we will do, namely how the Direct Instruction model has been used so far in elementary schools affected by the flood, whether the model runs according to the syntax mentioned above. Based on observations and interviews conducted as well as literature read in several sources such as the results of student work during the period of activities at schools affected by floods, it can be described learning activities when floods occur in Mintaragen Elementary School 2 and 6, namely: 1) Orientation, at this stage This is what Indonesian language teachers at Elementary School of Mintaragen 2 and 6 do, namely to condition students that today's learning cannot be done face-to-face. Teachers provide information to parents through electronic media; 2) Presentation, the teacher gives directions to remember yesterday's material that has been given, without adding information about the material on that day; 3) Structured Practice, at this stage the teacher does not provide feedback related to the material or achievements that will be done that day; 4) Guided Practice, at this stage students learn independently by looking at notes or recordings of previous material; 5) Independent, the last stage is the main stage in the implementation of learning when the flood disaster occurred at Elementary School of Mintaragen 2 and 6 because students were asked to work on practice questions and then collect them at a predetermined hour.

This activity was carried out because the conditions that occurred did not allow for carrying out teaching and learning activities in schools and the teacher's unpreparedness in carrying out all the syntax in the Direct Instruction model. The activities carried out have been going on so far with several advantages and disadvantages. In this situation the teacher only sticks to one way that can be implemented in Indonesian learning, namely giving the questions that are on the student worksheets.

3.3 Problem Based Learning Model When a Disaster Occurs

Argue that problem-based learning must be in the context of an environment where the activity will be useful in later life [10]. The implementation of PBL is expected to be a starting point for students to be able to provide solutions to every problem they face. argues that problem-based learning (PBL) is an instructional approach that has been used for more than 30 years and continues to gain acceptance in various disciplines [4]. PBL can be applied to various fields of science because almost every learning process will have problems that accompany it. The Northern Illinois University Handbook suggests that PBL is another example of co-development that is suitable for application in the context of higher education, in line with the opinion developed by Jones, Rasmussen, and Moffitt for secondary schools and Elementary School [5]. This model involves professional development providers who support teachers to jointly develop model implementations with students and case studies. PBL as Co-Development has five recursive stages, namely: 1) identifying specific problems; 2) developing an investigation or work plan; 3) conducting analysis and investigation; 4) preparing and presenting findings; 5) debriefing and consolidating knowledge, looking at the situation that occurred when the flood disaster occurred in Elementary School of Mintaragen 2 and 6 as well as considering alternative learning models that are in accordance with the conditions, it is necessary to have clear steps related to learning the PBL model based on flood natural disasters.

The steps will be explained in detail as follows: 1) identifying specific problems, in the first stage of implementing the PBL model the teacher identifies conditions when a flood occurs, whether learning activities can be carried out as usual or not. If it is not possible for the teacher to provide information about lesson plans related to flood disaster conditions; 2) develop an investigation or work plan, after that the teacher develops a lesson plan that has been made according to the conditions at the time of the disaster and then informs students about the learning model to be used, namely PBL about flood disasters; 3) conduct analysis and investigation, the teacher gives the task of making works (according to the lesson plan) to students about the condition of the flood disaster that occurred. Then students conduct analysis and investigations to arrange assignments to make works about the flood disaster; 4) prepare and present findings, the teacher facilitates students in preparing the results of the analysis and investigation to be presented in the form of works that have been made in accordance with the lesson plans; 5) debriefing and consolidating knowledge, the teacher and students conduct debriefing and knowledge consolidation through two-way intensive questioning to find out the evaluation of the tasks that have been given.

3.4 Comparison Between the Two Learning Models

The analysis carried out in this study refers to Lasswell's "5W" theory which is a content description by comparing the same message (document/theory message) at different times. The comparison is made by comparing the two learning models of Direct Instruction with Problem Based Learning by comparing the concepts of their application in Indonesian language learning for elementary schools in the disaster-affected city of Tegal.

The theory of the Direct Instruction learning model that was carried out at the time of the disaster had a drawback, namely the technical constraints of the syntax of the entire Direct Instruction step, namely five steps. Of the five steps, only the first and fifth stages can be maximally carried out due

to limitations caused by the flood disaster that occurred. However, one thing that makes this step is often done by teachers because the model is easy to convey and does not take a long time.

Next is the effect that may be caused when using an alternative learning model, namely Problem Based Learning when a flood disaster occurs. In general, Problem Based Learning can use learning media that are around without the teacher giving direct affirmations to students. In addition, this PBL allows new experiences obtained from current conditions. But one of the weaknesses in the implementation of PBL is the relatively long time in completing the existing stages.

4 Conclusion

The success of learning depends on how the scenarios used are able to run relevant to the conditions and situations that occur at that time. We must stop the paradigm that learning must be centered on the teacher because the effects that occur cause students to be passive and lack confidence in increasing learning competencies. From the explanation above, it is clear how the Indonesian language learning situation can be adapted to conditions that occur such as the flood natural disaster that occurred in the city of Tegal and it is not possible for face-to-face learning at school. The results of the literacy study conducted by Elementary School of Mintaragen 2 and 6 showed that the intensity of flooding was high and still used the guided learning model.

PBL is able to be a model for teachers in implementing problem-based learning related to flood conditions at Mintaragen Elementary School Mintaragen 2 and 6. Teachers can apply the syntax in PBL in accordance with procedures that must have been associated with what problems will be given to related students. with the flood disaster. The hope of this research is to open up insight for teachers to be varied in choosing alternative learning models that can be used for students during disasters, especially floods in the city of Tegal. One of them is the use of the PBL model by using problem-solving steps for the implementation of learning that is in accordance with the disaster conditions that occurred especially in the City of Tegal.

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