

## **CHAPTER III**

### **METHODOLOGY**

This chapter will describe the arrangement of research methodology and the hierarchy of research which describes about: research location, population and sample of study, research design and method, research instruments, research procedure, collecting data technic and procedure of analysis data.

#### **A. Research Location, Population, and Sample of Study**

This research divided into research location, population and sample of students' as described the implementation of research about role playing with scenario design on creative skills and students' achievement in symbiosis concept

##### **1. Research Location**

The research was conducted at Al-Azhar Syifa Budi Parahyangan that one of private Islamic Bilingual School at Bandung Barat which applied Indonesia Curriculum 2013 as teaching learning process.

##### **2. Population and sample of study**

Based on Arikunto (2010) stated that population is a set or collection of all element processing one or more attributes of interest all subject in research. The data population was conducted from all students' school in 7th grade that investigating the teaching learning process in the classroom. The sample of this research is one class of 7th grade IBNU BATUTAH that consists of 21 students in science class using purposive technic sampling. Purposive sampling often used in educational research, purposive sampling is determined sample by several considerations which give better probability in research.

#### **B. Research Method and Design**

The research method is defined as a scientific way to get the data with the purpose and specific uses. How meaningful scientific research activities are

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*THE IMPACT OF ROLE PLAYING WITH SCENARIO DESIGN ON CREATIVE SKILLS AND STUDENT'S ACHIEVEMENT IN SYMBIOSIS CONCEPT*

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based on the characteristics of science, namely rational, empirical, and systematic that will describe in following as:

### 1. Research Method

This research was used combination of pre experimental and descriptive method (Fraenkel, 2007). The data was taken only one group from pretest and posttest without control group, so it only one class that implement the role playing with scenario design as treatment. The variables are role playing with scenario design as independent variable when students' creative skills and students' achievement as dependent variables.

### 2. Research Design

The research design was used one group pretest ad posttest design. It research design data was taken that can be seen in the Figure 3.1

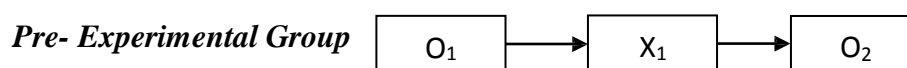


Figure 3.1 Design Illustration of One Group Pretest-Posttest

Notes:

- O<sub>1</sub> : Pre test
- O<sub>2</sub> : Post test
- X<sub>1</sub> : Treatment (Role Playing with Scenario design)

Based on the Figure 3.1 described that pretest – posttest applied without control variable using one class as experiment variable using a test to know students' prior knowledge or pretest (O<sub>1</sub>), role playing with scenario design (X) as a treatment, and the final posttest (O<sub>2</sub>) to know the result after implementation the treatment. Research design was taken during a process and product result of creative skills and student achievement in implementation role playing with scenario design. In a way of knowing the procedure research design, it will represent in the following chart which illustrates the framework of research.

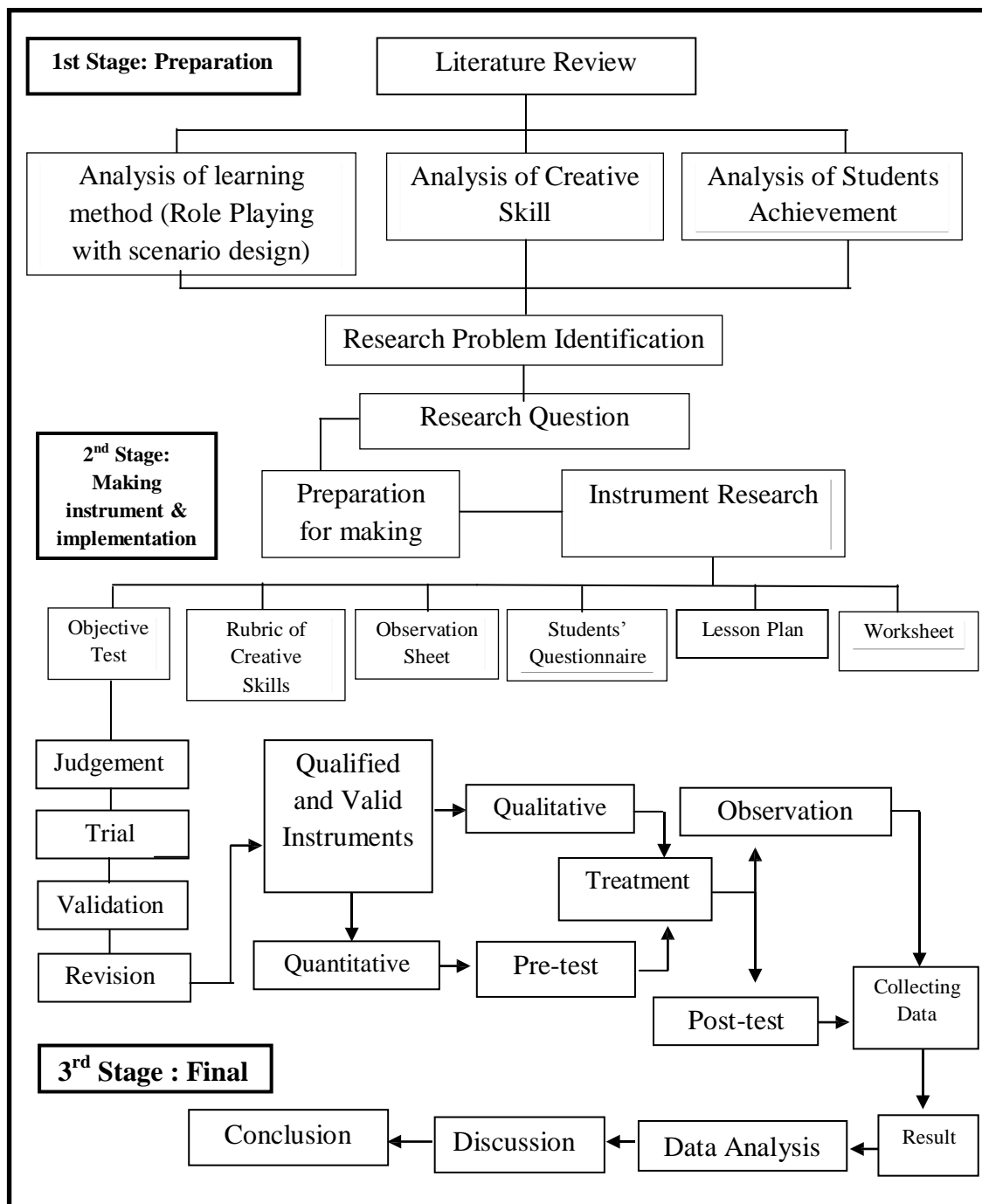


Figure 3.2 Research Plot

### C. Operational Definition

Operational definition was described every definition have indicator that can be measured from every variable in this research that included:

1. Role playing with scenario design is an alternative method that will implement in the class activities. It is advantages for students to become active learner and to develop their communication and creative skills. In order to implement of role playing with scenario design, one class of experimental group will choose. Class will divide into 3 groups, one group consist of 7 students. They have to discuss about in symbiosis concept and create scenario design. After that they perform role playing based on scenario. Rubric and observation sheet used to measure scenario design and role playing performance for process and product.
2. Creative skills were the ability to find something new and valuable. It created new combinations from several ideas, direct communication, and other things. There are some indicators that can measure creative skills based on William (in Munandar, 2009) such as in process of creative skills that included: dare to take risk, feel the challenge, curiosity, and imagination while in product of creativity that included: fluency, flexibility, originality, and elaboration. So using observation sheet and rubric as an instrument that measure creative skills from scenario design as a product of creativity and role playing performance as process.
3. Students' achievement in this research consists of cognitive aspect, affective aspect and psychomotor aspect. A cognitive aspect in in symbiosis concept the concepts were essential in teaching and learning activities. According to Bloom's Taxonomy revised cognitive aspect are consist of C1 (remember), C2 (understand), C3 (apply), C4 (analyze), C5 (evaluate), C6 (create) that will measured using an objective test, cognitive aspect will measure from C1 (Remember) to C3 (Applying) that consist of 20 question for multiple choice and for measure C4 (Analyze) to C6 (Creating) 3 question for essay with pretest and post-test. Then affective aspect are receiving, responding, valuing and organization and

characterization that will be measured during the process of implementation. And the psychomotor aspect consists of imitation, manipulation, precision, articulation, and naturalization that will be measured during the implementation of role playing. So the objective test that is applied in the learning process before implementation as a pretest and after implementation as a posttest to measure student improvement in the cognitive aspect while the observation sheet will be applied to measure the process of student learning.

#### **D. Instructional Tools**

To conduct the teaching learning process through role playing with scenario design, there are some tools that should be prepared such as:

1. Lesson Plan

Lesson plan contains learning steps or sequences about the whole process for implementing role playing with scenario design that learning process in symbiosis concept. Lesson plan can be seen in appendix

2. Worksheet

Based on Kunandar (2008) states that a worksheet is material which is arranged and documented to guide and help students' learning process. Using a worksheet that students are followed to create a scenario for implementation of role playing with scenario design in learning in symbiosis concept.

3. Media Presentation

Media presentation is represented by material about symbiosis concept. This media uses an envelope that includes learning content about symbiosis concept. So generally students should know the concept about symbiosis.

#### **E. Research Instrument**

The research instrument which is adapted to collect data in this research consists of:

## 1. Objective Test

In the form of questions was determined the ability of students before and after the implementation in symbiosis concept. Measuring students' achievement used pretest and posttest.

### a. Pretest

Pretest was conducted in the beginning of teaching learning process. It needed to know or intend student prior knowledge to the concept of in symbiosis concept. Objective test in pretest will describe in the Table below:

Table 3.1 Pretest– Posttest as Objective Test Blueprint

Concept Theme	Cognitive Aspect					
	Multiple Choice Question			Essay Question		
	C1	C2	C3	C4	C5	C6
Definition of in symbiosis concept	1	5	-			
Type of symbiosis in ecosystem	-	4,19,20	13,14	1		
The process of interaction that occur about in symbiosis concept	-	3,6,7,9,10	15			1
The example of in symbiosis concept	2	8,11,12	16			
in symbiosis concept in daily life	-	18	17		1	
<b>Total</b>	<b>2</b>	<b>13</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>1</b>

### b. Post test

Post test was conducted in the last section after making design scenario and implementing role playing activity. The question are same with pretest but with different question. The questions were made randomly to know the improvement of student to the concept of symbiosis

## 2. Observation Sheet

Observation sheet is forming that record student activity during learning process in the classroom (Kunandar, 2008). It was described how the learning process occurs in the classroom activity started until the end.

### 3. Rubric

Rubric was used to assess and determine the scoring based on indicator and criteria that already have. The data is determined the aspect about creative skills from process and product of students' result in learning in symbiosis concept. Based on William model of creative skills that creative skills have two aspect such as affective as process and cognitive as a product of creative skills.

#### a. Rubric Form of Creative Skills Process

Rubric performance used in this instrument will be used to measure role playing performance test based on Williams, (in Munandar, 2009) which consists of criteria creative skill that can be seen in the Table below:

Table 3.2 Blueprint Rubric of Performance

Criteria	Description	Score		
		3	2	1
Flexibility	Speaking activeness in giving idea	Student active with 3 dialog that speak during role playing drama	Student active with 2 dialog that speak during role playing drama	Student not active during role playing drama
Fluency	The ability to speak fluently with correct pronunciation	Students can speak fluently with correct pronunciation with vocabulary more	Students are less able to speak fluently with correct pronunciation but have not been able to understand vocabulary	Students are not able to speak fluently and still require stimulation of the words
Cooperation in group	Participation and respect for the role play group	Students are very excited to play the drama	Students are less eager to play the drama	Students not eager to play in the drama still need motivated
Body language	The ability to use body language	Students are active in playing the hand gestures and motion	Students are still in doubt play the body movements and hand gestures	Students do not play the body movements and hand gestures
Voice, intonation, articulation	The ability to plays a tone and voice change as characterization and speak loud enough to be able to be heard by the audience	Proficient students to play the appropriate role and voice audible to the audience	Less proficient students to play sound but speak loud enough to be heard by the audience	Students are not proficient to play the voice and the voice sounded very small and less audible to the audience
Expression	Ability to play and change the character of changes within their expression characterization	Students are adept at changing his expression to exactly fit the character characterization	Students are less adept at changing his expression to exactly fit the character characterization	Students are not adept at changing his expression to exactly fit the character characterization



Criteria	Description	Score		
		3	2	1
Originality	Give an answer that is not unusual, different from the other and most people rarely given and the results of its own	Students are able to and can think his own thoughts accordance idea	Students hesitation in giving an idea of his own thoughts	Students do not give the idea of his own ideas
Elaboration	The ability to Develop, add and enrich ideas (suitability role with dialogue)	Students can add and expand his own idea	Students are hesitant to add and expand his own idea	Students do not add and expand his own idea
Dare to take a risk	Not afraid to fail or be criticized	Students dare to take a role	Students are hesitant in take a role	Students do not dare to take the role
Feel the challenge	It can feel the challenge in playing a role	Actively participate in the challenge to feel how to play an actual role	Not very active in the feel challenge how to play an actual role	Not actively participate in the challenge to feel how to take an actual role
Curiosity	Acceptable in taking a role	Students are able to play the character	students undecided to play the role that suits his character	Students do not correspond at all to the role
Imagination	Feel the emotion, feeling happy and confident	Students looked confident in playing role playing	Students are hesitant to play a role	Students are not confident and not be afraid to play a role
Science content	Suitability of the material content of symbiosis toward role playing performance	Very appropriate with the content that played by taking role	Slightly incompatible with science content	Not in accordance with the content
Properties and costumes	The tolls when doing role playing	Properties are made complete with appropriate costumes made with incomplete	characterization Properties and their costumes are not appropriate	Properties that are not made and do not wear costumes
Overall performance	Appreciation of the role of appearance	Students are able to play very well with a good appreciation	Students are able to play well but less appreciation	Students do not act well and do not appreciate the role well

(Adapted by Williams in Munandar 2009)

#### b. Rubric Form of Creative Skills Scenario Design Product

This instrument used to measure students' creative skills in the product of scenario design that can be seen in the Table 3.12

Table 3.3 Blueprint Rubric of Scenario Design Product

Criteria	Description	Score		
		3	2	1
Completeness	Existence of theme, title, aims, setting, plot, conflict, conclusion, solution, message ,design picture	The scenario aspect shows less than 7 aspects of all poster content	The scenario fulfill 7-9 aspects of all scenario contents	The scenario fulfill completely 10 aspects of all scenario content
Content accuracy (Fluency)	Sparkling a lot of idea and always think about more than one answer	The scenario no shows description in story line	The scenario shows description in story line.	The scenario shows description in story line with design picture .
Labels – Organization (Flexibility)	Interpretation to some picture, story, and problems	Picture are too small to view or no important items on scenario design	Several items of importance on the scenario with dialog view.	All items of important on the scenario there are have picture and dialog with fullpicture
Attractiveness (Originality)	Create and produce new expression.	The scenario is distractingly messy or very poorly designed and colorless	The scenario is accepTable colorful thought it may be a bit messy	The scenario is colorful in terms of design, layout, and neatness.
Steps (Elaboration)	Solve the problem with some steps and detail.	There is massage to solve the problem in scenario story design	The scenario have a message to solve the problem given in scenario story design	The scenario has a massege to solve the problem given in scenario design with unique story
Relevancy	Correlation among scenario aspects	The scenario shows there are no conflict problems.	The scenario has strong correlation between conflict problems -solutions but the title is irrelevant.	The scenario has strong correlation from title until solution. (Relevant) and there is as massage in scenario aspect
Legibility	Readability	The texts is hard to be read	The texts is easy to be read	The text interactive to be read
Communicative	The scenario interactive Between visual and dialog	Not interesting and not communicative	Interesting not communicative	Interesting and communicative
Dialog	Create dialog	More than 4 conversation	More than 8 Conversation	More than 12 conversation
Time, Effort, Energy	On time in finishing scenario design	No fulfill the modul and scenario design	Fullfill only the modul completely without scenario design collected late	Fullfill the module and scenario design completely with on time

(Adapted William in Munandar, 2009)

#### 4. Questionnaire

Questionnaire Form is instrument non direct communication technic (Kunandar, 2008). This instrument will is use scale likert to give feedback before implementing role playing with scenario design and after implementing role playing with scenario design. For knowing students' response and impression after implementation role playing with scenario design as a treatment in this research that can be seen in Table 3.13.

Table 3.4 Blueprint of Questionnaire

Indicator	Question Number
Students' respond toward team work ability as a group	1, 2, 3, and 4
Students' respond toward role playing with scenario design	5, 6, 7, 8, 9, 10, 11, 12, 13, and 14
Students' respond in doing role playing show on in symbiosis concept	15, 16, 17, 18, 19 and 20
Students' respond toward create scenario design on in symbiosis concept	21, 22,13, and 24

#### F. Research Procedure

In this research general procedure will describe with several stages such as:

1. Preparation stage, implementation role playing with scenario design as a treatment stage and final stage. Preparation stage was important before doing the research such as:
  - a. Preliminary study on the characteristics of students, teachers, school, teaching learning process in the classroom.
  - b. Analysis of study and literature review that consist of analyzing role playing with scenario design, as a method, analyzing creative skills, analyzing student achievement
  - c. Discussion with expert lecture to formulate research problem identification
  - d. Research question was purposed that consist of the impact of role playing with scenario design on creative skills, the impact of role

playing with scenario design on students achievement and the impression student response before role playing with scenario design treatment

2. The second stage making instrument and implementation role playing with scenario design that consists as follows:

- a. According to the needs in answering research questions, instruments were arranged that consist of lesson plan, worksheet, objective test, rubric, observation sheet, and questionnaire.
- b. Instruments judgment was conducted by expert that will judge the validity instruments
- c. Conducting Validity of objective test

Validity is the ability of an instrument to measure what it is designed to measure (Arikunto, 2010). The instrument used in this research is a form of multiple choice questions and the essay question. To get 20 multiple choice and 3 essay questions can be used as a data collection for pretest and posttest. In this research, the item test should be tested or validated by the expert that will be tested. After validated by some expert lecturer then, it is necessary to test the validity of the instrument about the trial. The trial test item will implement in the upper grade of population. In this research, the trial of test item will implement in grade that already learn symbiosis concept. So from 40 question for multiple choice and 12 essay question that already made for instrument objective test, the validation of item test already got 35 item test for multiple choice and 12 essay question.

- d. Analyzing Reliability

According (Priyatno (2010) state reliability is important that instrument that gives the same results if the give on the same subject although done by different people, at different times, and different places. Reliability testing was not showed on all of the items were made, but the item that consider to become valid. So, about to be tested reliability there are 35 items were previously tested its validity.

Reliability test was using *Alpha Cronbach's* formula. The result of reliability test that already calculated by using SPSS version 20.0 for more detailed in the appendix. The conclusions of *Alpha Cronbach's* value of the 35 items were for 0.7081. It can be seen in the Figure 3.3

Cronbach's Alpha	N of Items
.708	35

Figure 3.3 Result of Reliability Multiple Choices

From the analysis of *Alpha Cronbach's value* ( $r_{11}$ ) for multiple choice question is equal 0.708, while the value of  $r_{Table}$  to test two sides at the 5% significance with  $df = 35-1 = 34$ , it can be got  $r_{Table}$  with 0,312. So, *Alpha Cronbach's Value* ( $r_{11}$ ) can be proved to be greater than the value of  $r_{Table}$  ( $0.708 > 0.312$ ). Reliability of *Alpha Cronbach's* value of 0.708 so the result of reliability test for multiple choice question means that the 40 test questions are **High**. While essay question, it can be concluded *Alpha Cronbach's Value* for 12 item test the significant is 0.865. It can be showed in Figure 3.4

Cronbach's Alpha	N of Items
.865	12

Figure 3.4 Result of Reliability Essay

From the analysis of *Alpha Cronbach's Value* ( $r_{11}$ ) for essay question is equal 0.865, while the value of  $r_{Table}$  to test two sides at the 5% significance with  $df = 12-1 = 11$ , it can be got  $r_{Table}$  with 0,576. So, *Alpha Cronbach's value* ( $r_{11}$ ) can be proved to be greater than the value of  $r_{Table}$  ( $0.865 > 0.576$ ). *Alpha Cronbach's* value of 0.876 so the result of reliability test for essay question means the 12 test questions are **Very High**

e. Analyzing Difficulty Level

After scoring the test papers, the researcher has arranged the scored test in order of scores that from the highest to the lowest score (Arikunto, 2010). So, in order to find out the level of difficulty for each item in the test, the following formula has been used:

$$P = \frac{B}{Js}$$

(Arikunto, 2010)

Notes:

P = Difficulty Level

B = Total of respondents who answer right

Js = Total of respondents

Classification of difficulty level in each test item that used is based on (Arikunto, 2010) that can be seen in the Table 3.5

Table 3.5 Classification of Difficulty Level

Value	Categories
0.00-0,35	Difficult
0,35-0,74	Medium
0,75-0,89	Easy
0,90-1,00	Very Easy

(Arikunto, 2010)

Based on the classification of difficulty of level, to determine difficulty of level in this instrument to determine how the item test can be used before implementing role playing with scenario design as treatment. In the Table 3.6 shows summary of difficulty of level

Table 3.6 Summary of Difficulty of Level

Question Number	Total Question	Percentage	Category
16,18,26,28,32	5	12,5%	Difficult
2,4,6,7,10,11,13,20,27,31,33,34,37	13	32,5%	Medium
1,5,8,9,12,14,15,17,22,23,29,30,38	13	32,5%	Easy
3,19,21,24,25,35,36,39,40	9	22,5%	Very Easy

## f. Analyzing Discriminating Power

Discriminating power of test item is the ability of test item to distinguish between a high achiever and low achiever student (Arikunto, 2010). So, to obtain the discrimination power of the items, the following formula has been used:

$$I P = \frac{RU - RL}{\frac{1}{2} T}$$

(Arikunto,2010)

Notes:

- DP = Discriminatory power.  
 RU = Number of tests in the upper group who got Right item  
 RL = Number of tests in the lower group who got Right item  
 T = The total of tests included in item analysis.

Classification of discriminating power is interpretation of item test based on Arikunto, 2010. The interpretation will describe in Table 3.7

Table 3.7 Classification of Discriminating Power

Value	Categories
< 0,00	Not appropriate
0,00-0,19	Bad
0,20-0,39	Enough
0,40-0,69	Good
0,70 -1,00	Excellent

(Arikunto, 2010)

Based on the description about discriminating power and difficulty of level the data will analyze by using software Ana test version 4.0.9. Here in the Table 3.8 shows the summary of analyzing objective test for discriminating power

Table 3.8 Summary of Discriminating Power

Question Number	Total Question	Percentage	Category
15,26,32	3	7,5%	Not appropriate
1,6,11,16,18,19,21,24,25,28,30,35,40	13	32,5%	Bad
3,7,10,12,14,22,23,27,29,31,36,39	12	30%	Enough
4,5,8,9,17,33, 34,37,38	9	22,5%	Good
2,13,20	3	7,5%	Very Good

Based on the result consists of difficulty of level and discriminating power. The detail analysis of result will be seen in appendix.

- g. After the validity already analyzed then, the instrument of objective already valid Next procedure
- h. Trial test of test instrument was conducted to identify the quality of instrument for item validity
- i. Validation occur if test already used based on analysis by expert
- j. Revision Instrument of research based on the analysis and suggestion from an expert lecturer
- k. Qualified and valid of research instrument that already used for implementing treatment process.
- l. The process implementation that giving pre-test was conducted to identify students' preliminary skills and prior knowledge students about symbiosis concept
- m. Giving a treatment was conducted in 3 meeting, including, teacher direction, scenario design, and role playing performance. In conducting teaching learning process, there were three observers who observe during treatment.
- n. After role playing with scenario design already implemented then collecting all data related with research.



3. Final stage is finally of implementation role playing with scenario design that consists as follows:
  - a. Collecting data as result from implementation role playing with scenario design as treatment
  - b. All of data was calculated
  - c. The result of data calculation was analyzed
  - d. Discussion to elaborate the result of analysis
  - e. Conclusion based on result analysis
  - f. Recommendation that conduct after finishing the implementation that what should be avoid in this research to next research with same research focus.

### **G. Data Collection**

The technic will use to collect the data in this research are:

1. Test

Test can use for measure basic competences and achievement (Arikunto, 2010). Data using for determine the result of student in teaching learning process in implementation role playing with scenario design on student achievement and creative skills.

2. Observations

Observations represent a frequently will use in form of data collection (Arikunto, 2010). Observation will use several tool to support observation such as document observation format, camera, video, type recording during teaching learning process.

3. Rubrics

Rubric represent to describe rating scale that already made based on criteria or indicator (Munandar, 2009). Rubric can give be easy to describe that data more prefer based on the criteria or indicator.

4. Questionnaires

Questionnaire include several question with documented which will use to collect the data and get information from respondent (Kunandar,

2008). Questionnaire will use to support the data before and after implementing role playing with scenario design as teaching learning process.

#### 5. Interview from video taken

Interview occurs to ask one participant open ended questions and record the answers (Arikunto, 2010). It transcribes the data into words for analysis as a learning process to give strength and to obtain the appropriate data.

### H. Research Schedule

The implementation role playing with scenario design method on creative skills and student achievement in symbiosis concept was conducted in nine meeting. The role playing with scenario design implemented from April 24th 2014 until Mei 27<sup>th</sup> 2014.

Table 3.9 Research Schedule Implementation

Day	Date	Time	Location	Material
Thursday	April 24 <sup>th</sup> 2014	13.20-14.40	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Pretest question of in symbiosis concept
Monday	April 28 <sup>th</sup> 2014	07.40-09.00	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Implementation in symbiosis concept
Monday	Mei 5 <sup>th</sup> 2014	07.40-09.00	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Implementation scenario design of in symbiosis concept
Thursday	Mei 8 <sup>th</sup> 2014	13.20-14.40	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Create a product of scenario design about the in symbiosis concept
Monday	Mei 12 <sup>th</sup> 2014	07.40-09.00	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Deadline a product of scenario design about the in symbiosis concept
Monday	Mei 19 <sup>th</sup> 2014	09.00-11.00	Aula SMP Al Azhar Syifa Budi Parahyangan Lt 4	Implementation role playing practice
Thursday	Mei 19 <sup>th</sup> 2014	14.00-15.00	Aula SMP Al Azhar Syifa Budi Parahyangan Lt 4	Implementation Role Playing Show
Monday	Mei 26 <sup>th</sup> 2014	07.40-09.00	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Posttest Question
Tuesday	Mei 27 <sup>th</sup> 2014	15.00-16.15	IBNU BATUTAH Class Grade 7 <sup>th</sup>	Implementation Questionnaire

In first meeting was giving the pretest that in order to know the student prior knowledge in symbiosis concept. After symbiosis concept was giving. Next meeting implementation scenario design, in here students' divided into three group and then create scenario design product fourth meeting not only scenario but also some properties that will be needed before implementing role

playing. So, researcher was given deadline for finishing the product of scenario design. In sixth meeting there was time to practice before implementing role playing performance. In seventh meeting, the time for implementing role playing performance that students' here will act based on scenario that already made. Eighth meeting the time for implementing posttest that already know cognitive student achievement after treatment and last meeting implementing student response, not only student that feel the treatment but also the other student or audience that seen the implementing role playing performance as a method in teaching learning process.

### I. Research Analysis Technic

Most of the result data will obtain will be analysis data instrument during teaching learning process in the beginning until the end that will describe in following as:

#### 1. Scoring process

Scoring process will be analyzed by right answer based on scoring rubrics stated in blue print. The question will analyze from the total score that will calculate by using the following formula, (Arikunto, 2010)

$$\frac{\Sigma}{\dots}$$

(Arikunto, 2010)

#### 2. Calculation of *Gain* score and *N-Gain* score

According to research method used, analyzing data is used the correlation of pretest and posttest result to determining the normalized gain index. The normalized gain is calculated by **Average Normal Gain**. The average g factor can be calculated using the average scoring of the class pretest and posttest student individual score (Hake, 1998) It can calculate:

$$N \text{ Gain} < \frac{\dots}{\dots}$$

(Hake, 1998)

Hake (1998) said that the normalized gain is the meaningful measure of how well course teach. Three categories “high” for normalized gain greater than 0.7, “medium” between 0.3 – 0,7 and “low” below 0,3.

Table 3.10 Categories of Average Normalized Gain

Normalized Gain	Categories
High	$>0.7$
Medium	$0.3 < x < 0.7$
Low	$<0.3$

(Hake, 1998)

### 3. Hypothesis Test

This research used hypothesis to analyze hypothesis for more significant that using pretest and posttest. The hypothesis in this research is:

$H_0$  : There are no significant differences between standard values with posttest

$H_1$  : There are significant differences between standard values with posttest

This test will used by using SPSS 20.0. Before t-test hypothesis, it should be testing requirement that fulfill such as:

#### a. Normality test

Using of parametric statistic has a deal with assumption that each variable in this research that will be analyzed form a normal distribution. If the data is abnormal, the parametric can't be used. It has to use non-parametric statistic. Normality test is to know whether the sample comes from population that has normal distribution or not. In this research, Normality test is uses statistic test from SPSS 20, *Kolmogorov-Smirnov* with significance level ( $\alpha$ ) is 0,05. The criteria is when significance value  $> 0,05$  so,  $H_0$  will be accepted and  $H_0$  will be rejected or denied if significance value  $< 0,05$ . (Priyatno, 2010)

#### b. Homogeneity test

Homogeneity test or used for determine a sample from population that originated from two classes that homogeny. Homogeneity test that is

done in this research is Test of Homogeneity of Variance in SPSS 20.0 when significance value is  $>0,05$  then  $H_0$  will be accepted and  $H_0$  will be rejected or denied if significance value  $< 0,05$ . This test is used in several condition, the sample has to be distributed normally (Priyatno, 2010).

c. T-test

This test might be used to determine the differences between standard value with posttest, this test using SPSS 20.00 with criteria is  $H_0$  will be rejected if  $t_{\text{computation}} > t_{\text{table}}$  and  $H_0$  will be rejected if  $t_{\text{computation}} < t_{\text{table}}$  (Priyatno,2010). Based on the result used SPSS. 20.00 that significant for t test is 0.802 with frequency are 0.064. It means that  $H_0$  is rejected.

4. Observational Sheet Analysis

The form will be analyzed the process of learning activities in the classroom. It divided into layout management and student activity.

5. Rubric Analysis

Determination of score percentage in each criterion will implement for analyzing qualitative (Purwanto, 2012). The analysis can use as supporting information of improvement in each criterion. The formula below will be used in this calculation.

$$\frac{\text{Number of criteria met}}{\text{Total number of criteria}} \times 100\%$$

(Purwanto, 2012)

The category is presented as follows:

Table 3.11 Categories of Creative Skills

Score	Categories
86- 100	Very High
76-85	High
60-75	Medium
55-59	Low
0-54	Very Low

(Purwanto, 2012)

6. Questionnaire Analysis

According Kunandar (2008) said that data collection though questionnaire will be used to determine the response of the students. In the

time of data analysis scale for calculating the following value that fulfillment of the other questionnaire circle mark on the available number with range 1-4 which represent strongly agree, agree, disagree, and strongly disagree. The technique of converting score into percentage will be formulated as follows

$$\text{Score} = \frac{\text{---}}{\text{---}}$$

(Kunandar, 2008)

Based on formulate above that will be seen in the Table 3.12 to determine scoring guideline for students response.

Table 3.12 Students' Response of Scoring Guideline

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
Positive	4	3	2	1
Negative	1	2	3	4

In the time of data analysis, the process used by calculating the following value:

$$P = \frac{f}{n} \times 100\%$$

(Kunandar, 2008)

Notes: P: Percentage,  
f: Frequencies of the answer,  
n: Total of the response