

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with procedure to conduct the study. It consists of research design, population and sample, research instrument, data collection technique and data analysis technique.

A. Research Design

Since this study focuses on identifying the effect between students' personality traits and their engagement toward English achievement through SDL as the mediating variable, this research applied a quantitative approach through a path analysis. Quantitative research used objective measurement to gather numeric data that are used to answer questions or test predetermined hypothesis⁷⁷. It generally required well-controlled setting. The path analysis method is used in this research since it intended to investigate the effect of each variable⁷⁸. This was also supported by Maruyama's opinion that path analysis is a method to measure the direct influence along each separate path in such a system and thus of finding the degree to which variation of a given effect is determined by each particular cause⁷⁹. This opinion also indicated that the researcher here did not attempt to control or manipulate the variables as in experiment, instead it is related by using the path analysis statistics.

B. Population and Sample

Population is defined as all members of collections of people, events, or objects⁸⁰. The population of this research is the seventh grader of MTsN 10 Nganjuk. There are 5 class of seventh grader, they are class A, B, C, D, and E. for class A, each class consist of 35 students which means there are 175 students in total. The consideration in choosing the population is because those students are in the first year of their study. Therefore, after this study is done there is an impact to the students' learning so that they can be more self-directed in order to meet students' engagement, display positive attitude and improving their English achievement in English language learning.

According to Trochim, and Donnelly, sample is the process of selecting units (such as people and organizations) from a population of interest so that by studying the sample which

⁷⁷ Ary et al. *Introduction to Research in Education*, (USA: Cengage Learning, 2002), p 22

⁷⁸ Arikunto.S. *Prosedur penelitian Suatu Pendekatan Praktek*. (Jakarta: Rineka cipta, 2007) p.247

⁷⁹ Maruyama, Geoffrey M. 1998. *Basic of Structural Equation Modeling*, New Jersey: Sage Publication, Inc.

⁸⁰ Meredith D.p.148

can fairly generalize the result to the population from which the units were chosen⁸¹. To eclectic the sample, this research used probability sampling. Probability sampling is defined as the kind of sampling in which every element⁸². In selecting the research participant, the researcher applies simple random sampling. Since this research applies a path analysis the minimum sample size is 100 and the ideal sample size is 400 to 1000.⁸³

Table 3.1 Sample size in each class

Class	Students amount	Sample Size
VII A	35	20
VII B	35	20
VII C	35	20
VII D	35	20
VII E	35	20
Total	175	100

C. Research Instrument

Questionnaire and students' English test result will be used to get the data from the variables that going to be measured. The questionnaire was the account of investigation in drafted blank on a scrap of paper linked to the issues of research to be inspected. The questionnaires that will be used are transformed into Bahasa Indonesia, then a face validity was conducted to check on the indicator in each instruments. The questionnaire instruments were validated by Mrs Rona Merita and Mr. Erwin as the expert in this field. While for the English achievement will be gotten from students' result in English test which is designed by the researcher and validated by Mrs. Vina as the English teacher in this field.

1. Questionnaire

There are 3 questionnaires that was used to obtain the data from the participants. The questionnaires were in the form of students – self report with Likert scale. Students self – report was chosen since it presents subjects with an extensive collection of statements describing behavior patterns and ask them to indicate whether or not each statement is characteristic of their behavior by checking *yes*, *no*, or *uncertain*⁸⁴. A **scale** is a set of categories or numeric values assigned to individuals, objects, or

⁸¹ William Trochim, James P. Donnelly, “*The Research Methods Knowledge Base*”. 44-45

⁸² Donald Ary et al., p. 150

⁸³ J. Sarwono, ‘Mengenai Path Analysis: Sejarah, Pengertian Dan Aplikasi’, *Jurnal Ilmiah Manajemen Bisnis Ukrida*, 2011, 289.

⁸⁴ Donald Ary et al., p. 207

behaviors for the purpose of measuring variables⁸⁵. This research will apply a Likert scale, since it is presented using a set of statements about the topic and asking respondents to indicate for each whether they strongly agree, agree, are undecided, disagree, or strongly disagree⁸⁶. The questionnaires items that will be used are presented in the following.

a. Self-Rating Scale of Self-Directed Learning (SRSSDL) Questionnaire

Self-Rating Scale of Self-Directed Learning (SRSSDL) is a questionnaire developed by Williamson to investigate the level of students' self - directed learning (See Appendix 1). Self-rating scale of self-directed learning (SRSSDL) is a 41 items self-rating instrument developed for measuring the level of self-directedness in one's learning process⁸⁷. The 41 items are categorized under five broad areas of self-directed learning: (See Appendix 1)

1. Awareness that explored students' concept to the factors that contributes to become independent learners.
2. Learning strategies used to measure various SDL methodologies.
3. Learning activities can measure the learning activities learners' requisition that can empower the learners to be independent learner.
4. Evaluation that measured students' particular characteristics to monitor their learning habits.
5. Interpersonal skills which measure students' capability related to interpersonal relation.

The answer for every question can be rated using a five point scale: 1: never, 2: seldom, 3: sometimes, 4: often, 5: always. The origin form of this instrument is in English language, since the participant in this research are the seventh grader of MTs, the researcher translate the instrument items into Indonesian with the aim that the participant can easily understand the questionnaire, after translating into Indonesian, this instrument will be tested to figure out its validity, reliability and normality using SPSS and will be validated by the expert in this field

⁸⁵ Donald Ary et al., p. 208

⁸⁶ Donald Ary et al., p. 209

⁸⁷ Swapna Naskar Williamson, "Development of a self-rating scale for self-directed learning," *Nurse Researcher*, Vol. 2 (2007): 68.

Table 3.2 Blueprint of SRSSDL

No	Subscale	No. Item	Quantity
1	Awareness	1, 6, 16, 19, 26, 30, 35, 41	8
2	Learning Strategies	3, 9, 11, 14, 21, 28, 32, 37, 39	9
3	Learning Activities	2, 5, 10, 13, 17, 23, 29, 34	8
4	Evaluation	4, 7, 12, 15, 20, 24, 33, 36	8
5	Interpersonal skills	8, 18, 22, 25, 27, 31, 38, 40	8
Total			41

As seen in the table above, items number 1, 6, 16, 19, 26, 30, 35, 41 focuses on the learners' perspectives about the meaningfulness of self-initiatives which is marked as Awareness sub - ratio. The items number 3, 9, 11, 14, 21, 28, 32, 37, 39 represent the Learning Strategies subscale which is talking about the ability of learners to set a personal goal, identification and information retrieval, self-learning strategies, as well as the standard to be achieved by students. Next, the Learning Activities that focused on established learning activities that were owned and carried out by students by students' learning was represented by items number by students' learning was represented by items number. The Evaluation subscale that focused of evaluating the progress of students' learning and assessing the quality of their work was represented by items number 4, 7, 12, 15, 20, 24, 33, 36. Lastly, items number 8, 18, 22, 25, 27, 31, 38, 40 stand for Interpersonal Skills subscale which focuses on the students' ability to foster and maintain relationships with other people that make them acquire knowledge from others.

b. School Engagement Measure (SEM) Questionnaire

The questionnaire of Students' Engagement questionnaire called SEM which was expanded by Phyllis Blumenfeld and Jennifer Fredricks was applied as the device in this research (See Appendix 2). This research instrument is used to investigate the level of students' engagement in English language learning (See appendix 2). The ratio was developed for the study of the relationship between classroom context and engagement. The engagement has three subscales were

then labeled as Behavioral Engagement (BE), Emotional Engagement (EE), and Cognitive Engagement (CE). It was a 5-point Likert Scale question sheets where learners scaled themselves of students' engagement started from 1 (never) until 5 (always). The origin form of this instrument is in English language, since the participant in this research are the seventh grader of MTs, the researcher translate the instrument items into Indonesian with the aim that the participant can easily understand the questionnaire, after translating into Indonesian, this instrument will be tested to figure out its validity, reliability and normality using SPSS and will be validated by the expert in this field

Table 3.3 Blueprint of Student Engagement Measure (SEM)

No	Subscale	No. Item	Quantity
1	Behavioural engagement	1, 6, 9, 13, 16, 21, 22	7
2	Emotional engagement	4, 7, 11, 14, 17, 19, 20	7
3	Cognitive Engagement	2, 3, 5, 8, 10, 12, 15, 18,	8
Total			22

Based on the table above, the items number 1, 6, 9, 13, 16, 21, 22 stand for behavioural engagement sub - ratio which defined as learners' own judgement with their behaviour in classroom. The second sub - ratio is emotional engagement which focuses on learners' believe with their emotional engagement such as interest, pleasure, or belonging in the English classroom, thus, are shown in items number 4, 7, 11, 14, 17, 19, 20. Lastly, Cognitive Engagement subscale was about students' judgment toward how well they could involve in the English classroom shown in items number 2, 3, 5, 8, 10, 12, 15, 18

c. International Personality Item Pool (IPIP): Big Five Inventory Questionnaire

The questionnaire used in this study was IPIP-50. It is an instrument developed through the IPIP project, which measures the five dimensions of personality: Openness, Extraversion, Emotional Stability, Conscientiousness and Agreeableness. International Personality Item Pool (IPIP) is a project aiming to develop measures of individual differences as part of the public domain⁸⁸. In this study, the instrument will be modified by the researcher based on the supervisor and expert guidance because there will be some considerations (See Appendix 3). It consist four questions in every dimensions of the personality and measured

⁸⁸ Ana-Maria Cazan & Bianca-Andreea Schiopca, "Self-Directed Learning, Personality Traits and Academic Achievement," *Procedia - Social and Behavioral Sciences* (2014): 641.

on a five point likert scale with its direction of scoring (+ or -). For + keyed items, the response 1: very inaccurate, 2: moderately inaccurate, 3: neither inaccurate nor accurate, 4: moderately accurate, 5: very accurate. For - keyed items, 5: very inaccurate, 4: moderately inaccurate, 3: neither inaccurate nor accurate, 2: moderately accurate, 1: very accurate. The origin form of this instrument is in English language, since the participant in this research are the seventh grader of MTs, the researcher translate the instrument items into Indonesian with the aim that the participant can easily understand the questionnaire, after translating into Indonesian, this instrument also will be tested to figure out its validity, reliability and normality using SPSS.

Table 3.4 Blueprints of IPIP Pool

No	Subscale	No. Item	Quantity
1	Neuroticism	1, 6, 12, 17, 22, 27, 29, 33, 36	9
2	Extraversion	4, 8, 14, 19, 24, 28, 31, 34	8
3	Openness	2, 10, 16, 21, 26, 30, 35	7
4	Agreeableness	3, 7, 11, 15, 18, 23	6
5	Conscientiousness	5, 9, 13, 20, 25, 32	6
Total			36

Based on the table above, Neuroticism which stands for the dimension which refers to a person's ability in withstanding stress are shown in the items number 1, 6, 12, 17, 22, 27, 29, 33, 36. Then the items number 4, 8, 14, 19, 24, 28, 31, 34 refer to extraversion subscale which defines as person's ability to interact and feel optimist with others. Another subscale is openness which focuses on assessing someone's effort and appreciation of the experience for his own sake are shown in items number 2, 10, 16, 21, 26, 30, 35. Furthermore, the items number 3, 7, 11, 15, 18, 23 belong to agreeableness subscale which focuses on assessing the quality of orientation of individuals with a continuum ranging from gentle to antagonistic in thinking, feeling and behavior. Lastly, Conscientiousness subscale which assesses the ability of individuals in the organization, both regarding perseverance and motivation in achieving goals as a direct behavior are labeled in items number 5, 9, 13, 20, 25, 32

2. Test

The test here is in the form of researcher – made test. The advantage of a **researcher-made test** is that it can be tailored to be content specific, that is, it will match more closely the content that was covered in the classroom or in the research study⁸⁹. The English test is designed based on the base competence in the existed curriculum (See Appendix 4). Since the test is given during the odd semester, therefore the English test is designed based on the base competence which discuss about introduction, asking and giving information about time, and asking and giving information about things. By in the end of the test, students are expected to achieve the learning objective stated in the existed syllabus. The test is in the form of multiple choices with 30 question items and will be validated by the English teacher from MTs. Furthermore, before the test is delivered to the students (See Appendix 4) this study also will be conducted ana analysis using SPSS to figure out its item analysis, normality, linearity, standard derivation, mean, median, and modus of the data. The test will be delivered offline, so the researcher can fully control the process and keep an eye to the students when they do the test.

D. Data Collection Technique

Before conducting the real research, the researcher tried out the instrument to the 30 participants as the sample to investigate the instruments' validity and reliability. After consulting with the English teacher, the first instrument that will be delivered in students' self - directed learning instrument which is in the form of Self-Rating Scale of Self-Directed Learning (SRSSDL), the reason why the researcher decide to deliver this instrument first is, since this instrument has the most questionnaire items, it will take a longer time for the students. The instrument consists of 41 statements and it is delivered online through google form on Monday 2nd, November at 08.00 until 10.00.

Since the personality traits instrument is the second instrument which has the most items after SRSSDL, the researcher decided that the second instrument that delivered to the students is the students' personality traits instrument which is gotten form International Personality Item Pool (IPIP) and consist of 36 statements. This instrument is delivered on Tuesday 3rd, November at 08.00 until 10.00 through google form.

The last questionnaire which delivered to the students is Students' engagement instrument which has the least items which are 19 questionnaire items. The instrument is

⁸⁹ Donald Ary et al., p. 203

delivered on Wednesday 4th October at 08.00 until 09.00 through google form. The researcher decided to deliver the questionnaires online, because the students cannot attend school as usual due to covid – 19 outbreaks, so it is impossible to obtain the data offline.

The last instrument that is delivered to the test is the English Test, considering the time allocation, this test is delivered last. By the time this test is delivered, the students already finish the English material for this semester. That is why the English test which consists of 30 questions in the form of multiple choices is delivered on Tuesday, 10th November at 08.00 until 09.00 in the class or offline. After compiling the result, the researcher analyse the data statistically using SPSS 16.00 for Windows to investigate the validity and reliability.

After checking out the validity and reliability result, the result will be used as the basic consideration in revising the instrument items. The revised instruments were validated based on the expert and supervisor guidance. Then for the real research, the same cycle will be applied in delivering the research instrument with a longer time allocation since it is compiled from the entire participant of this research.

The first questionnaire that had been delivered was SRSSDL questionnaire, this questionnaire was delivered on Monday, March 22nd 2021 through google form. Due to the PPKM policy, students had to stay and study at home, while the teaching and learning process were done virtually and there will be an offline meeting once a week for checking up the students.

The second questionnaire for students' engagement questionnaire was delivered on Friday, 25th March 2021 through google form, as well as the last questionnaire which delivered in 29th March. The last research instrument was English Test. The English test was delivered offline on Wednesday 31st March 2021, and 1st April 2021. The English test was delivered directly by the researcher to the participant, so that the researcher could fully took control in this process.

E. Data Analysis Technique

After assembled the data of students' self-directed learning (SDL), students' engagement (SE), personality traits, and their English achievement, the researcher analyzed, examined, interpreted and concluded the data of the research such as in the following:

a. Personality Trait Questionnaire

In identifying students' personality trait, this study adapted the questionnaire from IPIP poll with 36 statement items which measures the five dimensions of personality: Openness, Extraversion, Emotional Stability, Conscientiousness and Agreeableness. It consist six until nine questions in every dimensions of the personality and measured on a five point likert scale with its direction of scoring (+ or -). For + key items, the response 1: very inaccurate, 2: moderately inaccurate, 3: neither inaccurate nor accurate, 4: moderately accurate, 5: very accurate. For - key items, 5: very inaccurate, 4: moderately inaccurate, 3: neither inaccurate nor accurate, 2: moderately accurate, 1: very accurate.

To identify in which dimension that mostly dominant in students' personality trait can be seen from the total score of each dimension in the questionnaire items⁹⁰ (See Appendix 7). Before processing the data into path analysis, the questionnaire result for each dimension are transformed into interval data for each facet using MSI. Then each dimension will be analyzed along with the other variable

b. Students' Engagement Questionnaire

In this study, the 22 matters questionnaire was customized from Phyllis Blumenfeld and Jennifer Fredricks employing 5 points Likert scale to measure students' engagement in English language learning. The higher score indicated a higher level of students' engagement. The Mean (M) and Standard Deviation (SD) were applied to investigate and recapitulated the data instead of participants for every statement in the questionnaire. The provided score for every statement was clarified beneath.

Table 3.8 Grade Description of SE Questionnaire

Response	Grade for Each Representations	
	Affirmative Representation	Unfavorable Representation
Never	1	5
Seldom	2	4
Sometimes	3	3
Often	4	2
Always	5	1

⁹⁰ Ana-Maria Cazan & Bianca-Andreea Schiopca, "Self-Directed Learning, Personality Traits and Academic Achievement," *Procedia - Social and Behavioral Sciences* (2014): 643.

The students' engagement questionnaire consisted of positive and negative statements with 5 alternative answers, namely: never, seldom, sometimes, often, and always. In order to know the level of students' engagement in English language learning from each student, this study will apply the same computation stages as in classifying students' self-directed learning in English language learning above. However, this study will classify the students' engagement level into 5 levels or classifications according to Schlechty.⁹¹ Beforehand it is needed to count the maximal and minimal grade of the instrument.

$$\begin{aligned}\text{Maximum grade} &= (\text{maximal ratio grade}) \times (\text{amount of instrument items}) \\ &= 5 \times 22 = 110\end{aligned}$$

$$\begin{aligned}\text{Minimum grade} &= (\text{Minimum ratio grade}) \times (\text{amount of instrument items}) \\ &= 1 \times 22 = 22\end{aligned}$$

Table 3.9 Descriptive Statistics of SEL

	N	Minimum	Maximum	Mean	Std. Deviation
SKOR SDL	100	60,36	170,27	114,1240	22,13693
Valid N (listwise)	100				

Then, student engagement (SE) questionnaire data will be processed using SPSS 16.00 to figure out the maximum score, minimum score, mean, and standard deviation. To determine the number of categories for each data, the calculation would first be carried out as followed.

$$\mu + 1,5 \sigma = (\text{mean}) + 1,5 (\text{Standard Deviation}) = 63,81 + 1,5(9,60) = 78,21$$

$$\mu + 0,5 \sigma = (\text{mean}) + 0,5 (\text{Standard Deviation}) = 63,81 + 0,5(9,60) = 68,61$$

$$\mu - 1,5 \sigma = (\text{mean}) - 1,5 (\text{Standard Deviation}) = 63,81 - 1,5(9,60) = 49,41$$

$$\mu - 0,5 \sigma = (\text{mean}) - 0,5 (\text{Standard Deviation}) = 63,81 - 0,5(9,60) = 59,01$$

Based on the calculation above, the results sample of the following categories of Students' Engagement Levels are obtained, as displayed on the Table 3.8

Table 3.10 Categories for Students' Engagement in English Language Learning

Formula	SE Level	Range	Category
$X > (\mu + 1.5 \sigma)$	$X > 78,21$	78,21 – 84,85	Most Advance / Highest / Authentic Engagement
$(\mu + 0.5 \sigma) \leq$	$68,61 \leq X < 78,21$	68,61-77,21	Advance / High / Strategic

⁹¹ Schlechty, *Engaging Students*, 15.

$X < (\mu + 1.5 \sigma)$			Compliance
$(\mu - 0.5 \sigma) \leq X < (\mu + 0.5 \sigma)$	$59,01 \leq X < 68,61$	59,01-67,61	Intermediate / Moderate / Ritual Compliance
$(\mu - 1.5 \sigma) \leq X < (\mu - 0.5 \sigma)$	$49,41 \leq X < 59,01$	49,41-58,01	Poor / Low / Retreatism
$X < (\mu - 1.5 \sigma)$	$X < 49,41$	38,97 – 48, 41	Poorest / Lowest / Rebellion

Based on the categorization above, the result showed that 51 students has intermediate level which means they already reach ritual compliance in Students' engagement level, 9 student in most advance level which mean they are categorized as authentic engagement. 17 students in advance level, which means they are can be said in the strategic compliance level. 19 students categorized as Retreatism since they are poor level, 4 students categorist as rebellion since they are in the lowest level (See Appendix 6). After analyzing the students' level in their engagement, the data preceded using path analysis.

c. Self – Directed Learning

The research data of self-directed learning use self-directed learning levels questionnaire with 41 items filled by the 7th grade students of MTsN 10 Nganjuk. After the participants responded the self-directed learning questionnaire, each response would be inclined a score with an eye to obtain the amount grade. The inclined grades for each statement were clarified beneath.

Table 3.5 Grade Description of SDL Questionnaire

Response	Grade for Each Representations	
	Affirmative Representation	Unfavorable Representation
Never	1	5
Seldom	2	4
Sometimes	3	3
Often	4	2
Always	5	1

From table 3.6, the Self-Directed Learning questionnaire consisted of positive and negative statements with 5 alternative answers, there were: never, seldom, sometimes, often, and always. Positive statements that had scores of answers were always was 5, often was 4, sometimes was 3, seldom was 2, and never was 1.

Whereas negative statements scores had reversed from positive statements, which was always was 1, often was 2, sometimes was 3, seldom was 4, and never was 5.

In this study, students' SDL will be spilt up into several categories. Corresponding to Azwar⁹², theoretic mean (μ) and Standard Deviation (σ) grades were counted to classify the type of self-directed learning of learners. Beforehand it is needed to count the maximal and minimal grade of the instrument.

$$\begin{aligned}\text{Maximum grade} &= (\text{maximal ratio grade}) \times (\text{amount of instrument items}) \\ &= 5 \times 41 = 205\end{aligned}$$

$$\begin{aligned}\text{Minimum grade} &= (\text{Minimum ratio grade}) \times (\text{amount of instrument items}) \\ &= 1 \times 41 = 41\end{aligned}$$

Then, Self-Directed Learning (SDL) questionnaire data will be processed using SPSS 16.00 to figure out the maximum score, minimum score, mean, and standard deviation. To determine the number of categories for each data, the calculation would first be carried out as followed.

Table 3.6 Descriptive Statistics of SDL

	N	Minimum	Maximum	Mean	Std. Deviation
SKOR SDL	100	60,36	170,27	114,1240	22,13693
Valid N (listwise)	100				

$$\begin{aligned}\mu + 1 \sigma &= (\text{mean}) + 1 (\text{Standard Deviation}) \\ &= 114,12 + 1(22,14) \\ &= 136,26\end{aligned}$$

$$\begin{aligned}\mu - 1 \sigma &= (\text{mean}) - 1 (\text{Standard Deviation}) \\ &= 114,12 - 1(22,14) \\ &= 91,98\end{aligned}$$

In the computation above, the grade of Mean (μ) and Standard Deviation (σ) were displaced to the pattern in table beneath to divide the amount grade (X) instead of every respondent. Eventually, the learners' amount grade for self-directed learning level could be divided into 4 characteristics corresponding to Grow⁹³ as displayed in Table 3.7 as the sample of SDL level

⁹² Saifuddin Azwar, *Penyusunan Skala Psikologi*. (Yogyakarta: Pustaka Belajar, 2012). 146

⁹³ Grow, "Teaching Learners To Be Self-Directed."

Table 3.7 Categories for Self-Directed Learning in English language learning

Formula	SDL Level	Range	Category
$X \geq (\mu + 1 \sigma)$	$X \geq 136,26$	136,26 – 170,27	Most Advance / Highest / Self-Directed
$\mu \leq X < (\mu + \sigma)$	$114,12 \leq X < 136,26$	114,12 – 135,26	Advance / High / Involved
$(\mu - \sigma) \leq X < \mu$	$91,8 \leq X < 114,12$	91,8 – 113,12	Intermediate / Moderate / Interested
$X < (\mu - \sigma)$	$X < 91,98$	60,36 – 90,8	Poor / Low / Dependent

Based on the table above there are 14 students who categorized that they already self - directed, 26 students categorized as involved, 45 students in interested level, 15 students categorized as Dependent (See Appendix 5). After analyzing the level of students' self – directed level, the data will be proceed using path analysis to investigate the influence of this variable

d. English Test

The English test is in the form of multiple choices with 30 question items and validated by the English teacher before get deliver to the students (See Appendix 8). Students' score will be counted as follows⁹⁴:

$$\text{English Test Result} = \frac{\text{True answer}}{\text{Total question}} \times 100$$

After identifying student's score, the score will be preceded using path analysis to know whether it influence or being influenced.

e. Transforming the ordinal data into interval

Ordinal scale is scale which includes a nominal scale which is added with certain stages following a specific category, therefore the result will be in the form of level or ranking. Meanwhile, in path analysis, the data that is required supposed to be in interval scale which has similarity with ordinal scale but the level between one categories with the other category has a meaning.⁹⁵ There are two kinds of data in this research, the interval data is the result from students' English achievement. The ordinal data is the result of the computation on students' personality traits, their engagement level and their self – directed learning level. Therefore the data which is in the form of ordinal data will be transformed into the interval data using MSI

⁹⁴ Kartika, Hendra "Tinjauan Literatur: Persepsi tentang jenis data, skala data, dan hubungannya dengan teknik pemberian skor tes. JMP, Volume 6 Nomor 2. Desember 2014, p100

⁹⁵ Juanim, "Analisis Jalur dalam riset pemasaran pengolahan dat SPSS dan LISREL," (Bandung: Refika, 2020) p 51

(Method of successive Interval) (See appendix 9). Transforming the ordinal data into interval data is used to fulfill one of the requirements in conducting the parametric analysis⁹⁶. Microsoft Excel is used as a tool in transforming the ordinal data into interval data.

f. The path analysis among variables

Since the main aim of this research is to identify the direct and indirect influence among variables, this research uses a mediating model of path analysis.⁹⁷ The data were calculated and formulated using IBM SPSS 21 for testing the normality, linearity and linear regression and the path diagrams were drawn using SPSS AMOS 21. The data were analyzed using path analysis based on each facet in personality trait as variable (X), students' engagement level as variable (X2), self – directed learning level as variable (Y) towards their English achievement as variable (Z). To determine the significant correlation between two variables, the researcher uses standard coefficient correlation to measure the level of correlation on the following table:

Table 3.11 of Standard Coefficient Correlation

No.	Coefficient Correlation	Interpretation
1	0,00 – 0,199	Very Weak Correlation
2	0,20 – 0,399	Weak Correlation
3	0,40 – 0, 599	Average Correlation
4	0,60 – 0,799	High Correlation
5	0,80 – 1, 00	Very High Correlation

⁹⁶ Akdon, (2017). Cara menggunakan dan memakai Path Analisis, (Bandung: Alfabeta) p 30

⁹⁷ Kusenendi (2003). Structural Equation Modeling. Analisis pemodelan persamaan structural dalam penelitian manajemen.” Manajerial. Jurnal Manajemen dan Sistem Informasi Program Studi Pendidikan Manajemen UPI. Vol. 2. No. 4 Januari 200 4 p 108 - 127