

# Influence Of The Inquiry Learning Model Of “Pictorial Riddle” On Critical Thinking Skills Of Man Karimun Students In Social Conflict Materials

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**Abstract-** This research aims to describes the influence of the Pictorial Riddle method of inquiry learning model on critical thinking skills in the material of social conflict in class XI IIS MAN Karimun. The experimental research design method True experiment, with Pretest-Posttest Control Group Design design cluster random sampling technique is divided into two classes, namely class XI IIS1 as the experimental class that received learning treatment using the inquiry pictorial type riddle learning model, and class XI IIS2 as a class control who received treatment using PBL learning model (Problem Based Learning). The research data was obtained through essay tests to measure students' critical thinking skills. Data analysis using analysis techniques Independent Test Samples T-test and N-Gain Test. The results of the calculation of data analysis obtained an average value of the experimental class 79.32 and the average value of the control class 71.76 with a significant level of  $\alpha = 0.05$  having a significance value of  $\alpha < 0.05$ , namely Sig (2 - tailed) 0.0007 < 0.05. Based on the calculation results there is a significant effect of inquiry learning model on the pictorial riddle method on critical thinking skills of students of class XI IIS MAN Karimun

**Keyword:** *Inquiry Learning Model, Pictorial Riddle, Critical Thinking Skills*

## I. INTRODUCTION

Education is a factor that determines the quality of life of a nation. The quality of life of the nation is produced through the implementation of quality education. The government has made efforts, among others, by developing a curriculum starting from the Competency Based Curriculum (CBC), Education Unit Level Curriculum (KTSP) to the current 2013 Curriculum. In the 2013 curriculum emphasizing emancipatory-transformative education is an educational model that seeks to develop all the abilities of students towards a more free and creative process of thinking. Transformative learning (transformative learning) which is a model of learning is more oriented towards the transformation (change or repair) perspective or the perspective of the learners so that they can become a person who is more wise in acting, mature in thinking, wise in making decisions, regardless of whether the process traversed more relies on rational-cognitive aspects as well as active psychiatric dimensions (Hardika, 2013 p. 12).

So far the learning process in the classroom is still focused on the teacher (teacher centered) as the main source of education. This pattern of bank style education (banking system education) as mentioned by Paulo Freire (2000) only transfers knowledge from teacher to student, the role of the teacher is too dominant to turn off the role and actualization of students. Learning bank style is learning figurative, not operative. Such a situation certainly does not involve students in developing problems so that it can reduce or even kill students' mindsets, creativity, and activeness.

Critical thinking is important to deal with changes that are so rapid and rapid (Slavin, 2017, p.137). The goal is to make rational decisions about what he can believe to be true (Suprijono, 2013, p. 42-43). With critical thinking skills can help students reprocess information obtained in the learning process to be able to combine, apply, analyze and can help students solve problems (Solange Muglia Wechsler et al., 2018).

Djunadi (2014), states that sociology lessons are boring because the approach applied by the teacher in classroom learning is less attractive where most students only memorize concepts and are less able to connect what they have learned with applications in society, so the class is still focused on the teacher as the main source of knowledge, then lecture as the main choice in determining the Sholahudin learning method (2008).

To anticipate these problems, the right learning method so that it can improve students' critical thinking skills, namely through the inquiry approach. Inquiry is a way of learning that is intended to develop problem solving skills using the critical mindset of Hamalik

(2001). The inquiry model is based on observations and scientific studies so that it is suitable for use in social studies learning especially Sociology subjects where students are directly involved with the object being studied, by giving problems or providing very effective assignments to trigger student involvement (Gwo-Jen Hwanget al., 2015 )

The material sociology subjects suitable for-assisted inquiry learning models Pictorial Riddle are material social conflicts. The material of social conflict chosen in this study is because in human life it will not be separated from conflict. (Wirawan, 2010, p. 5) Conflict is one of the essence of human life and development which has diverse characteristics. Humans have different sexes, social and economic strata, legal systems, nations, ethnicities, religions, beliefs, political streams, and cultures and goals in their lives. In the history of mankind, this difference always causes conflict. As long as there are still differences, conflicts cannot be avoided and will always occur. A problem, both individual and group, must be handled quickly so that problems such as conflicts can be resolved, even though conflicts can arise again at some time. Based on the description above, the researcher is interested in conducting research on the influence of the inquiry learning model riddle pictorial on students' critical thinking skills in social conflict material.

## II. RESEARCH METHODS

This study was conducted at MAN KARIMUN in class XI IIS semester 2 of the 2018/2019 academic year. The population in this study were 43 students of IIS MAN KARIMUN class XI. The sample was selected by cluster random Sampling. The sample was divided into one control class and one experimental class. The experimental class was treated using a-based inquiry learning model pictorial riddle, while in the control class was given a learning treatment of Problem Base Learning. The experimental design for this study was True Experiment Design Pretest-posttest Group Design control. Data collection techniques in this study used test questions to determine students' critical thinking skills. The research implementation instruments were syllabus, Learning Implementation Plan (RPP) and Student Worksheet (LKS). Instruments for retrieving data using essay test questions that are used to measure students' critical thinking skills. The normality test of the data used is non parametric Kolmogorov-Smirnov and the homogeneity test used is the Test of Homogeneity of Variance. Hypothesis testing in this study uses Independent Samples T-test and N-Gain test with the help of SPSS 23 for window.

## III. RESULTS AND DISCUSSION

### Description of Data

Description of data for the two classes that received treatment with the method pictorial riddle and the base learning problem in critical thinking skills can be seen in table 2.

**Table 2**  
**Description of Data PostTest Critical Thinking Ability Students**

Descriptive Statistics Results	Experimental	Class Control Class
N Valid	22	21
Missing	0	0
Mean	79.32	71.76
Median	43.00	43.00
Std Deviation	9,021	7,758
Variance	81,370	60,190
Minimum	67	63
Maximum	92	83

Source: Primary Data Processed

Table 2 shows that the average critical thinking ability in the class using the method pictorial riddle better than the class that gets treatment with the method problem base learning. After testing hypotheses using the independent test sample t-test and N-Gain test results of the analysis can be seen in table 3.

**Table 3**  
**Test Results Independent Sample t-test Final Value of Research Student Critical Thinking Ability Test (Post-test)**

		t-test for Equality of Means			
Mean	T	D	Sig.	Mean	
		f	(2-tailed)	Difference	
Contro l	Experi mental		)		
71.76	79.32	-	4	.007	
				-	

2,845	1	7,223
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Source: Primary Data Processed

The calculation results of SPSS 23 for the window in the table are known that the value of  $t_{count}$  is -2.854 and  $t_{table}$  with significance level (5%) 0.05, degree of freedom ( $df$ ) =  $(n-2)$  then obtained  $t(0.05)$  (41)  $t_{table} = -2,019$ . Then the results of the value of  $t_{count} > t_{table}$ , which shows the results of  $-2,854 > -2,019$ . The significance level of 5% (0.05) has a significance value of  $\alpha < 0.05$ , which is sig (2-tailed) 0.007  $< 0.05$ . So it can be concluded that there is a significant difference in critical thinking skills between the experimental class and the control class after being given treatment, meaning the results of the experimental class critical thinking ability after being treated with the inquiry learning model Riddle pictorial are better than the control class using the PBL learning model (problem based learning). This is reinforced by the experimental class having an average value of 79.32 and the control class has an average value of 71.76.

Based on the results of the N-gain score calculation, it shows that the N-gain score for the experimental class (inquiry learning model riddle pictorial) is 65.145 or 65.14% including the quite effective category. With a minimum N-gain score of 38.89% and a maximum of 88.06%. While the average N-gain score for the control class (PBL model) is 53.146 or 53.14% included in the less effective category with a minimum N-gain score of 31.48 and a maximum of 74.63.

Thus it can be concluded that the use of the learning model Riddle pictorial has a better influence and effectiveness than the use of the PBL model on students towards critical thinking skills in material social conflict.

Discussion on the Effect of Pictorial Inquiry Learning Riddle Model on Critical Thinking of Students Based on the above results, it shows that the two research classes, both experimental and control classes, have a pre-test value that is not too far away. The value obtained during the pre-test is caused by students not yet fully knowledgeable about the material to be studied. Students are able to work on several questions but the answer is not right. Whereas it was different at the time of the post-test when the students had obtained the material given by the teacher, both classes had an increase in the average value of the post-test. The difference is the number of increases in the average post-test value is different between the experimental class and the control class, where the experimental class has a higher average value than the control class.

The results of this study found that the t-test test aimed to find out the difference between students' critical thinking skills before applying the inquiry learning model riddle pictorial in the experimental class and PBL learning model (Problem Base Learning) in the control class obtained  $t_{value} < t_{table}$ , namely  $-0.568 < -2.019$  and the significant value of  $\alpha > 0.05$ , ie (2-tailed)  $0.573 > 0.05$ , then  $H_0$  is received and  $H_1$  rejected. So there was no difference between the experimental class and the control class before being given treatment. That is, the two experimental classes were no better than the control class in critical thinking skills students from both classes had the same ability in critical thinking skills.

Whereas after being given treatment, where the experimental class was given inquiry model learning riddle pictorial and the control class was given PBL learning model (Problem Base Learning) obtained a value  $>$  that is the result of  $-2,845 > -2,019$ . While the significance level of 5% (0.05) has a value of  $< 0.05$ , namely sig (2-tailed) of 0.007  $< 0.05$ , then there is a significant difference in critical thinking skills between the experimental class and the control class after being given treatment. This means that the results of the experimental class critical thinking ability after being treated with the inquiry learning model Riddle pictorial are better than the control class that uses the PBL learning model (Problem Base Learning).

These results are also in accordance with previous studies, as conducted by Kristianingsih (2010), Nurseptia (2013) Jane Arantika (2014) shows that learning with the inquiry learning model is Riddle pictorial able to improve students' critical thinking skills, so students are easier to solve problems existing by providing various alternative answers, so that student learning outcomes become maximum.

The difference in the results of the critical thinking ability test scores between the experimental class students and the control class is most likely due to inquiry learning riddle pictorial used to improve thinking skills, communication and encourage students to express opinions in discussion groups. In the classroom with the inquiry learning model the method pictorial riddle, the teacher divides students into heterogeneous groups. Group division is done randomly by considering the level of ability of students. So that in one group will consist of weak students who are accustomed to repeating lessons and students who often get the value of a pictorial riddle where students use the inquiry model Riddle pictorial and control class using PBL models (Problem Base Learning) is possible because each treatment has characteristic in its application. In the experimental class was taught using assisted inquiry learning model pictorial riddle that has 6 phases. The orientation phase in the experimental class, the teacher gives a small demonstration in the form of giving pictures related to the material given. Based on the demonstration given, students are given the opportunity to ask questions or give their responses.

According to Wina Sanjaya (2011), the orientation phase where the teacher conditions so that students are ready to accept the lesson, the teacher stimulates and invites students to start using their abilities to solve problems through an apperception. The purpose of apperception is so that students can relate their initial knowledge to the new knowledge they will receive, this is reflected by the teacher giving small questions to be solved by students based on demonstrations or phenomena displayed by the teacher. Students are expected to provide answers with clear and logical reasons. These questions orient students at the beginning of learning so students have a real picture of the problem. In the control class, the apperception given is almost the same. The aim is to condition students. The treatment given by the teacher during the orientation phase is a way to develop students' thinking skills.

The phase of formulating the problem conditions students to be directed at a problem that must be solved. Phase formulating a problem focuses students on recognizing a given problem. Formulating problems helps students to form critical thoughts that need to live smart and lifelong learning. The problems presented are problems that challenge students to think about solving related problems. Students are encouraged to find the right answer. The process of finding this answer becomes very important in inquiry because students will gain valuable experience as an effort to develop mentally through the process of thinking. The problems that are displayed in the form of riddles tucked into LKS are problems that must be resolved in thinking. Different treatments were given to the control class because the problem presented was not in the form of a riddle. This results in the majority of students not having an interest or not having the belief that the problems learned are difficult to solve.

Phase formulates prediction of answers, students first seek as much relevant information as possible through the literature. This information search will make it easier for students to provide predictions of temporary answers to the problems given. Making predictions of answers, guessing or guessing an answer to a problem is the beginning of a thought process. This is in line with Wina Sanjaya (2011) who said that when an individual or student can provide predictions and then prove his predictions, he will arrive at a position that can encourage further thinking. Learning in the control class, there is no hypothesis formulation made by students. Students are only given problems to be solved directly without going through the stages of inquiry. The phase of collecting data is a phase that contains the activities of students capturing information needed to test the predictions of the answers submitted. According to Permendiknas Number 81a of 2013, the activity of collecting information is done through experiments, reading sources or literature other than textbooks, and so on. Questions that are guiding students are given to direct students to the concept of the problem referred to in the LKS. Data collection provides opportunities for students to think. Independent activities are intended so that students can find ideas, facts, concepts, want to understand themselves in groups. Based on the questions given, students are asked to complete the data obtained through reading references, then connecting with the knowledge they have, as well as connecting with problems at Riddle.

Stage of discussing the prediction of answers, students are asked to present the results of their group discussions alternately. Students are given the freedom to express predictions of answers that are equipped with data from problems that must be resolved. Other students provide responses or questions related to the presenter's presentation. Students can develop their ability to ask questions, answer a number of questions and provide logical reasons, which are part of a series of critical thinking activities. The stage of discussing predictive answers, students can develop their ability to think rationally. According to Wina Sanjaya (2011) at this stage of inquiry students can develop rational thinking skills, which means that the truth of the answers given is not only based on argumentation, but must be supported by data collected in the previous stages of the arguments proposed can be accounted for. The final stage is formulating conclusions, students process and analyze the results of the discussions they get. Students are asked to conclude based on the results of hypothesis testing. The aim is to get accurate conclusions based on the results of discussing predictions of answers. In the control class, the formulation of conclusions emphasizes the formulation of important conclusions or points according to the material they are explained by the teacher. So that students find more conclusions on the process of remembering the information delivered, not processing it.

Murwani, 2006 learning in the experimental class, students are also equipped with riddle which makes it easier for students to understand problems and worksheets that contain questions guiding students to find answers. In the inquiry process the teacher provides assistance to students through guiding questions, so that students in groups learn by guided questions in the LKS and their implementation is assisted by Riddle followed by discussion. In line with scaffolding Vygotsky's "" theory which states that the stages in student learning start from the assistance provided in stages, where at the beginning of learning students get a lot of help later in the next lesson the amount of aid is getting smaller until finally students are able take charge of themselves independently. As for the assistance meant by Vygotsky, students have two levels of development, namely the actual level of development and the level of potential development. Where the level of actual development is the determination of individual intellectual functions and the ability to learn certain things themselves. While the level of potential development is a level that is functioned with the help of others, both from teachers, parents, and peers (Arend, 2008: p. 47). This has led to interactions between students and others in cultural concepts, which later became known in Vygotsky's theory as Zone of proximal Development (ZPD).

In discussion activities, students are faced with several arguments. Students are indirectly trained to think how they defend their opinions and encourage students to think and work on their own initiative, students will understand concepts and ideas better, help use memory and transfer to new learning situations. Riddle given is an explanatory image of the problem given. Riddle in the form of images can stimulate students' thinking power, especially after students observe riddle and answer guiding questions, students are invited to discuss the problems presented. Learning directly from the problem given will make it easier for students to understand the concept and provide broad opportunities for students to explore themselves through the learning activities undertaken (Kristianingsih, 2010).

According to Zaman, et al. (2015) students can think critically if they have a good understanding of a concept. A good understanding is obtained because students have a thinking framework that supports problem solving and critical thinking (Cutrer, et al., 2011). To foster understanding of concepts in the cognitive structure of students, a meaningful learning process is needed. In the view of constructivism, to build a new knowledge, students will adapt new information or experiences they have through interacting with people and the surrounding environment. Through the inquiry learning model, pictorial students are more enthusiastic and enthusiastic in carrying out the investigation process to collect data in the form of facts and process these facts so that students are able to build

conclusions independently. Vygotsky believes that encouraging cognitive development is social interaction / children's experience with others.

According to Vygotsky, the experience of students will accelerate cognitive development or critical thinking skills. A person's learning outcomes are obtained through direct experience (concrete), reality that exists in one's life environment then through artificial objects, to the verbal symbol (abstract). In the cone of experience, Edgar Dale's the cone peak was getting more and more abstract the message media. The process of learning and teaching interaction does not have to be from direct experience, but begins with the type of experience that best fits the needs and abilities of the group of students faced by considering the learning situation. Direct experience will provide information and ideas contained in that experience, because it involves the senses of sight, hearing, feeling, smell, and touch. In this study the level of student involvement is visually leading to involvement. Visual is paying attention to the picture, involved is the process of discussion with his friend / teacher. By being involved, the child's learning experience is increasingly imprinting, so lessons are easy to remember.

#### IV. CONCLUSION

Based on the results of hypothesis testing, students who use the inquiry learning model Riddle pictorial are better than PBL learning models (Problem Based Learning). This is because the inquiry learning model Riddle pictorial is encouraging students to think and work on their own initiative, students will understand concepts and ideas better, help use memory and transfer to new learning situations. Riddle given is an explanatory image of the problem given. Riddle in the form of images can stimulate students' thinking power, especially after students observe riddle and answer guiding questions, students are invited to discuss the problems presented. So that students more easily understand the steps in formulating problems to find solutions to problems in a way together with peers communicate with each other to give information to one another with students. This then has implications for the results of students' critical thinking skills.

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