CHAPTER III
RESEARCH METHODOLOGY

A. Research Subject

Population in this research is two classes of the 8th grade in a public junior high school in Kota Bandung. Using convenience sampling two classes were chosen, one as experimental group and control group, both group were treated by different method in learning psychotropic and addictive substances. 30 students of 8I chosen as the experimental group and 30 students of 8F chosen as the control group.

B. Research Method

The method used in this study was quantitative experiment method. The data were collected from two classes. Control group was learn psychotropic and addictive substances by conventional method while experimental group learned psychotropic and addictive substances by role-playing method.

C. Research Design

The research used matching pretest - posttest comparison group. The characteristic of this design is both groups have different treatment which is chosen by convenience or haphazard sampling, means the population were chosen based on their relative ease of access so it was not based on the pretest score result. The research design can be seen in the Figure 3.1.
D. Operational Definition

Role-playing is science teaching and learning are define as active, experiential, and student centred learning method, it means that the student directly involved into the learning process. Experimental group using three types of role-playing, they are presentations, theater in education and simulation.

The improvement of student’s achievement stated on this paper is the improvement of student’s score which is measured from student’s pretest and posttest result from both experimental group and control group. Pretest and posttest questions were eight essay which prerepresent the four objectives of the learning process itself.

The comparison of student’s attitude stated on this paper will be observed from the attitude scale score result which is given once in the end of the session. The attitude scale has ten attitude statements which represent the four objectives of the learning process.
E. Instructional Tools

Instructional tools that is used in the implementation of this research is arranged as the follows:

1. Lesson Plan
   a. Experimental group lesson plan

   The lesson plan design for experimental group contained a learning scenario for four meetings in total. The learning implementation itself using three types of role-playing method to reach the objectives of the study about psychotropic and addictive substances chapter.

   b. Control group lesson plan

   The lesson plan design for control group contained a learning scenario for four meetings in total. The learning implementation itself using discussion and presentation method to reach the objectives of the study about psychotropic and addictive substances chapter.

2. Students Worksheets
   a. Experimental group role-playing worksheet

   The three sets of role-playing group worksheets was made to be used in the implementation process of the experimental group which is use role-playing as learning method. They are:

   1) 1st Group Worksheet: Using Presentation type of role-playing

   Worksheet contain articles about psychotropics and addictive substances cases or hot news, guided by some questions to find out 5W and H (what why who when where and how) about the contain of the articles. The rest is student should present their answer and idea about the whole article in their worksheet with their own way (e.g: investigation drama, conference drama) in front of the class.
The worksheet form for Group 1 can be seen below.

Figure 3.2
Experimental Class Group 1 Worksheet’s Article

Figure 3.3

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Experimental Class Group 1 Worksheet’s Instruction

2) 2nd Group Worksheet: Using Teather in Education type of role-playing

In the worksheet, there is a scenario provided to be use in the implementation, titled Drugs are Bad with several role provided to be directly acted in front of the class by the students. The scenario itself in about a boy named Jack and his two friends which started to consume coccain and it change their life especially Jack’s as the main character, Jack started to skip school and steal his parents jewelry to sell and get money to buy coccain. The material contained on the scenario are how parents should to to abused kid, what kind of treatment given to abused kid in the rehab and some more moral value.

The worksheet form for Group 2 can be seen below.

Figure 3.4
Experimental Class Group 2 Worksheet’s Instruction
3) 3rd Group Worksheet: Using Simulation type of role-playing

The worksheet contain of 10 cutting cards and instructions, the cards itself contain certain condition which often happen in daily life such as:

“On the way home you meet a stranger, he offering you something looks like candy. What will you do? Act out and be safe!”

The student then discuss what will they do with their pair and act it out in front of the class.

The worksheet form for Group 3 can be seen below.

![Figure 3.5: Experimental Class Group 3 Worksheet’s Instruction](image-url)
b. Control Group Discussion Worksheet

Worksheet contain articles about psychotropics and addictive substances cases or hot news, guided by some questions to find out 5W and H (what why who when where and how) about the contain of the articles. Each group should present and inform their friends about the 5W and H information about their article in front of class.

The example of control group’s worksheet form can be seen below.

Figure 3.6
Control Group’s Worksheet Instruction
F. Research Instrument

a. Pretest and Post test

Pretest consist of eight essay questions and given at the beginning of the meeting after the introduction of the psychotropic and addictive substances chapter. It does not affect which group will be decided as control group and experimental group because there is a big chance that the result will have no significant different because in government school in every class the student
intellectual level always in average condition means in every class has the same amount of high achiever and low achiever.

Posttest has the same question used in the pretest, it is consist of eight essay questions and given after all the role-playing types being done in the experimental group and the discussion and presentations group present their discussion result about psychotropic and addictive substances in the control group are done. The result of posttest itself will be used to measure the effect of is role-playing that is given to experimental group will affected their achievement in learning psychotropic and addictive substances.

Table 3.1
Blueprint of Pretest and Posttest Questions

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Item Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student can differentiate the different between medicine and drugs.</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Student know the different effect caused by certain kinds of psychotropic were different.</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Student know the different and example of psychotropic and addictive substance found in our daily life.</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Students have to be able to explain their action in some condition occurred in order to prevent themselves from drugs.</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Students have to be able to explain their action in some condition occurred in order to protect family and themselves from the negative effect of addictive substances.</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Student has to be able to explain their action in some condition occurred in order to help a friend to cure their addiction.</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Students have to be able to explain their action in some condition occurred in order to prevent themselves from psychotropic and addictive substances.</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>Students know what kind of treatments done to cure/treat drug abuser in rehabilitation center.</td>
<td>1</td>
</tr>
</tbody>
</table>
b. Attitude Scale

Attitude scale is consist of Likert scale with ten positive statements provided each statement has the different objective in order to know the student’s determination for their attitude in some case mention on the statements relate to the material being learn in this opportunity it is psychotropic and addictive substances.

Table 3.2

<table>
<thead>
<tr>
<th>No</th>
<th>Objectives</th>
<th>Test Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Explain kinds of drugs and its classification.</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Differentiate addicitives substances and psychotropic.</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Explain the effect of using addictive substances and psychotropic in daily life.</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Describe how to treat and prevent drugs user and psychotropic addiction.</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 3.2

Blueprint of Student’s Attitude Scale


c. Observation Sheet

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Writer asked two observers to come to both experimental group and control group in the implementation stages to observe how the learning activities about psychotropic and addictive substances being done in the class referring to the learning scenario made. The lesson plan is divided into three main parts of learning activity they are opening, core activity and closing. There are ‘done’ column and ‘undone’ column that have to be filled by observers by check (v) symbol to marked those activity has been implemented or done in the class room or not.

d. Student’s Questionnaire

Writer will identify the student’s responses in using role-playing as a method in learning psychotropic and addictive substances chapter by distribute a questionnaire contain five opened answer’s questions about the activities being done in the learning process to the experimental group. The blueprint of student’s questionnaire can be seen in Table 3.3 below.

Table 3.3
Blueprint of Student’s Questionnaire

<table>
<thead>
<tr>
<th>No</th>
<th>Aspect</th>
<th>Item Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The form of the role-playing group worksheet.</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Student’s respond to the presentation type of role-playing learning activities.</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Student’s respond to the theater in education type of role-playing learning activities.</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Student’s respond to the simulation type of role-playing learning activities.</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Student’s respond of interest to the whole role-playing learning activities.</td>
<td>1</td>
</tr>
</tbody>
</table>
e. Teacher's Questionnaire

Writer will identify the teacher’s responses in using role-playing as a method in learning psychotropic and addictive substances chapter by distribute a questionnaire contain five opened answer’s questions about role-playing and its implementation in the learning activities.

Table 3.4
Blueprint of Teacher’s Questionnaire

<table>
<thead>
<tr>
<th>No</th>
<th>Aspect</th>
<th>Item Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The teacher’s interest toward role-playing in science learning process.</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>The form of the role-playing group worksheet.</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Teacher’s respond to the whole role-playing learning activities of psychotropic and addictive substances.</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Teacher’s respond to the whole role-playing learning activities of psychotropic and addictive substances.</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Teacher’s respond to the whole role-playing learning activities of psychotropic and addictive substances.</td>
<td>1</td>
</tr>
</tbody>
</table>
G. Research Procedures

In general, the research to be conducted has three stages, namely:

1. Stage 1: Preparation

The preparation stage are mainly about the process when writer preparing all the instrument being used in the research, as follow:

a. Doing some literature study, mainly from international journals writer got from the internet and the journals collection book. According to Dana Craciun (2012) the improvement of the student’s achievement using every method of learning can be measure and seen clearly from the test result before and after the learning implementation being done in the class, that is why writer use pretest and posttest as writing instrument to measure student’s achievement in learning psychotropic and addictive substances using role-playing method. Meanwhile according to Ajzen & Fishbein attitude can be measure after the implementation being done because the link between attitudes and learning described as turn effect of personal experiences of the students in the learning process which can affect behaviour and attitudes, but because the attitude itself cannot be observed by a slight moment by the teacher when the implementation occured so attitude scale was use to
measure the student’s knowledge attitude after learn about psychotropic and addictive substances.

b. Writer observing the activities and learning process in four classes of Grade 8 in one of public junior high school in Kota Bandung which is being teach by the writer in her internship period and decided two classes as the observation subject to be observed for this research paper. Determine one class as control group class and another one as experimental group class randomly.

c. Determine the basic competence and material that will be use in the research, here writer choose Psychotropic and Addictive Substances from Grade 8 material in second semester because nowadays it was an important things to learn knowing how easy our teenagers are harmed by the use of psychotropic and addictive substance. It is exist in Indonesia KTSP 2006 curriculum which is use in SMP Negeri 5 Bandung as the place where the research taken.

d. Analysis the type of role-playing that appropriate with the chapter of Psychotropic and Addictive Substances that will be use in the implementation/learning process in the experimental group.

e. Implementation tools designing process to be use in the learning process. Two lesson plan being developed to be appropriate with the chapter taken it is psychotropic and addictive substances for control group it is using discussion and presentation method and for experimental group is using the role-playing types in the implementation/learning process. The implementation tools itself are two lesson plan for the experimental group and control group,
three role-playing worksheet for experimental group and three psychotropic and addictive substances cases article worksheet for control group.

f. Research instrument designing. In the implementation process some instrument needed in order to support the research to be done, they are:

1. Student’s Pretest Posttest Questions to measure the improvement of student’s achievement.
2. Student’s Attitude Scale to measure student’s attitude after the implementation being done.
3. Learning Process Observational Sheet to know whether the implementation process being done in the class same as expected from the lesson plan or not.
4. Student’s Questionnaire to know the responses in using role-playing as a method in learning psychotropic and addictive substance.
5. Teacher’s Questionnaire to know the responses in using role-playing as a method in learning psychotropic and addictive substance.

g. Expert judgement for the instrument making is a must in order to judge whether the instrument made by writer is appropriate with the research being taken and whether it is suitable to use in the implementation/learning process or not. Writer get three experts as the judges, they are one chemistry lecturer and two biology lecturers.

h. Revision of the instruments was done to revise some mistakes or incomplete term made by writer.

2. Stage 2: Implementation

1) Experimental Group Implementation Process

a. 1st Meeting: Pretest and Introduction

In the first meeting student from both experimental and control group was given pretest question to measure that their starting point before the research done are nearly in the same level.
Introduction of the material about Psychotropic and Addictive Substances are done to introduce the student to what they will learn then continue to divided the student in the experimental group into three groups and distribute the role-playing group worksheets.

b. 2nd and 3rd Meeting:
1) Learning Implementation using Role-playing
The implementation done according to the groups that has been divided in the previous meeting.

2) Observation of the Learning Implementation using Role-playing
Three types of role-playing are implemented in the experimental class, they are presentation, theater in education and simulation. All of those role-playing types chosen because, for the chapter of psychotropic and addictive substances which is learn about drugs and any addictive substances that really close to teenagers commingling in a big city like Bandung and Jakarta.

Presentations itself being done by giving the students worksheet with articles about psychotropics and addictive substances cases or hot news, guided by some questions to find out 5W and H (what why who when where and how) about the contain of the articles. The rest is student should present their answer and idea about the whole article in their worksheet with their own way (e.g: investigation drama, conference drama) in front of the class. After the role-playing being performed in front of class, techer and student discuss about the cases taken in the role-playing and discuss the 5W and H to make sure the students get the point of the first group presentation, it is mainly about type of psychotropics and addictive substance and its effect to our body and our life.

Meanwhile for Theater in Education, writer provide a scenario to be use in the implementation, titled Drugs are Bad with several role provided to be directly acted in front of the class by the students. The scenario itself in about
a boy named Jack and his two friends which started to consume coccain and it change their life especially Jack’s as the main character, Jack started to skip school and steal his parents jewelry to sell and get money to buy coccain. The material contained on the scenario are how parents should to to abused kid, what kind of treatment given to abused kid in the rehab and some more moral value. After the drama, teacher and students discuss about the drama being performed in front of class and mentions what are the value that the students get from the dialogue performed, it is mainly about the social effect of psychotropics and addictive substance and the procedure of the treatment given in the rehabilitation center.

The last type of role-playing is simulation. Student divided into some pairs and given 1 cutting cards each, the cards itself contain certain condition which often happen in daily life such as:

“On the way home you meet a stranger, he offering you something looks like candy. What will you do? Act out and be safe!”

The student then discuss what will they do with their pair and act it out in front of the class. Teacher and the student discuss after the lesson to decide whether the student act is a right thing to do or not and give a right solution to face certain condition in real life.

Two observer came to observe the whole process of the implementation occured in the experimental group with the guidance from the writer and the observational sheet given to check whether the implementation process suit the lesson plan prepared by the writer or not.

3) Distributing Teacher’s Questionnaire

Teacher’s questionnaire distribute to know teacher’s respond to the implementation of the learning process of psychotropic and addictive
substances that the writer known as a rare method to use as a method in learning science in one of public junior high school in Kota Bandung.

c. 4th Meeting: Posttest and Distributing Student’s Questionnaire
The posttest with the exactly same questions as pretest question distributed to measure the student’s improvement in both experiment and control group to be compared to know the different of both group result to make conclusion about the effectiveness of role-playing method to improve student’s achievement.

d. 5th Meeting: Distributing Attitude Scale
Attitude scale was distribute to both experimental and control group to know student’s knowledge attitude result after the implementation/learning process occurred.

2) Control Group Implementation Process
a. 1st Meeting: Pretest and Introduction
In the first meeting student from both experimental and control group was given pretest question to measure that their starting point before the research done are nearly in the same level.

Introduction of the material about Psychotropic and Addictive Substances are done to introduce the student to what they will learn then continue to divided the student into 3 groups.

b. 2nd and 3rd Meeting:
1. Learning Implementation using Discussion and Presentatation
The implementation done according to the groups that has been divided in the previous meeting.

2. Observation of the Learning Implementation using Discussion and Presentation
For the control group, the students learn about psychotropics and addictive substance using discussion and presentation method where the students divided into five groups with six members each. They’re given one worksheet each group contain an article/case about psychotropic and addictive substance which is happen in Indonesia in 2010 until 2013, they discuss the article and answering 5W and H questions about the case and every group in the class given time to present their discussion result in front of class. In the end of the lesson teacher and student discuss about the whole activity being done in the class and add some more material from the slides of power-point presentation.

Two observer came to observe the whole process of the implementation occurred in the control group with the guidance from the writer and the observational sheet given to check whether the implementation process suit the lesson plan prepared by the writer or not.

c. 4th Meeting: Posttest
The posttest with the exactly same questions as pretest question distributed to measure the student’s improvement in both experiment and control group to be compared to know the different of both group result to make conclusion about the effectiveness of role-playing method to improve student’s achievement.

d. 5th Meeting: Distributing Attitude Scale
Attitude scale was distribute to both experimental and control group to know student’s knowledge attitude result after the implementation/learning process
occurred and expected that the result of experimental group is better that the control group.

3. Stage 3: Analysis and Conclusion

1. Research Instrument Scoring Process

Scoring process of the research instrument is different for each instrument in order to obtained the right data to be analyze in the next data processing process.

a. Pretest and Posttest Scoring

The process of pretest and posttest data scoring from both control and experimental group is 10 out of 10 points given if the students can answer all the 8 questions given in the test sheet. Then the total 60 pretest sheets and 60 posttest sheet being collected to put the score obtained into Microsoft Excel and SPSS program to be process furthermore.

b. Attitude Scale Scoring

The attitude scale scoring process is using Likert scale with ten positive statements provided. So the more right the column checked by the students the more positive answer they choose and more points they got. The point itself is Strongly Disagree (1 point), Disagree (2 points), Neutral (3 points), Agree (4 points), and Strongly Agree (5 points) the points collected from student’s answers of the 10 statements being calculated and divided by 5 to get total 10 out of 10 points maximum.

c. Learning Process observational Sheet Scoring

Two observers were came to both experimental group and control group implementation process given observational sheet based on the lesson plan to guide them in observing the whole activities happen. It was done by give
check mark in ‘done’ column if the activities in the class happen as written in the observational sheet and observer can give check mark in ‘undone’ column if the activities in the class were not same as what is written in the observational sheet. Writer then percentage the check mark exist in the ‘done’ column to know if the lesson plan made by writer can really being use in the learning implementation process.

d. Student’s Questionnaire Scoring
Student’s questionnaire form was five open questions so the scoring process is to collect all type of answer and make the similar one counted in one type of answers comes up. Precentage all the answers obtained and make a diagram pie for each question.

e. Teacher’s Questionnaire Scoring
Same as student’s questionnaire, the form of teacher’s questionnaire was 5 open questions too so the scoring process is to collect all type of answer and make the similar one counted in one type of answers comes up. Precentage all the answers obtained and make a diagram pie for each question.

2. Data analysis done to process the data obtained from the whole research the Quantitative data processing done using SPSS 18.0 for Windows and Microsoft Excel 2010.

The whole analysis process of the data obtained from the experiment are as follow:

a. Test Data and Analysis
Test data obtained from this research are pretest, posttest and gain index. This is the analyze result of quantitative data obtained from this research.

1. Normality Test
Normality test conducted to determine whether data obtained normally distribute or not. To count it we can use SPSS software using Kolmogorov-
smirnov statistic test with 5% signification level. Normality test conducted to pretest and post test score from two different class/group (experimental and control group).

Both data were distributed normally, the data processing continued to homogeneity test. The data shown the distribution from one or all the data not normally distribute, the data processing can continue using non perametric statistic it is using Mann Whitney-Wilcoxon test.

2. Homogeneity Test
The data obtained normally distribute so the next process to be done was homogeneity test. Homogeneity test use to determine whether both group has homogenous variances or not. To count homogeneity Leven’s test with 5% signification level was used. Homogeneity variances test done in order to determine which statistic test will be used to test our hypothesis (similarities and mean test).

From the Leven’s test obtained, the data normally distribute and homogenous, the hypothesis test will be use is One-Way Anova (more than 28 students).

3. Compare Mean Test
Compare mean test is done to determine whether both group (experimental and control group) have the same mean score or not. If the data obtained normally distribute and has homogenous variances the next test will be One-Way Anova. Meanwhile if the data obtained did not distribute normally and did not have homogenous variances the test will be use is a Non-parametric test (Mann Whitney-Wilcoxon test).

According to the things that have already explain in the beginning that the data which is processed and analyzed in this research are pretest and post test data. The similarity test of those two group and the mean test is done to both
pretest and post test data. Similarity test done to determine whether both group (experimental and control group) has the same initial mean score or not.

Meanwhile, difference test and mean test done to the post test data only to determine the improvement of student’s cognitive achievement. The counting obtained from both control group and experimental group pretest and post test score. Normalize gain index was used as measurement to determine the student’s achievement of cognitive quality improvement.

The improvement occurred after and before the learning process according to Meltzer (Ward, 2006:39) is calculated by gain index formula below:

\[ N - \text{Gain index} = \frac{\text{post test score} - \text{pre test score}}{\text{maximum ideal score} - \text{pre test score}} \]

The criteria used by Hake (Sopandi, 2010) are presented in below:

<table>
<thead>
<tr>
<th>Gain</th>
<th>Interprets</th>
</tr>
</thead>
<tbody>
<tr>
<td>g &gt; 0.7</td>
<td>High</td>
</tr>
<tr>
<td>0.3 &lt; g &lt; 0.7</td>
<td>Medium</td>
</tr>
<tr>
<td>g &lt; 0.3</td>
<td>Low</td>
</tr>
</tbody>
</table>

3. Observational Sheet Analysis

The observational sheet with check marked ‘done’ and ‘undone’ column being analyze one by one and percentage the activities being done in each
class to see if the learning activities being done in the class is based on the
lesson plan made or not. The result then compared between control group and
experimental group to know in which class the implementation done
effectively based on the lesson plan made.

4. Student’s Questionnaire Analysis
The student’s questionnaire which has been scored was collected to make
percentage of each answers comes up as the answer of five open questions
given to the experimental class which learn psychotropic and addictive
substance using role-playing.

5. Teacher Questionnaire Analysis
The teacher’s questionnaire which has been scored collected to make
percentage of each answers comes up as the answer of five open questions
given to the science teachers in a public junior high school in Kota Bandung
to know how was their responses through learning psychotropic and addictive
substances using role-playing.

2. Conclusion can be determine after processing all the data from the whole
research. The conclusion expected that the experimental group’s posttest and
the attitude score result which learn using role-playing method were better
that control group’s result which used conventional method in learning
psychotropic and addictive substances

H. Research Plot
In order to arrange the sequence of research organely, the whole process of the data collected shown in the following diagrams:

![The Research Plot Diagram](image-url)

**Figure 3.8**

The Research Plot Diagram

**Adinda, 2013**

Efektifitas Metode Role-Playing Dalam Meningkatkan Hasil Belajar Dan Sikap Siswa Pada Pembelajaran Psikotropik Dan Zat Adiktif Di Sekolah Menengah Pertama

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