

CHAPTER III

RESEARCH METHOD

A. Research Design

Two categories of research designs can be distinguished based on the concept of research technique: qualitative and quantitative. As claimed by Creswell (Creswell, John W. & Creswell, 2018), Researchers must make clear the relationships between variables when doing quantitative research. Examining objective theories in quantitative research is made possible by analyzing the relationship between variables. Since these elements are typically observable with tools, numerical data can be statistically evaluated. In this case, the researcher's research methodology is a casual-comparative. (Lawrence, 2023), Causal-comparative research aims to identify cause-and-effect relationships between independent and dependent variables. The initiative of the researcher, which begins with the causes and ends with an analysis of the consequences of a specific scenario, distinguishes this style of informal comparative analysis from others. This type of investigation is much less common than retrospective investigations. According to Informal-Comparative (Lawrence, 2023), After an action or event has already taken place, causal-comparative research approaches look at the links between independent and dependent variables. To ascertain if the independent variable influences the

dependent variable, or outcome, the researcher compares two or more groups of individuals. Such a study is referred to as ex post facto research or causal-comparative research.

B. Research Setting

This study was carried out at Antasari State Islamic University Banjarmasin, which is situated in Jalan Jendral Ahmad Yani KM. 4.5, Kebun Bunga, East Banjarmasin District, Banjarmasin City, South Kalimantan 70235, during the fourth semester of the English Education Study Program. Students from the 2023 cohort in their fourth semester participated in this study. The study was carried out in the second semester of the 2024–2025 academic year. The period of data collection was February 5, 2025, to April 5, 2025. In order to ensure that students had received sufficient speaking training to achieve the study's goals, the time period and location were chosen based on participant availability and conformity with the academic calendar.

The researcher chose the fourth semester speaking class at Universitas Islam Negeri Antasari Banjarmasin's English Education Study Program since speaking is one of the most important aspects of language learning. This is because the fourth semester speaking class is the first step in the speaking curriculum for students. As a result, research at this time helps to identify the elements that affect students' speaking scores in the early learning phases. Additionally, lecturers can utilize this research as a foundation to better

understand how students' personalities affect their speaking abilities so they can create lesson plans that accommodate introverted and extrovert traits.

C. Population and Sample/Participants

1. Population

As stated by Willie, In the context of research, a population is a broad area made up of items or individuals that have particular traits in common that the researcher finds and examines (Willie, 2024). A population is a collection of individuals, things, or other events that belong to one or more categories or have particular traits. Students from Antasari State Islamic University who were enrolled in the second semester of the academic year 2023's English Education survey Program participated in this survey. Because of the disparity in the proportion of students with unique personalities and speaking skills, the sample was carefully chosen. Students in the fourth semester of Antasari State Islamic University Banjarmasin's English Education Study Program made up the study's population. Below is a description of the population distribution:

Table 3. 1 The Populations of The Fourth Semester Students of English Education Study Program 2024/2025

No	Class	Total Population of students	Semester
1.	TBI A	21	4
2.	TBI B	22	4
3.	TBI C	20	4
	Total	63	

The fourth semester of Antasari Islamic University of Banjarmasin's English Education Study Program in the academic year 2024–2025 directly gathered data on the student body through questionnaires and speaking assessments with students in each English session.

2. Sample

A representative group chosen from the population to take part in research is called a sample, which allows for the drawing of reliable conclusions about the broader group (G, 2024).

As stated by Sugiyono, that the characteristics of the population and the sample are representative of each other (Ramadhan, 2018). A sample's function is to find and choose cases for examination so that researchers can make insightful inferences about a population (Lee & Landers, 2022).

Purposive sampling was used by the researcher to choose the sample for this study. One kind of non-probability sampling was purposive sampling. Purposive samples are those whose characteristics have been defined for a purpose relevant to the research (Andrade, 2021).

63 English Tadris students from the class of 2023, divided into three classes (Class A, Class B, and Class C), made up the study's population. The researcher used purposeful sampling to select participants based on specified research-related characteristics, namely students who were categorized as either extroverted or introverted personality types. 42 pupils

in all were chosen for the sample. The following table provides specifics regarding the quantity of samples according to personality type:

Table 3. 2 Total Sample Size Determined by Purposive Sampling

No	Cohort	Population	Sample		Percentage(%)	
			Extrovert	Introvert	Extrovert	Introvert
1.	2023 English Tadris Students	63	23	19	54.76%	45.24%
	Total	63	42		100%	

The researched total population, as determined by the purposive sampling technique, comprised sixty-three students from the English Tadris Study Program's 2023 cohort. Based on certain characteristics, such as their personality types introvert or extrovert a sample of forty-two students was chosen from this demographic. The researcher was able to deliberately choose participants who fulfilled the study's requirements by using the purposive sampling technique. Nineteen students (45.24%) were classified as introverts and twenty-three students (54.76%) as extroverts out of the forty-two individuals who were chosen. This choice made sure the sample was representative of both personality types that were pertinent to the study's goals.

D. Data

Quantitative data, or numerical measurement results that can be computed, examined, and interpreted by statistical methods, is the sort of data used in this study. Tests given to research participants with the intention of assessing particular abilities or skills pertinent to the study's subject serve as the

main source of data. The purpose of the test is to gather numerical data that can impartially demonstrate the participants' degree of aptitude or accomplishment.

Selecting the appropriate data gathering technology is the most crucial step in obtaining data. Questionnaires and speaking skills tests were among the instruments used by researchers to gather data for this study. Students with extroverted and introverted personalities were asked to complete a questionnaire, and information on their speaking abilities was gathered via a speaking skills exam.

E. Technique of Data Collection

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1. Questionnaire

A questionnaire is a professional research tool used to analyze human thoughts, preferences, attitudes, and actions both qualitatively and quantitatively. It consists of a set of inquiries with strict criteria for logical order, alternatives, and relevancy. (Lei, Pang, Wang, Shen, & Cheng, 2024). In order to analyze human ideas, preferences, attitudes, and

behaviors, a questionnaire is a structured procedure that requires well-designed questions that are pertinent, adequately ordered, and provide clear response possibilities, as the research emphasizes. In order to gather information about students' extrovert (X1) and introverted (X2) personalities, the researcher employed a questionnaire.

In addition, a questionnaire is a research tool made up of a list of inquiries intended to gather pertinent information about a particular study issue. Its efficient design is essential to reducing mistakes and preventing unsuitable or skewed study results (Taherdoost, 2022). The study highlights the importance of a well-crafted questionnaire in precisely collecting data on a research topic since it lowers errors and guards against biased study outcomes.

The "Test Your EQ" book served as the basis for the questionnaire utilized in this investigation (Carter, 2009), it is a personality test intended to gauge an individual's psychological propensities for performing tasks and coming to conclusions in their daily lives. There are 25 items on the student personality assessment, and each one has two possible answers with a score range of 1 to 4. Based on their personal experiences, the students were invited to select one.

2. Speaking Test

(Nurkhofifah, Juliani, Manik, & Juniardi, 2023), evaluating students' speaking abilities is crucial to measuring the effectiveness of their language

learning. Their study highlights that efficient assessment should involve a variety of strategies, including computer-based oral exams, peer and public evaluations, self-evaluation, and multiple forms of assessment such as holistic and analytical rubrics. These methods aim to provide a more complete and accurate picture of students' speaking proficiency.

The speaking data in this research were collected through a voice-based speaking test conducted via WhatsApp. Each participant received four open-ended questions and was asked to respond by sending voice notes. This method allowed students to express their answers naturally in a relaxed environment, reducing pressure that could affect their performance in a traditional face-to-face setting.

Each voice note was then assessed using an analytical speaking rubric adapted from Sinurat (2018). The rubric included five key aspects: pronunciation, grammar, vocabulary, fluency, and comprehension. Each aspect was scored on a scale from 1 to 5. Since each question was rated on all five aspects, the maximum score per question was 25 points. With four questions in total, the highest possible score for each student was 100.

The researcher carefully listened to every response and scored each aspect based on the rubric. Voice notes were replayed when necessary to ensure fairness and consistency. The final scores were then used as the speaking proficiency data for further analysis in relation to students' personality types.

The transcriptions in Appendix V were obtained from students' responses to the following four open-ended questions, which were delivered through WhatsApp voice notes.

Interview Questions for Speaking Skills:

- 1) Can you introduce yourself briefly?
- 2) Can you describe your daily routine?
- 3) Look at this picture. Can you describe what you see?
- 4) What do you think about face to face learning?

These questions were designed to assess various aspects of speaking proficiency, including fluency, grammar, vocabulary, pronunciation, and comprehension. The full version of these questions is also provided in Appendix II, while the students' transcribed responses are available in Appendix V.

The assessment of the students' speaking performance in this study was carried out by the researcher. Each student's response was evaluated using an analytical rubric adapted from Sinurat (2018), which consisted of five aspects: pronunciation, grammar, vocabulary, fluency, and comprehension. Every aspect was scored on a scale of 1 to 5, allowing for a maximum of 25 points per question.

Since there were four open-ended questions in the speaking test, the highest possible total score for each student was 100. The researcher listened to each voice recording carefully and repeated playback when necessary to ensure fair and accurate scoring. The evaluation focused

solely on the students' recorded responses without external assistance or interference, aiming to maintain objectivity and consistency throughout the assessment process.

F. Research Instrument

The following describes the necessary data and instrument:

Table 3. 3 Information and tools required for this research

No	Variable	Instrument	Data Needed
1.	Students' Extrovert Personality (X) and Student's Introvert Personality (Y)	Questionnaire 25 items	Personality of the student: 1. Extrovert 2. Introvert
2.	Speaking Skill	Speaking Tasks (Monologue)	Students' Speaking Skill

Using trustworthy and useful tools is a crucial component in gathering research data. In order to gather information, the researchers will administer a speaking proficiency exam in the classroom and use a questionnaire to learn more about the students' personalities.

1. Questionnaire Test:

Personality is one non-intellectual characteristic. Psychology provides most of the information about a person that helps explain how one differs from others (Nonik Meilina Sari, 2023). A psychometric assessment tool called the Myers-Briggs Type Indicator (MBTI) is used to determine psychological preferences related to perception of the world and decision-making. Carl Gustav Jung's analytical psychology serves as the foundation

for the widely accepted concept of psychological types that are represented by the MBTI and psychological testing. The MBTI reflects intrapersonal preferences such as extraversion-introversion (E-I), feeling-intuition (S-N), thinking-feeling (T-F), and judgment-perception (J-P) (Nonik Meilina Sari, 2023).

This study uses the Myers-Briggs Type Indicator (MBTI) as a psychometric evaluation tool to investigate the differences in speaking skill competency between extroverts and introverts.

There are two categories on the personality questionnaire: introverted and extrovert traits, they are represented by 25 sentences that highlight traits of both introverts and extroverts. Each question had three alternative responses: a, b, and c. Thus. The response received the following score:

Table 3. 4 Personality Questionnaire

No	Variable	Indicators	Items
1.	Students' Extrovert Personality	Sociable	1,14,5,20,23,24,25
		Lively	4,7,21,13
		Active	12,17
2.	Students' Introvert Personality	Assertive	10,21
		Sensation-seeking	2,5,18
		Carefree	6
		Dominant	9,11,16
		Surgent	8,19,24
		Venturesome	3,8,22

The items and indications used to determine students' introverted and extrovert personality types are displayed in the table. The indicators sociable, lively, and active, along with associated questionnaire items, stand for extrovert qualities. Assertive, sensation-seeking, carefree, dominant,

impulsive, and adventurous are examples of attributes associated with introversion. Based on the students' answers to the relevant questions, each personality type was identified. The findings aided in grouping participants into extrovert and introvert categories for additional study.

Table 3. 5 Personality Questionnaire Scoring Guide

No	Answer	Point
1.	A	1
2.	B	2
3.	C	3
4.	D	4

The personality questionnaire's score criteria are shown in Table 3.5. A point value between 1 and 4 is allocated to each of the following response options: A, B, C, and D. Option A receives one point, Option B receives two, Option C receives three, and Option D receives four. The students' replies were quantified and their overall personality score was determined using these point values. Depending on the final result, students could be classified as either introverted or extroverts.

Table 3. 6 Value Scale

No	Score	Categories
1.	82-100	Strongly Extrovert
2.	63-81	Extrovert
3	44-62	Introvert
4	25-43	Strongly Introvert

Adapted from (Budiyanti, Islam, Sultan, & Kasim, 2023)

The range of values utilized to classify students' personality types according to their overall questionnaire scores is displayed in Table 3.6. Students who scored between 82 and 100 are categorized as Strongly Extrovert, those who scored between 63 and 81 as Extrovert, those who scored between 44 and 62 as Introvert, and those who scored between 25 and 43 as Strongly Introvert. The personality data in this study is interpreted using these classifications, which are based on the rules modified from Budiyaniti, Islam, Sultan, and Kasim (2023).

2. Assessment of Speaking Skill:

Retnawati stated in (Aprianoto & Haerazi, 2019), content validity since logical analysis was also required to determine how well the items represented the examined students' competency. In other words, the more closely the instrument items match the indications, the more appropriate the instrument items are. As a result, the items on the intercultural speaking assessment tool addressed every topic category that required evaluation. Therefore, an instrument that is suitable for assessing speaking abilities may be designed using interviews, which can offer detailed insights and enable accurate evaluation of students' spoken words and communicative abilities. This tool allows teachers to measure their students' speaking skills, including their ability to converse with individuals from varied cultural origins and in a range of cultural circumstances.

The way this test works is that the researcher will ask the students five questions one at a time. The researcher will next reevaluate the students' speaking skills and assign a score to each student who answers the question. speaking exam given to the pupils based on the tape. Every question has four indicators, each of which gets a five-point overall score. Thus, one question has a total score of 20, and five questions have a total score of 100. The time required is roughly eight minutes since each question is answered spontaneously in 2 minutes.

The Designing Speaking Test handbook's speaking assessment table was used to analyze the study's speaking components, which included grammar, vocabulary, fluency, pronunciation, and comprehension. As displayed in the following table:

Table 3. 7 The rubric of Speaking Assessment

SPEAKING ASSESSMENT RUBRIC				
NO	ASPECTS	SCORE	INFORMATION	
1.	Pronunciation	5	<input type="checkbox"/>	Easy to understand and has a native speaker accent
		4	<input type="checkbox"/>	Easy to understand even with a certain accent
		3	<input type="checkbox"/>	There are pronunciation problems that make the listener have to concentrate fully and sometimes there are misunderstandings
		2	<input type="checkbox"/>	Difficult to understand because

				there are pronunciation problems, often asked to repeat
		1	<input type="checkbox"/>	Pronunciation problems are so serious that they cannot be understood
2.	Grammar	5	<input type="checkbox"/>	No or few grammatical errors
		4	<input type="checkbox"/>	Sometimes it makes grammatical mistakes but does not affect the meaning
		3	<input type="checkbox"/>	Often make grammatical mistakes that affect meaning
		2	<input type="checkbox"/>	Many grammatical errors hinder meaning and often rearrange sentences
		1	<input type="checkbox"/>	Grammatical errors are so severe that they are difficult to understand
3.	Vocabulary	5	<input type="checkbox"/>	Using vocabulary and expressions like a native speaker
		4	<input type="checkbox"/>	Sometimes using inappropriate vocabulary
		3	<input type="checkbox"/>	Often using inappropriate vocabulary, conversation becomes limited due to vocabulary limitations

		2	<input type="checkbox"/>	Using vocabulary incorrectly and limited vocabulary making it difficult to understand
		1	<input type="checkbox"/>	The vocabulary is so limited that conversation is impossible
4.	Fluency	5	<input type="checkbox"/>	Fluent like a native speaker
		4	<input type="checkbox"/>	Fluency seems a little plagued by language problems
		3	<input type="checkbox"/>	Fluency is somewhat plagued by language problems
		2	<input type="checkbox"/>	Often hesitant and stalled due to language limitations
		1	<input type="checkbox"/>	Speech is intermittent and stalled so that conversation is impossible
5.	Comprehension	5	<input type="checkbox"/>	Understand all without experiencing difficulties
		4	<input type="checkbox"/>	Understand almost everything, even if there is repetition in certain parts
		3	<input type="checkbox"/>	Understanding most of what is said when speaking is slowed down somewhat despite repetition
		2	<input type="checkbox"/>	It's hard to follow what's being said.

		1	<input type="checkbox"/>	Can't understand even simple conversations
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Adapted from (Sinurat, 2018).

Based on the above table, each facet had a maximum score of 5 (five) and a minimum score of 1 (one). Students were considered to have excellent speaking proficiency if they received five points in each area. They were highly accurate and fluent, and their intonation and pronunciation were nearly flawless. However, if students received the lowest scores in all categories, it indicated that they had poor speaking performance. Their speech lacked accuracy and fluency, and frequent errors hindered meaning.

To assess students' speaking skill, the researcher conducted a structured interview test consisting of four questions. Speaking performance for each question was evaluated using a scoring rubric consisting of five components: fluency, pronunciation, vocabulary, grammar, and comprehension. Each component was rated on a 1 to 5 scale based on the standardized rubric adapted from Brown (Brown, 2004).

Therefore, each question had a maximum possible score of 25, and the total maximum score for all four questions was 100 per student. The researcher acted as the sole assessor in evaluating the students' speaking performance. To ensure consistency and objectivity, the researcher applied a standardized analytical rubric and carefully listened to each recorded

response. The interviews were recorded, transcribed, and evaluated based on five aspects: pronunciation, grammar, vocabulary, fluency, and comprehension.

3. Validity and Reliability of The Instrument

As stated by Cresswell, the validity (Creswell, John W. & Creswell, 2018), is an instrument's property that allows researchers to draw conclusions from the sample of the population under study.

a. Validity of The Questionnaire

Item validity is the method used in this study to determine whether or not each questionnaire item can reliably gauge students' personality traits. Forty-two students participated in this study in order to assess the questionnaire's validity. There were 25 items in the survey, each with four possible answers (scale 1-4). The data in this study were analyzed using the Corrected Item-Total Correlation approach using SPSS 27.0.

This study examined the rhythm and the table at the 5% level of significance, which is 0,3044 (N=42). The standard value for validity is $r_{item} > r_{tabel}$. Everything was valid, according to the test results. The questionnaire validity test yielded the following findings:

Table 3. 8 The Questionnaire Item's Validity on Students Personality

No	r _{item}	t _{table}	Result
1	0,316	0,3044	Valid
2	0,509	0,3044	Valid
3	0,383	0,3044	Valid
4	0,449	0,3044	Valid
5	0,576	0,3044	Valid
6	0,386	0,3044	Valid
7	0319	0,3044	Valid
8	0,343	0,3044	Valid
9	0,387	0,3044	Valid
10	0,315	0,3044	Valid
11	0,318	0,3044	Valid
12	0,335	0,3044	Valid
13	0,397	0,3044	Valid
14	0,319	0,3044	Valid
15	0,472	0,3044	Valid
16	0,321	0,3044	Valid
17	0,628	0,3044	Valid
18	0,580	0,3044	Valid
19	0,369	0,3044	Valid
20	0,586	0,3044	Valid
21	0,618	0,3044	Valid
22	0,328	0,3044	Valid
23	0,565	0,3044	Valid
24	0,520	0,3044	Valid
25	0,491	0,3044	Valid

b. Reliability of Questionnaire

Reliability and measurement precision are related. The accuracy of the procedure was demonstrated by the identical results obtained when assessments were conducted by different individuals or on different subjects. One of its characteristics According to Brown, consistency is another term for dependability in (Al-Hawamdeh,

Hussen, & Abdelrasheed, 2023). Additionally, the study's internal consistency and dependability.

Table 3. 9 The level of Acceptable Reliability

No	Reliability	Validity
1.	>0.90	Very High
2.	0.80-0.90	High
3.	0.70-0.79	Reliable
4.	0.60-0.69	Marginally/Minimally
5.	<0.60	Unacceptably low

Adapted from (Cohen, Manion, & Morrison, 2007:506 in (Retnoningrum, 2023)).

Table 3. 10 Reliability Statistics of the Personality Questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
.826	25

Based on the information provided, Cronbach's alpha is 0.826. The items' high degree of reliability is indicated by their internal consistency rating of 0.80 to 0.90.

G. Data Analysis

The method of drawing conclusions about populations from sample behavior analysis is known as inferential statistics. They are used to determine the probability of getting results from a sample or samples that closely resemble the results that would have been received from the full population. The most widely used inferential statistic in causal-comparative studies is the t-test. This

technique is employed to ascertain whether the results of two groups differ significantly (Gay, 2012).

This approach provides insights into the probable effects of personality traits (introversion and extroversion) on language competency by enabling the investigation of the relationship between speaking ability and these traits. The analysis will involve calculating the means and standard deviations for both groups, comparing these means using the t-test, and interpreting the p-values in order to determine the significance of the results. If the p-value is less than the alpha level, which is normally 0.05, we can conclude that there is a significant difference in speaking ability between extroverted and introverted individuals. This result supports the hypothesis of the literature study and theoretical framework. This study is crucial to comprehending how personality factors impact speaking abilities and can help mold instructional strategies to meet the varied demands of students.

H. Technique of Data Validity

The researcher analyzed the gathered data in order to achieve the study's objectives. SPSS version 27 analysed the data using the Pearson-Product Moment to determine whether or not there was a significant difference in the speaking skill competency of extroverted and introverted people. We'll talk about the following:

1. Data Description

The mean, median, mode range, and standard deviation of a set of data are used to describe it in descriptive analysis. Data descriptions aid readers in understanding Arikunto's data findings. (Icam Sutisna, 2020).

a. Mean

The average value of the gathered data is called the mean. It is computed by taking the total number of participants and dividing it by the sum of the individual data for the group.

$$\text{Mean} = \frac{\sum X}{N}$$

- $\sum X$: The sum of all data values
- N : The total number of data values

The mean represents the central value of a data set.

b. Median

The central value of the data group is referred to as the median. It is produced by allocating the center value of the data either in the opposite direction or from lowest to highest.

$$\text{Median} = L + \left(\frac{\frac{n}{2} - F}{f} \right) \cdot i$$

- L : Lower boundary of the median class
- n : Total frequency
- F : Cumulative frequency before the median class
- f : Frequency of the median class
- i : Class width

The median is the middle value that divides the dataset into two equal parts

c. Mode

The most prevalent value in a data group is its mode. It is acquired by tallying comparable data and identifying the maximum value.

$$\text{Mode} = L + \left(\frac{f_1 - f_0}{(2f_1 - f_0 - f_2)} \right) \cdot i$$

- L : Lower boundary of the modal class
- f_1 : Frequency of the modal class
- f_0 : Frequency of the class before the modal class
- f_2 : Frequency of the class after the modal class
- i : Class width

The mode indicates the most frequently occurring value in the dataset.

d. Range

The difference between a data group's highest and lowest values is its range. The top and lowest values are eliminated to obtain it.

$$\text{Range} = X_{\text{maks}} - X_{\text{min}}$$

- X_{maks} : Highest value
- X_{min} : Lowest value

The range measures the spread of the data by showing the difference between the highest and lowest values.

e. Standard deviation

One statistical metric for assessing the dispersion or spread of data is the standard deviation.

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

- x_i : Each data value
- \bar{x} : Mean of the data
- f : Frequency
- n : Total number of data
- $\sum fx$: Sum of frequency \times midpoint
- $\sum fx^2$: Sum of frequency \times square of midpoint

Using SPSS 27 version, the researcher examined the data as follows to incorporate into the data description:

- 1) Open program SPSS 27 version then click variable view, give name of X1 in the column then change the decimal 0 and change measure with scale.

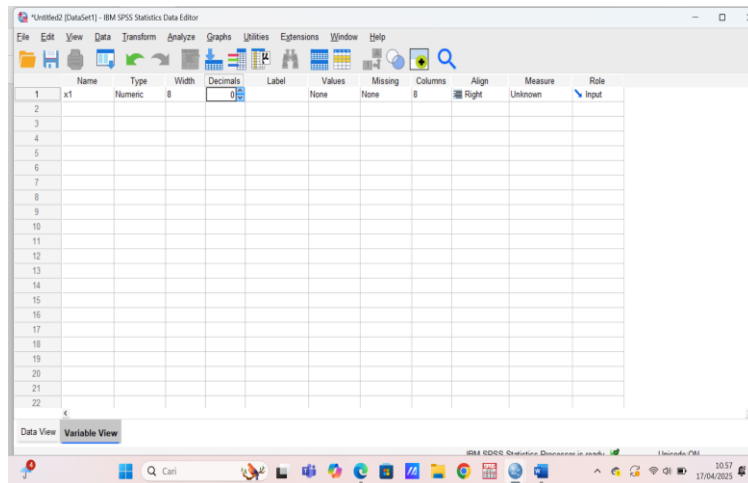


Figure 3. 1 Variable View Display in SPSS

- 2) Select Data View, then enter the variable X1's score in the X1 column.

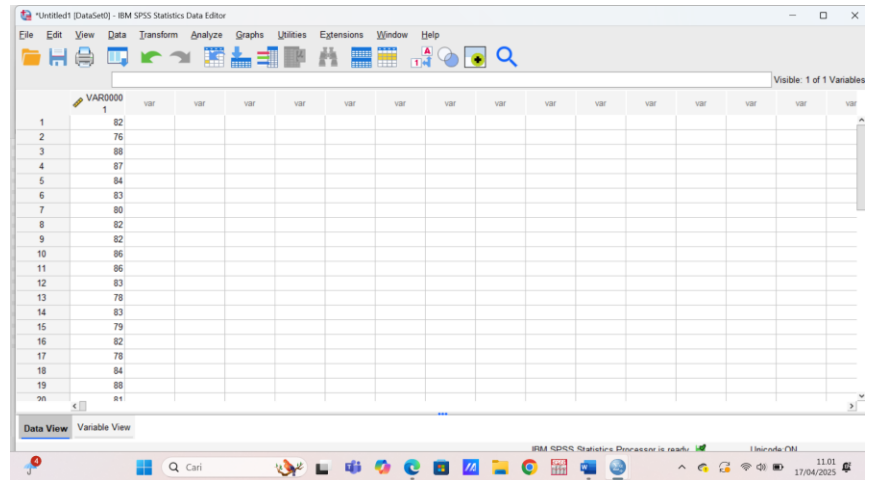


Figure 3. 2 Data View of Personality Questionnaire

3) Select descriptive statistics and frequencies after clicking analyze.

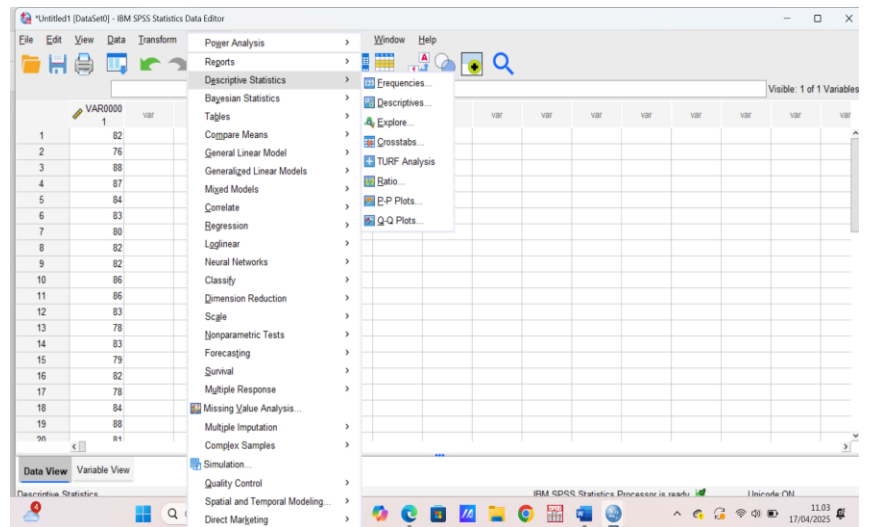


Figure 3. 3 Frequency Analysis via Descriptive Statistics Menu

4) Replace the variable X1 to the right box then click statistics and OK.

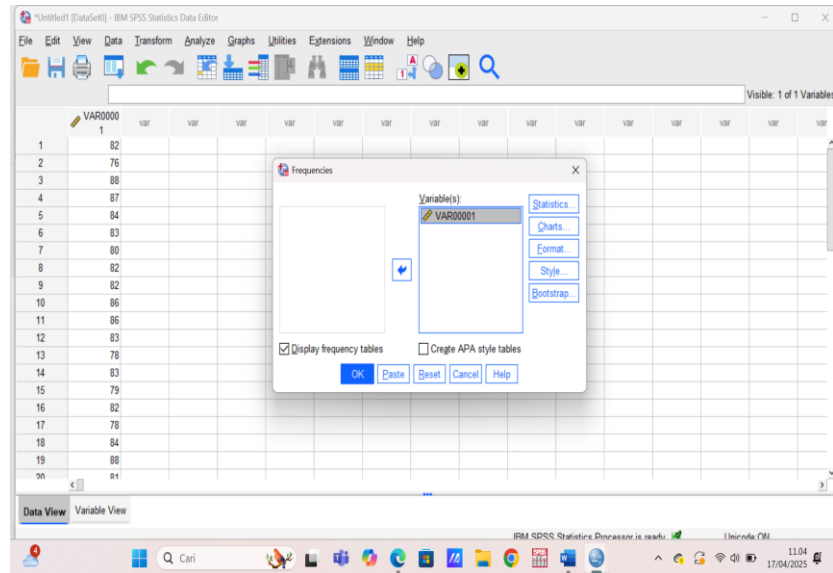


Figure 3. 4 Frequencies Dialog Box in SPSS

- 5) Select dispersion from the checklist's central tendency, then proceed.

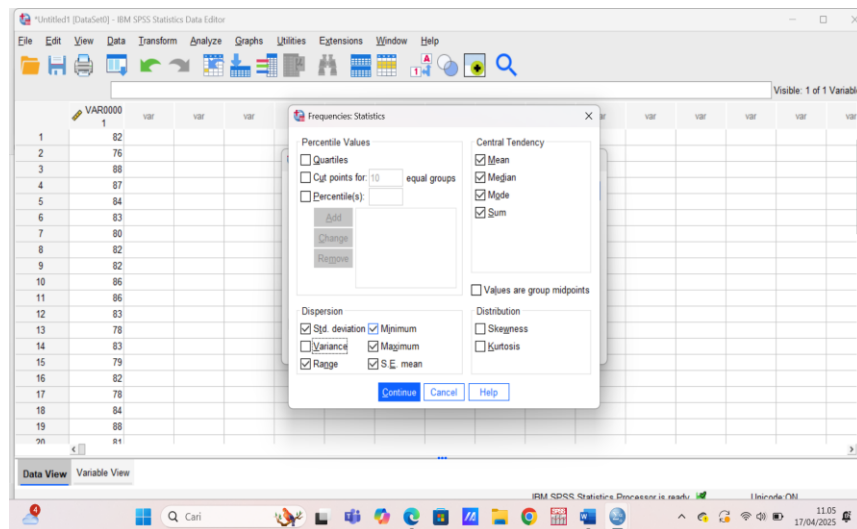


Figure 3. 5 Statistical Measures in Frequencies Dialog

- 6) Click Statistics to select the histogram, and then click OK to show the histogram's normal curve.

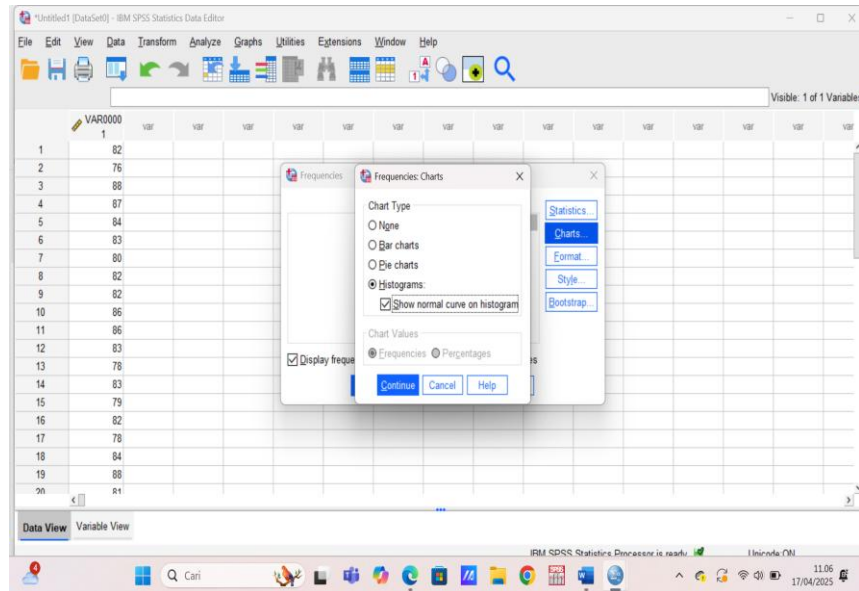


Figure 3. 6 Histogram with Normal Curve in Frequencies Menu

7) Finally, the result is shown.

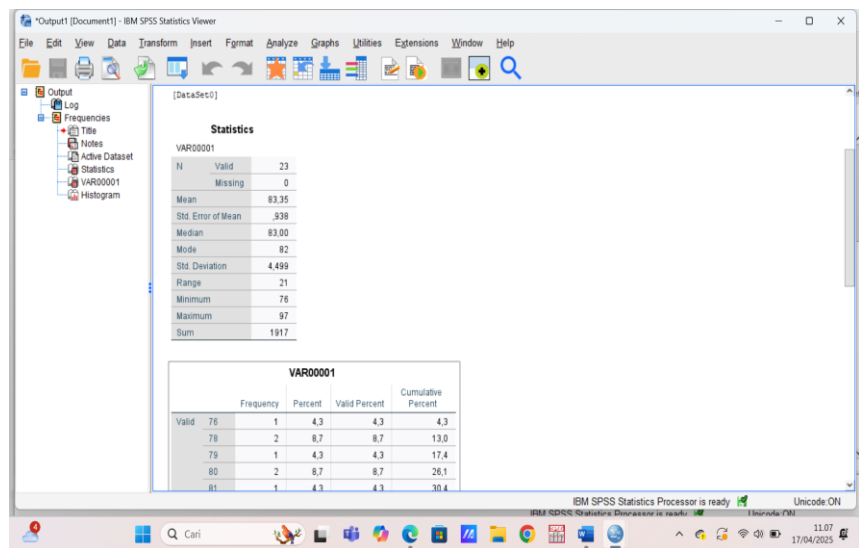


Figure 3. 7 Output of Descriptive Statistics and Frequency Table

2. Pre-Requisite Testing

Prior to evaluating the hypotheses for RQ1 and RQ2, prerequisite experiments were conducted. Among the requirements are the homogeneity and normality checks.

The normality test is used to determine whether the data in each group (introvert and extrovert) is regularly distributed. The homogeneity test establishes whether the variance of the two groups is equal, which is a requirement for the t-test's validity.

a. Normality Testing

To determine whether or not the data from each variable distributes normally, the normality test is utilized. In this study, the normalcy test that was employed was:

- 1) Launch SPSS version 26.
- 2) Create a variable by looking at the variable view.
- 3) Complete the label field.
- 4) Launch the data view and enter the information in the designated field.
- 5) Click explore after selecting analysis>> descriptive statistics for testing normalcy.

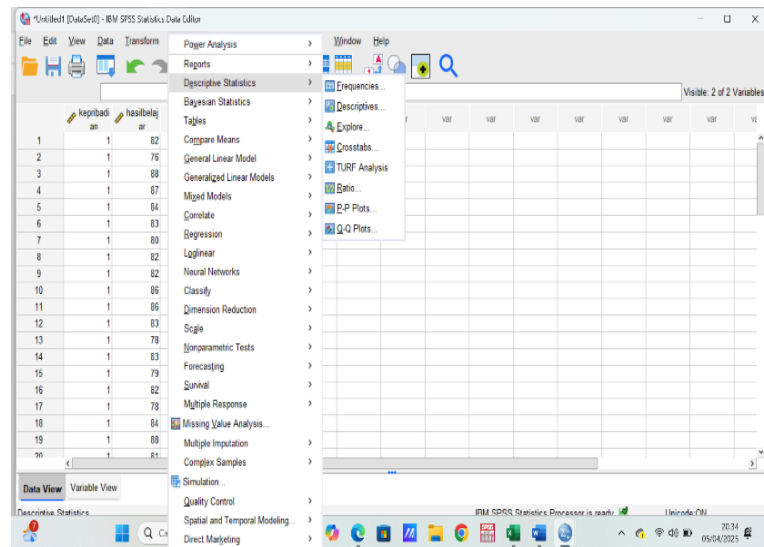


Figure 3. 8 Frequencies Menu for Personality and Speaking Variables

6) Next, add data to the list and check for normalcy.

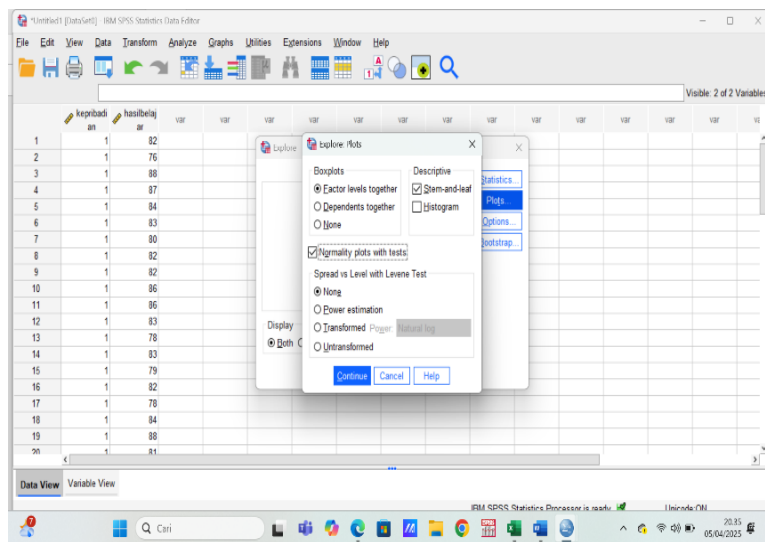


Figure 3. 9 Normality Plots and Tests in Explore Menu

7) The normalcy test is shown below.

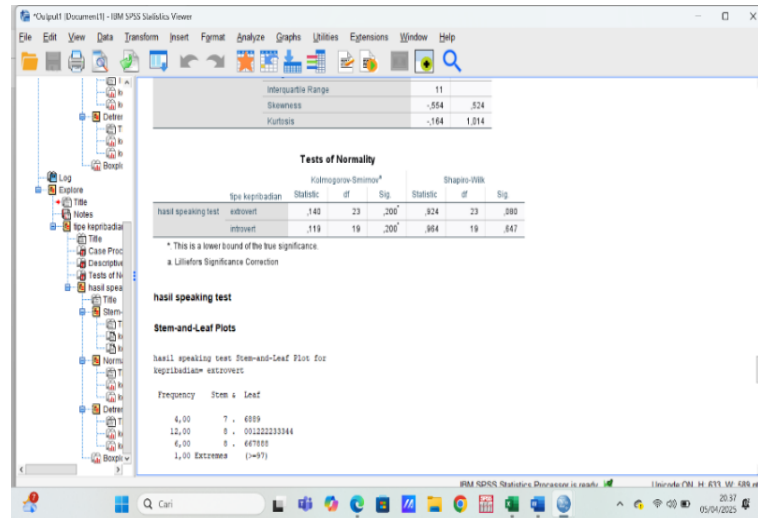


Figure 3. 10 Normality Test for Extrovert and Introvert Speaking Scores

b. Homogeneity Testing

To determine if the variances of two or more groups are equal, a statistical procedure known as homogeneity testing is employed. The homogeneity test used in this investigation was:

- 1) Launch SPSS version 26.
- 2) Create a variable by looking at the variable view.
- 3) Complete the label field.
- 4) Launch the data view and enter the information in the designated field.
- 5) Select "analyze" Examine the means and select One-Way ANOVA.

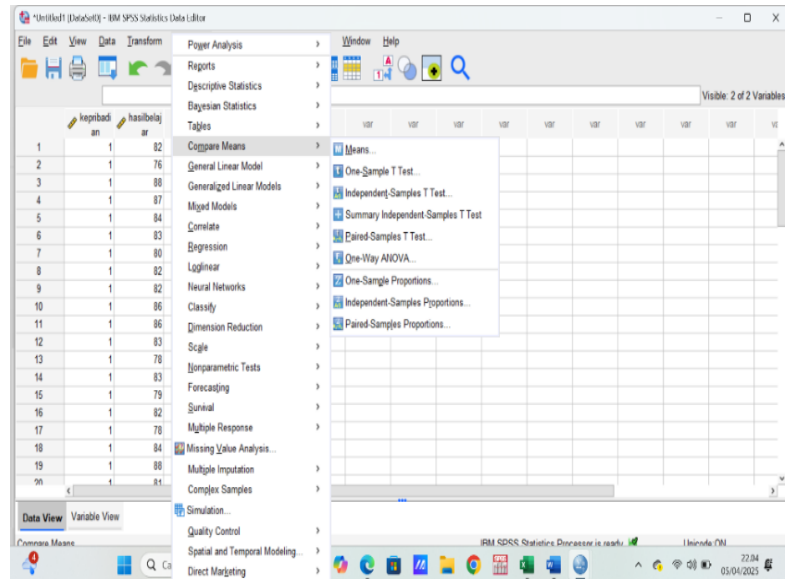


Figure 3. 11 T-Test Options in SPSS Menu

- 6) Examine the dependent or independent graph as soon as a variable appears in the graph below.

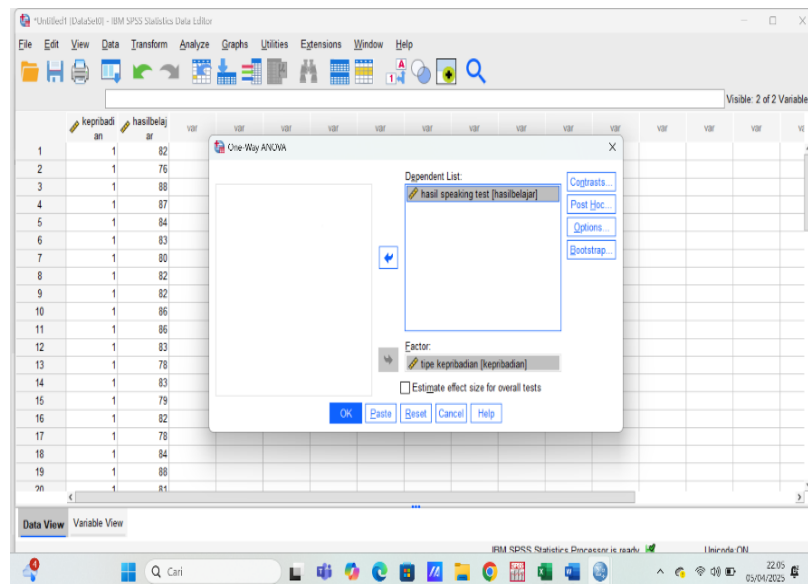


Figure 3. 12 One-Way ANOVA Dialog Box for Speaking Test

- 7) After finishing the homogeneity of variance test, click "Continue".

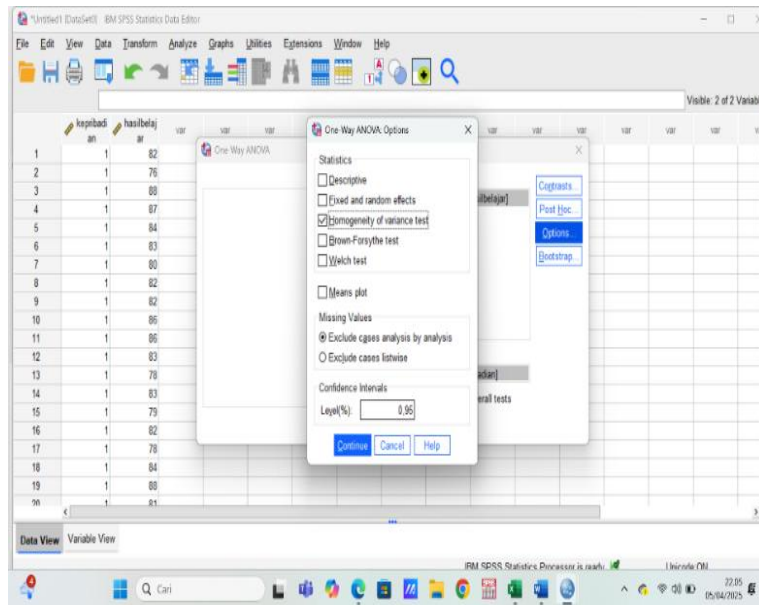


Figure 3. 13 One-Way ANOVA Options Dialog Box

- 8) Finally, it is the final result of the homogeneity test.

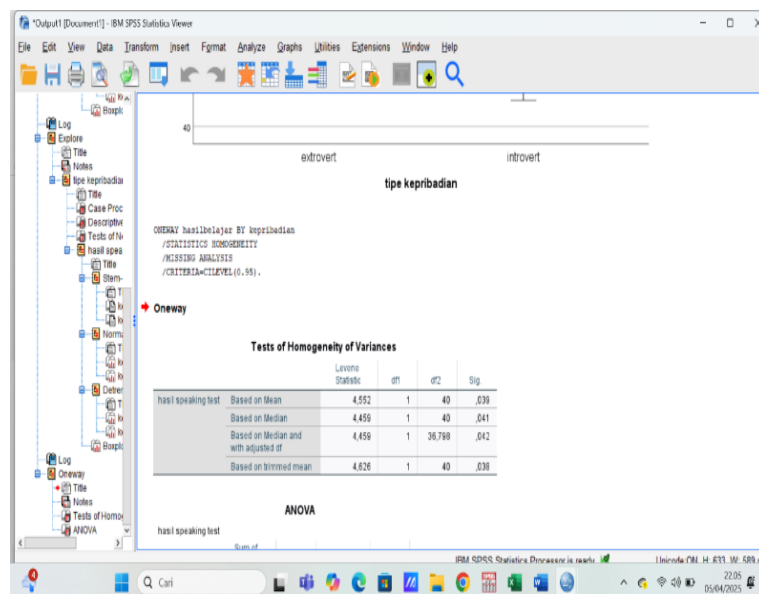


Figure 3. 14 Homogeneity of Variances Test Based on Personality

3. Hypothesis Testing

Testing the hypotheses to find the answers to the study questions comes next, following the collection of data via questionnaires and interviews. The purpose of this study was to ascertain whether students' speaking proficiency and their extrovert and introverted personality types differed significantly.

The researcher used inferential statistical analysis to address the hypothesis of how two personality types differed in their speaking abilities. With the use of the SPSS version 26 software, Welch's t-test—a variation of the independent samples t-test intended to handle inhomogeneous variance conditions was employed because, although the data were normally distributed, they did not satisfy the assumption of homogeneity of variance.

a. The hypothesis

1. (H0): There is no significant difference in students' speaking skill proficiency based on their dominant personality type.
2. (H1): There is significant difference in students' speaking skill proficiency based on their dominant personality type.

The researcher used the Independent Samples T-Test (sometimes called Welch's t-test) in SPSS version 27 for Windows to evaluate the first hypothesis. Although the data was normally distributed, the variance was not homogeneous, hence the "Equal

variances not assumed" option was selected. If the significance value is less than 0.05, then H1 is permitted. The following are the methods used to calculate the first hypothesis:

- 1) Launch SPSS version 27.
- 2) In the variable view, create a variable.
- 3) Fill in the label column.
- 4) Launch Data View and enter the information in the variable.
- 5) Next, select Analyze>>. Compare the means. The Independent-Samples T Test looks like this:

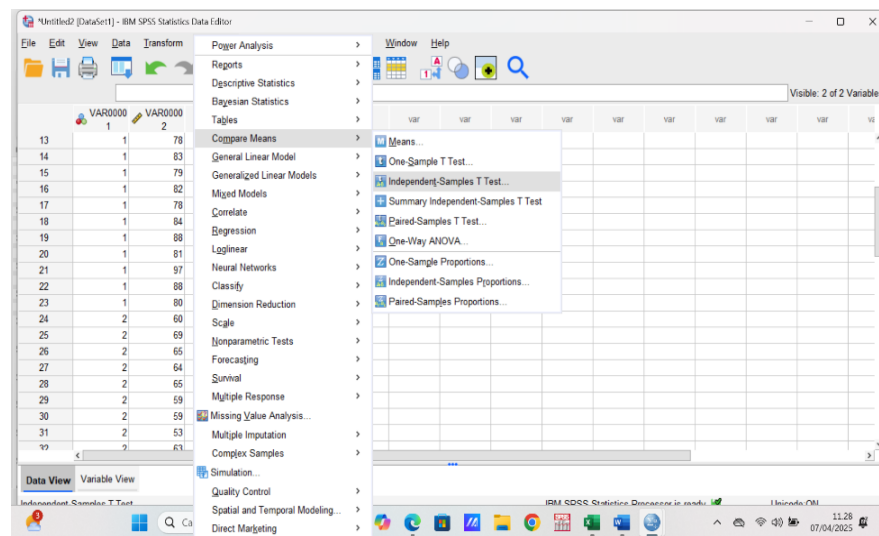


Figure 3. 15 Independent Samples T-Test Menu in SPSS

- 6) A box that reads "enter variable box" appears; click OK as seen below:

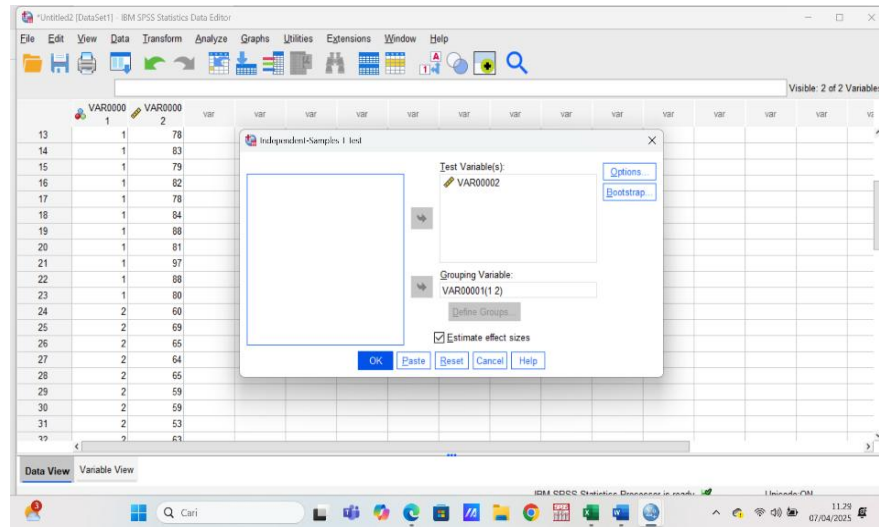


Figure 3. 16 T-Test Dialog Box in IBM SPSS

7) Lastly, it will show up as follows in the SPSS output:

FileEditViewDataTransformInsertFormatAnalyzeGraphsUtilitiesExtensionsWindowHelp

Output

Log

T-Test

Notes

Group Statistics

Independent Sam

Independent Sam

Log

NP-Par Tests

Notes

Mann-Whitney Test

Title

Ranks

Test Statistics

Log

T-Test

Title

Notes

Group Statistics

Independent Sam

Independent Sam

T-Test

Group Statistics

	VAR00001	N	Mean	Std. Deviation	Std. Error Mean
VAR00002	1	23	83.35	4.499	.938
	2	19	60.37	7.049	1.617

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VAR00002	Equal variances assumed	4.552	.039	12.808	40	<.001	22.979	1.794	19.353	26.605
	Equal variances not assumed			12.292	29.424	<.001	22.979	1.870	19.158	26.801

Independent Samples Effect Sizes

	Standardized ^a	Point Estimate	95% Confidence Interval		
			Lower	Upper	
VAR00002	Cohen's d	5.787	3.971	2.903	5.021
	Hedges' correction	5.699	3.896	2.848	4.926

IBM SPSS Statistics Document

IBM SPSS Statistics Document is ready.

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Figure 3. 17 T-Test Output in IBM SPSS