

CHAPTER III METHODOLOGY

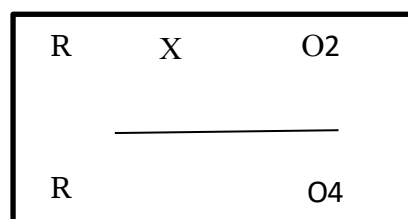
A. Research Design

This research used a quasi-experimental design with two class groups. One group was treated as the experimental class, and the other group was treated as the control class. In the experimental class, the researcher applied Edbot in teaching literal reading comprehension, while the control class did not.

In this research, the researcher used a post-test only design, in which two groups were selected through cluster random sampling. This research design was called the Post-Test Only Control Group Design. The experimental class received the treatment, while the control class did not. The effect of the treatment was analyzed using statistical tests, such as the t-test. If there was a significant difference between the experimental class and the control class, it indicated that the treatment had a significant effect. The aim of this research was to find out the effect of using Edbot in teaching literal reading comprehension. The effectiveness was measured by comparing the post-test results of both the experimental and control classes.

Edbot in teaching literal reading comprehension. To get the significant effectiveness by comparing the post-test both of experimental class and control class. The effectiveness was measured by comparing the post-test results of both the experimental and control classes. As stated by

Creswell (2012:309), the posttest-only control group design is a type of quasi-experimental design in which the researcher compares posttest results for two groups — one receiving the treatment and one that does not in order to determine whether the intervention produced a significant effect. This design was presented as follows:



Note:

R: Two groups were selected randomly

X: Treatment for experimental class

O2: Result of Post-test (in experimental class)

O4: Result of Post-test (in control class)

B. Population and Sample the Research

1. Population

In a research study, it was important to set limits on the group being observed. As explained by Creswell (2012:142), a population is a group of individuals who share the same characteristic. From this population, the researcher selected a sample to study and draw conclusions from. The population in this study included all seventh-grade students in MTsN 4 Padang. There were twelve classes in the seventh-grade: VII-1, VII-2, VII-3, VII-4, VII-5, VII-6, VII-7, VII-8, VII-9, VII-10, VII-11 and VII-12. The total number of students in

these classes was.

Table 3. 1
The Population

No	Class	Male	Female	Total
1.	VII.1	16	15	31
2.	VII.2	14	17	31
3.	VII.3	14	18	32
4.	VII.4	16	16	32
5.	VII.5	15	15	30
6.	VII.6	14	18	32
7.	VII.7	15	17	32
8.	VII.8	17	15	32
9.	VII.9	14	18	32
10.	VII.10	12	18	30
11.	VII.11	13	16	29
12.	VII.12	11	9	20
TOTAL				363

Source: The English Teacher at MTsN 4 Padang

2. Sample

According to Cresswell (2012, p. 142), "Samples are subgroups of the target population that will be studied by researcher to make generalizations about the target population." In determining the sample, there were several techniques in sampling.

Based on the number of population above, it was large enough to be a research sample. The sample was homogeneous so it used the Cluster Sampling Technique to select one of the classes to be sampled. The cluster sampling technique is the process of randomly selecting whole groups, not individuals in a population that is determined to have the same characteristics (Ridwan, 2003:41) individuals in a population that is determined to have the same characteristics (Ridwan, 2003:41). The researcher wrote the numbers 1–12 on several small pieces of paper according to the total number of classes and cluster random sampling was done by lottery.

For this research, two class samples were taken from the existing population. The selection of two classes was intended to enable researchers to conduct more focused and in-depth experiments with a control class and an experimental class. Through this selection, researchers conduct treatments, and post-tests using EdBot to directly measure the effectiveness of the media. With data from the pre-tests and post-tests, researchers hoped to see changes in students' reading comprehension before and after using EdBot.

After do the selection the researcher found two class will be class experiment and class control. The samples of this research were class (VII.1) consisted of 31 students as experimental class and VII.4 consisted of 32 students as control class.

C. Technique of Collecting Data

1. Treatment

The procedure of data collection in this research was carried out through the following stages:

a) First Meeting

The first meeting was an introduction to descriptive text in general. Elements or components found in descriptive text. Researcher presented several descriptive texts with simple vocabulary levels.

b) Teaching Reading Using guided reading technique (Second Meetings)

The next meetings, the researcher conducted reading comprehension instruction focused on literal comprehension of descriptive texts. The details of each meeting are as follows:

1) Second Meeting:

The researcher introduced the concept of literal comprehension and explained the elements of descriptive texts, such as characters, setting, and sequence of events. Students were guided through how to identify explicit information from the text.

2) Third Meeting:

Students were provided with descriptive texts and asked to read and answer multiple-choice questions

focusing on literal comprehension. The researcher facilitated discussion and guided students on how to locate key information and identify important keywords in the text.

3) Fourth Meeting:

Students worked more independently by reading new descriptive texts and completing multiple-choice questions based on the text given and discussion before. The researcher gave feedback and helped clarify questions that the students found challenging.

c) Post-Test (Fifth Meeting)

In the final meeting, the researcher administered a post-test using the Edbot platform to class experimental, and class control did not. The test contained new descriptive texts and multiple-choice questions. The purpose of the post-test was to determine whether there was an improvement in the students' literal reading comprehension after the learning process. The results of the post-test were compared with scoring by class experimental and class control to evaluate the effectiveness of Edbot as a media for assessing literal comprehension in descriptive texts.

2. Post Test

After conducting the treatment, the researchers gave a posttest to the students to obtain data to determine the results of the treatment. The

procedure for administering the posttest was that students were given a multiple-choice test in the form of a decriptive text and students chose one correct answer for each multiple-choice question. The posttest was given to measure student progress after receiving treatment or to determine the improvement in students' literal reading comprehension skills.

D. Research Instrument

1. Lesson Plan

The Learning Implementation Plan is a face-to-face learning activity plan for one or more meetings, as per Permendikbud No. 22 of 2016. Based on the syllabus, a lesson plan was created to guide students' learning activities and help them reach Basic Competence. The preparation of lesson plans is based on the Primary and Secondary Education Process Standards, it is stated that the preparation of learning tools is part of learning planning. Learning plans are designed in the form of syllabus and lesson plans that refer to content standards. Apart from that, in learning planning, learning media and resources, assessment tools and learning scenarios are also prepared (Ardiani, 2016: 4-10).

According to Mulyasa in Eni Rindarti (2017) A learning implementation plan, also known as developmental learning, refers to a basic competency that is listed in the syllabus or curriculum. Lesson made in the framework of the teacher's guide in teach so that the

implementation can more focused, in accordance with that has been set. So based on several statement above lesson plan is a learning activity plan that is developed in detail from a certain main material/theme, refers to the syllabus, is prepared for one or more meetings, and is prepared to direct students in achieving basic competence.

2. Test

A test is a series of questions or exercises or other tools used to measure skills, knowledge, intelligence, ability or talent possessed by a group or individual, Arikunto (2002:127). In this research used Multiple choice test, Arikunto (2016) defines multiple-choice tests as an assessment method that provides several answer options for each question, and participants are tasked with choosing the most appropriate option. This system is designed so that participants can identify the correct answer among options that may appear similar (distractors). The main advantages of this format are consistency and speed in the assessment process, because each question has a predetermined answer key.

a. Test Format

This reading comprehension test consists of 42 multiple-choice questions based on descriptive texts about familiar topics such as family. Each question has four options (A, B, C, D), with only one correct answer. While learning descriptive text, the test

will give by using paper and in last meeting will use Edbot just for experimental class and class control did not. The test is designed to assess students' literal comprehension through five key indicators aligned with Brown's (2004) framework. They're include:

1. Identifying the main idea
2. Finding specific information
3. Understanding vocabulary in context
4. Making simple inferences
5. Identifying references

b. Test Blueprint

The test items are distributed across five comprehension indicators as follows:

Table 3. 2 Test Blueprint indicators

No.	Indicator	Number of Items	Item Numbers	Skill Focused
1	Main Idea	3	7, 20, 35	Identify the general idea of the text or paragraph
2	Specific Information	31	1,2,3,4,5,6,8,9,10,11,12,14,15,16,17,18,21,22,23,24,25,28,29,30,32,33,34,36,37,38	Locate detailed or factual information
3	Vocabulary in Context	2	26, 40	Determine the meaning of words or phrases based on context

4	Making Inferences	2	27, 41	Draw simple conclusions based on given information
5	Identifying References	4	13, 19, 31, 42	Identify the meaning of pronouns or referential words
Total		42		

The grouping of questions into the five indicators of literal reading comprehension in the table above was done manually by the researcher, since the Edbot platform does not provide an automatic feature for categorizing questions based on comprehension indicators. As a result, the distribution of questions across each indicators are disproportionate, as evidenced by the “Specific Information” indicator, which dominates with 31 out of 42 questions (73.8%), while the “Vocabulary in Context” and “Making Inferences” indicators are each represented by only two questions (4.8 %). This imbalance is an inherent characteristic of the research instrument’s design itself. Researchers recognize this as one of the platform’s limitations: the automatic grouping of questions into several indicators results in an uneven distribution of questions across each indicator. This should be taken into account when interpreting the findings for each indicator.

c. Sample Items

LITERAL READING COMPREHENSION TEST

Choose the correct answer by selecting A, B, C, or D

Text 1 – Party (Sarah & Alex)

Text:

Sarah is at a party. She meets a man named Alex. Sarah introduces herself and if Alex is enjoying the party. Alex says that he is enjoying the party and asks Sarah for help to find the bathroom. Sarah offers her help politely.

Questions:

1. Where is Sarah?
 - A. At a restaurant
 - B. At a party
 - C. At the park
 - D. At the grocery store
2. Who does Sarah meet at the party?
 - A. A woman named Lisa
 - B. A man named Alex
 - C. A man named John
 - D. Her neighbor
3. What does Sarah ask Alex?
 - A. If he needs help
 - B. If he is enjoying the party
 - C. What his name is
 - D. Where the bathroom is
4. Is Alex enjoying the party?
 - A. No, he is not
 - B. Yes, it's great
 - C. He doesn't know
 - D. He is bored
5. What does Alex ask Sarah for help with?
 - A. Going home
 - B. Finding his hat
 - C. Finding the bathroom
 - D. Buying food
6. What does Sarah offer to Alex?
 - A. A gift
 - B. A drink
 - C. Help
 - D. Money
7. What is the text mainly about?
 - A. Sarah going to a party alone
 - B. Sarah meeting Alex and offering help at a party

- C. Alex losing his way at a party
- D. Sarah and Alex dancing together

Text 2 – Party (John)

Text:

John is a friendly person. Today, he is at a party. He greets a group of people and introduces himself. Someone asks John to pass a drink. John also asks the group if he can help them with anything.

Questions:

8. What kind of person is John?
 - A. Shy
 - B. Friendly
 - C. Rude
 - D. Lazy
9. Where is John today?
 - A. At a party
 - B. At the park
 - C. At work
 - D. At home
10. What does John do when he meets the group?
 - A. He leaves immediately
 - B. He greets them and introduces himself
 - C. He asks for money
 - D. He ignores them
11. What does someone ask John to do?
 - A. Pass a drink
 - B. Find a seat
 - C. Leave the party
 - D. Take a photo
12. What does John ask the group?
 - A. Where are you from?
 - B. Can I help you with anything?
 - C. What do you do for a living?
 - D. How old are you?
13. What can be inferred about John's personality?
 - A. He is shy and quiet
 - B. He is helpful and sociable
 - C. He is rude and arrogant
 - D. He is angry and upset

Text 3 – New Neighbor (Sarah & Lisa)

Text:

Today, Sarah met her new neighbor, Lisa. Lisa said hello and offered to show Sarah around the town and help her find a grocery store. Sarah thanked Lisa. It was a great way for Sarah to make a new friend.

Questions:

14. Who did Sarah meet today?
 - A. Her teacher

- B. Her neighbor, Lisa
 - C. Her classmate
 - D. Her friend from school
15. What is Lisa to Sarah?
- A. Her classmate
 - B. Her neighbor
 - C. Her teacher
 - D. Her sister
16. What did Lisa say to Sarah?
- A. Goodbye
 - B. Hello
 - C. How are you?
 - D. See you later
17. What did Lisa offer to do?
- A. Buy groceries for Sarah
 - B. Cook dinner
 - C. Show Sarah around town and help find a grocery store
 - D. Help Sarah move
18. How did Sarah respond to Lisa's offer?
- A. She got angry
 - B. She thanked Lisa
 - C. She ignored it
 - D. She said no
19. What can be inferred about Sarah's feeling?
- A. She is sad
 - B. She is happy to make a new friend
 - C. She is angry
 - D. She is worried
20. What is the main idea of the text?
- A. Sarah is lost in town
 - B. Sarah meets her new neighbor and makes a friend
 - C. Sarah is looking for a grocery store
 - D. Sarah doesn't like her neighbor

Text 4 – Party (Mary & John)

Text:

Mary is at a party. She meets a man named John. Mary introduces herself and asks his name. John asks where he can get something to drink. Mary offers to take him to the refreshment table, and they walk together.

Questions:

21. Where are Mary and John?
- A. At a restaurant
 - B. At a party
 - C. At school
 - D. At a coffee shop
22. Who does Mary meet?
- A. A woman named Lisa
 - B. A man named John
 - C. A man named Alex

- D. Her neighbor
- 23. What does Mary say when she meets John?
 - A. She introduces herself and asks his name
 - B. She asks for help
 - C. She says goodbye
 - D. She ignores him
- 24. What does John ask Mary for?
 - A. Food
 - B. Something to drink
 - C. Directions home
 - D. Her phone number
- 25. Where does Mary offer to take John?
 - A. The bathroom
 - B. The exit
 - C. The refreshment table
 - D. The dance floor
- 26. What does the word refreshment mean?
 - A. Entertainment
 - B. Music
 - C. Food and drinks
 - D. Decorations
- 27. Who does 'they' refer to?
 - A. Mary and her friends
 - B. Mary and John
 - C. John and his friends
 - D. The party guests

Text 5 – Language School (Sarah & Tom)

Text:

Sarah is a new student at a language school. She meets Tom on her first day. Sarah feels a little nervous and asks Tom for help to find the classroom. Tom kindly agrees and shows her the way. Sarah feels relieved and thanks Tom.

Questions:

- 28. Where does Sarah meet Tom?
 - A. At a party
 - B. At a language school
 - C. At a park
 - D. At a library
- 29. When does Sarah meet Tom?
 - A. On her first day
 - B. On her last day
 - C. During lunch
 - D. After school
- 30. How does Sarah feel at first?
 - A. Happy
 - B. Nervous
 - C. Angry
 - D. Excited
- 31. Why does Sarah feel nervous?

- A. She is late for class
 - B. She forgot her homework
 - C. She is new and doesn't know where things are
 - D. She is sick
32. What does Sarah ask Tom to do?
- A. Help with homework
 - B. Help find the classroom
 - C. Help find her books
 - D. Help meet other students
33. How does Tom respond?
- A. He says no
 - B. He kindly agrees and shows her the way
 - C. He ignores her
 - D. He gets angry
34. How does Sarah feel after Tom helps?
- A. Angry
 - B. Sad
 - C. Relieved
 - D. Confused

Text 6 – New in Town (Sarah – Narrator)

Text:

Hi, my name is Sarah. I am new in town. I meet a man named John. John offers to help me find my way around town. He gives me directions to the library, and I thank him for his help.

Questions:

35. Who is the narrator of the text?
- A. The librarian
 - B. John
 - C. Sarah
 - D. The teacher
36. Where is Sarah new to?
- A. The school
 - B. The town
 - C. The country
 - D. The neighborhood
37. Who does Sarah meet?
- A. A woman named Lisa
 - B. A man named John
 - C. Her teacher
 - D. Her neighbor
38. What does John offer to do?
- A. Help find her house
 - B. Help find her way around town
 - C. Carry her bags
 - D. Buy groceries
39. Where does Sarah want to go?
- A. The park
 - B. The store

- C. The library
- D. The school
- 40. What does the word 'directions' mean?
 - A. Orders or commands
 - B. Instructions on how to get somewhere
 - C. Warnings
 - D. Suggestions
- 41. What does 'him' refer to?
 - A. The librarian
 - B. John
 - C. A stranger
 - D. Her teacher
- 42. How does Sarah probably feel about John?
 - A. Annoyed
 - B. Scared
 - C. Grateful
 - D. Indifferent

3. Reading Score

a. Score Calculation

1) Scoring System on the Edbot Digital Platform

The assessment in this study employs a point-based scoring system. Each correctly answered item is awarded 100 points, while an incorrect answer receives a score of 0 points (*no penalty deduction is applied*). The *literal reading comprehension* assessment test consists of 42 multiple-choice items, yielding a maximum cumulative score of 4,200 points if all items are answered correctly. Subsequently, the total score obtained by each participant is converted into a final score using the following formula:

$$\text{Final Score} = \frac{\text{Total Points Obtained}}{4,200} \times 100$$

Example calculation:

If a participant obtains a total of 2,500 points, the final score is calculated as follows:

$$\frac{2,500}{4,200} \times 100 = 59.5$$

2) Scoring Calculation in conventional test (Paperless)

Each correct answer is awarded 1 point, and incorrect answers receive 0 point. The raw score is then converted to a 0-100 scale using the formula:

$$\text{Final score} = (\text{Total correct answers}/42) \times 2.38$$

* multiplied by 2.38 because the total score is 100 if the answers to 42 questions are correct

$$\text{Example} = 25/42 \text{ (15 the correct answer from 42 questions)} \times 2.38 = 59.5$$

The score is 59.5 , it's mean "Fair" category.

b. Classification of student score

Based on the calculated scores, students' performance was classified into five categories (Excellent, Good, Fair, Poor, and Very Poor) using a criterion-referenced assessment scale commonly applied in educational evaluation (Brown's (2004))

Table 3. 3 Calculation Score

Score Range	Category
86 – 100	Excellent
71 – 85	Good
56 – 70	Fair
41 – 55	Poor
<40	Very Poor

4. Scoring Rubric

To provide qualitative interpretation of the quantitative scores obtained, this study applies a detailed scoring rubric based on Brown's (2004) principles of

reading comprehension assessment. The rubric describes the characteristics of student performance at each level:

Scoring is based on H. Douglas Brown's (2004) principles of reading comprehension assessment. Each correct answer is given 1 point, and incorrect answers are given 0 points. The total score will then be converted into a 0–100 scale.

Table 3. 4 Rubric Score

No.	Criteria	Score Range	Description
1	Excellent	86–100	The student shows excellent literal comprehension by correctly identifying main ideas, specific details, and contextual vocabulary.
2	Good	71–85	The student demonstrates good comprehension with minor errors in identifying inference or reference.
3	Fair	56–70	The student understands general information but has limited accuracy in specific details and vocabulary.
4	Poor	41–55	The student struggles to identify main ideas and often misinterprets information.
5	Very Poor	≤40	The student fails to demonstrate comprehension of the text.

This rubric serves as a guide for:

- a. Consistent evaluation of student performance
- b. Interpretation of test results in the data analysis
- c. Understanding what students can actually demonstrate at each proficiency level.

E. Procedure of Experimental Class and Control Class

This study was conducted over five sessions in the experimental and control classes, as shown in Table 3.5. During the first through fourth sessions, both classes received the same instructional materials and activities on descriptive texts. The difference was introduced during the fifth session (post-test), in which the experimental used the Edbot platform, while the control class took a paper based-test with the same text and questions to isolate the effect of Edbot use on students' reading comprehension scores.

Table 3.5
Procedures of Experimental and Control Class

Stage	Experimental Class	Control Class
Meeting 1 Treatment I	Introduction to descriptive text: elements, components, and simple vocabulary	Introduction to descriptive text: elements, components, and simple vocabulary
Meeting 2 Treatment II	Introduction to literal comprehension; students identify explicit information from descriptive text using guided reading technique	Introduction to literal comprehension; students identify explicit information from descriptive text using guided reading technique
Meeting 3 Treatment III	Reading descriptive texts and answering multiple-choice questions; teacher guides students to locate key information and keywords	Reading descriptive texts and answering multiple-choice questions; teacher guides students to locate key information and keywords
Meeting 4 Treatment IV	Independent reading of new descriptive texts; completing multiple-choice questions with teacher feedback	Independent reading of new descriptive texts; completing multiple-choice questions with teacher feedback
Meeting 5 Post-Test	Post-test administered via Edbot platform; new descriptive texts with multiple-choice questions	Post-test administered without Edbot (conventional paper-based test); same descriptive texts and multiple-choice questions

F. Data Analysis

To find out The Effect of Edbot to assessing literal reading comprehension At Grade VII MTsN 4 Padang, researchers analyze data using several steps, as follows:

1. Data Description

According to Creswell (2012:20), descriptive research is a type of quantitative research in which the researcher describes trends, attitudes, or opinions of a population by studying a sample of that population. The primary goal is to provide an accurate and systematic description of the characteristics of a particular subject or phenomenon without establishing causal relationships between variables and states the steps for descriptive research as follows:

- a. Identifying significant problems to be solved through descriptive methods.
- b. Limit and formulate the problem clearly.
- c. Determine the objectives and benefits of the research.
- d. Conduct literature studies related to the problem.
- e. Determine the framework of thinking, and research questions and/or research hypotheses.
- f. Design the research method to be used, including determining the population, sample, sampling technique, determining data collection instruments, and analyzing the data.
- g. Collect, organize and analyze data using relevant statistical techniques.
- h. Create research reports.

In The data collected for this research will be provided just as it is; no additional inferences or even future predictions will be made based on the data. The researcher's next goal is to explain and analyze the symptoms found in the

data collected in order to gain a better understanding of how the Edbot for literal reading comprehension of class VII students at MTsN 4 Padang.

2. Descriptive Data Analysis

Descriptive analysis is a statistical analysis used to describe the data that will be used in research to make conclusions that apply generally. The results of this descriptive data analysis are a summary of the samples to be processed, such as average, middle value, mode, etc.

a. Mean

The mean is a representative of a data set or an average value which is considered to be the value closest to the actual measurement results. Determining the mean can be done by adding up all the data values, then dividing it by the numbers of data.

b. Standart Deviation

The distribution of data in a sample to determine how near or how distant the data values are from the average is called the standard deviation. An assessment of the data distribution in relation to the average is one of the purposes of the standard deviation formula.

c. MAX

The MAX function is used to display the maximum (largest) value or number contained in a data cell/range.

d. MIN

The MIN function is the opposite of MAX where MIN is used to display the minimum (smallest) value or number contained in a cell/range.

e. Range

The range, which is usually given the symbol R , is a statistical measure that shows the distance between the lowest score and the highest score (Sudijono, 2009:144). Riefly can be formulated

3. Pre-Requisite Data Analysis

a. Normality test

The normality test is conducted as a prerequisite for statistical data analysis. This test is used to determine whether the data is normally distributed, which is essential for selecting appropriate parametric or non-parametric statistical methods. In this study, the normality test was performed on the posttest data from both the experimental and control groups using the Shapiro-Wilk test through the Statistical Package for the Social Sciences (SPSS) version 25 for Windows.

According to Arifin (2017), the criteria for interpreting the results of the Shapiro-Wilk normality test in SPSS are as follows:

- 1) If the significance value (p) > 0.05 , the data is considered to be normally distributed.
- 2) If the significance value (p) < 0.05 , the data is considered not to be normally distributed.

Once the data was confirmed to be normally distributed, a homogeneity of variances test was conducted using the Levene test, also with SPSS version 25 for Windows.

b. Homogeneity test

Homogeneity test is conducted to determine whether students in the class have homogeneous variance or not. Homogeneity test of two variances

on the results of posttest experiment class and control class data using Levene's test with Statistical Package for Social Sciences (SPSS) 25 for Windows software. The decision criteria in the homogeneity test in SPSS according to Arifin (2017) are:

- 3) If the significance value $p < 0.05$ means that the data is declared non-homogeneous.
- 4) If the significance value $p > 0.05$ means that the data is declared homogeneous.

From the test results, the data of both groups have the same variance, so the hypothesis test is carried out with the sameness using the one sample t test.

4. Hypothesis Testing

Hypothesis testing is a statistical method used to determine whether there is enough evidence in a sample of data to draw conclusions about a population. This involves formulating a hypothesis that has been established by the researcher where the hypothesis is Students' literal reading skills who are taught by using Edbot media are greater than students who are taught without using Edbot and then collecting data to assess the evidence.

a. T-test

In this research, the hypothesis was examined using a t-test. The t- test is used to test whether there is a significant difference in the level of learning success between the literal reading comprehension skills of students who are taught using Edbot and students who are taught without using Edbot. The t- test used in this study is specifically the Independent Sample t-test. The t- test will be analyzed using SPSS software version 25 and the following criteria:

When T-test result Positive (+)

- 1) If the ρ -value is higher than $\text{sig } \rho = 0.05$ (5%) then the alternative hypothesis is accepted
- 2) If the result indicates ρ -value or sig (2-tailed) lower than the significance level of $\text{sig } \rho = 0.05$ (5%), then the null hypothesis is accepted.

