CHAPTER IV

FINDING AND DISCUSSION

A. Data Description

In this research, the researcher analyzed the difficulty level and discrimination power of an item to know the student's ability to understand the English subject that has been learned and the quality of the test tested. The researcher used the English final term examination student of the seventh grades of MTs Al-Khairiyah Kamasan at the first semester in the academic year 2020/2021. The researcher used the student answer sheet as the data source to analyse. The total number of the test item is 25 questions which consist only of multiple choice.

The data for analysis was gathered from 44 students' answer sheets. The researcher divided the students into three groups: upper, middle, and lower groups by listed the student scores from the highest to the lowest. The researcher only used the upper and lower group to analyse the data. Because the subject with $n>30$ (n is the total of students or populations) is called the large groups.[1] According to Ebel and Frisbie, the large group's selection was 27% from the upper group, 27% from the lower group.[2] So that, the total sample is 54% from populations. The researcher got the 12 students (27%) as the upper group with the 12 highest scores. The

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[1] Endang Sri Budi Herawati, "Daya Pembeda dan Tingkat Kesukaran" *Universitas Nahdlatul Ulama Cirebon, Education,* 22 November 2014, https://www.slideshare.net.

[2] Robert L. Ebel and David A. Frisbie, *Essentials of Educational Measurement.* Fifth Edition (New Delhi: Prentice-Hall of India, 1991), 225.

researcher also got 12 students (27%) whose score was at the 12 lowest scores among others for the lower group. To make it easy to read the data, the following table design as simple:

Table 4.1 The Student Scores from Highest to Lowest

Student Answer	Student Scores	Student Answer	Student Scores
1	88	23	24
2	88	24	24
3	84	25	24
4	80	26	24
5	80	27	24
6	76	28	24
7	72	29	20
8	56	30	20
9	48	31	20
10	48	32	20
11	48	33	20
12	44	34	20
13	40	35	20
14	36	36	20
15	36	37	20
16	36	38	16
17	36	39	16
18	32	40	16
19	32	41	16
20	28	42	16
21	28	43	12
22	24	44	12

Table 4.1 shows the highest score is 88, and the lowest score is 12. It means that the score from 12 (27%) students in the upper group begun from 44-88, the score from 20 (46%) students in the middle group begun from 20-40, while the score from 12 (27%) students in the lower group begun from 12-20. Such as presented in the following table:

Table 4.2 The Sample of The Research

Category	Score range out of 1-100	Frequency	Percentage
Upper group	44-88	12 students	27%
Middle group	20-40	20 students	46%
Lower group	12-20	12 students	27%

To determine the item difficulty index and item discrimination index, the data analyzed is only from the upper and lower groups. It refers to the formula in the previous chapter (chapters II and III). Furthermore, the data were analyzed by using manual counting. Afterward, the item difficulty index and item discrimination index of each test item was found in numerical data (table, chart and figure form).

B. Data Analysis and Interpretation

1. Difficulty Level

In analyzing the difficulty level, the researcher listed the students' answer sheets from the upper and the lower groups. Then, the researcher counted the difficulty level by using the following formula:[3]

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

Where:

P = the index of difficulty level

B = the number of test-takers in the total group who answered correctly

T = total number of test-takers in the group

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[3] Kunandar, *Penilaian Autentik (Penilaian Hasil Belajar Peserta Didik Berdasarkan Kurikulum2013): Suatu Pendekatan Praktis* (Jakarta: Raja Grafindo Persada, 2013), 240.

After counting the index of difficulty level, the result of each item will be in the form of a decimal number. The researcher classified the result of difficulty level, whether considered as difficult, moderate and easy, based on criteria of interpreting in the range scale bellow:

Table 4.3 The Classification of Item Difficulty Level[4]

P	Interpretation
0.00 – 0.30	Difficult
0.31 – 0.70	Moderate
0.71 – 1.00	Easy

As a result, the following table of data interpretation of item difficulty level for each item of multiple-choice are:

Table 4.4 The Data Interpretation of Item Difficulty Level

Item Number	B		T	$P = \dfrac{B}{T}$	Classification
	Up	Lg			
1	5	3	24	0,33	Moderate
2	9	3	24	0,50	Moderate
3	11	2	24	0,54	Moderate
4	4	0	24	0,17	Difficult
5	10	1	24	0,46	Moderate
6	9	0	24	0,38	Moderate
7	8	2	24	0,42	Moderate
8	9	1	24	0,42	Moderate
9	12	2	24	0,58	Moderate
10	2	3	24	0,21	Difficult
11	9	1	24	0,42	Moderate
12	1	2	24	0,13	Difficult

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[4] Kunandar, *Penilaian Autentik,* 241.

13	10	3	24	0,54	Moderate
14	8	1	24	0,36	Moderate
15	9	4	24	0,54	Moderate
16	9	2	24	0,46	Moderate
17	3	2	24	0,21	Difficult
18	9	1	24	0,42	Moderate
19	7	2	24	0,38	Moderate
20	11	3	24	0,58	Moderate
21	9	0	24	0,38	Moderate
22	10	7	24	0,71	Easy
23	9	1	24	0,42	Moderate
24	9	4	24	0,54	Moderate
25	12	3	24	0,63	Moderate

Based on *Table 4.4*, it can be concluded that the difficulty level of the test item list as follows:

a. The item numbers 4, 10, 12 and 17 are items that belong to the difficult items.

b. The item number of 1, 2, 3, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 18, 19, 20, 21, 23, 24 and 25 are items that belong to the moderate items.

c. The item number 22 is the item that belong to the easy item.

In term of item difficulty level, there are 4 (16%) items that classified as *difficult* with range 0,13–0,21 as item difficulty index, there are 20 (80%) items that classified as *moderate* with range 0,33–0,63 as item difficulty index, and there are 1 (4%) item that classified as *easy* with 0,71 item difficulty index. The chart below is the percentage of item difficulty level:
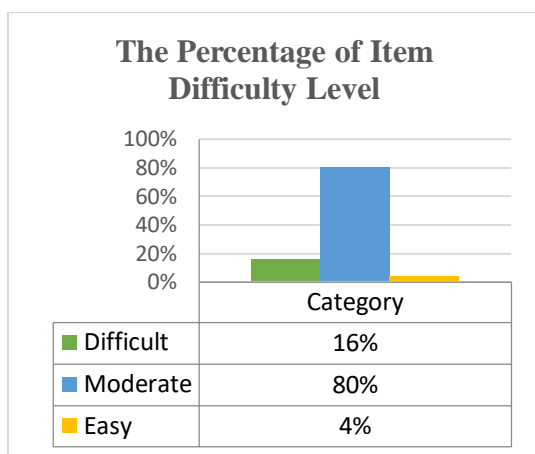
Chart 4.1 The Percentage of Item Difficulty Level

In the scope of *difficulty level*, item numbers 4, 10, 12 and 17 fell into difficult items. For example, item number 4 is as follow:

Figure 4.1 The Example of English Final Term Examination item no.4

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option C as their answer. Meanwhile, the correct answer is option D. The index ranging of difficulty level has shown 0,17 as a difficult item. This data was obtained from 4 students who answered correctly from the total 24 students. On the whole, the item who was categorized as difficult, because the students do not understand both the English material and the English language well. Therefore, the question looks difficult to understand. The difficulty item could occur if the language of the question difficult to understand. Then, the questions arranged

do not refer to the substance of the material that has been taught and the students do not understand well about the material that has been delivered by teacher.[5] Therefore, this item must be discarded. Meanwhile, in the scope of *moderate level*, the item numbers 1, 2, 3, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 18, 19, 20, 21, 23, 24 and 25 felt into moderate item. For example, item number 13 is as follow:

Text for number 12-13!
Hello my name is Dicky. I was born twelve years ago in Bandung. I live at Jln. Ahmad Yani number 49 Magelang, and every afternoon I take English course. My favourite song is "She will be loved". My father is a teacher of SMP N 1 Seputih Agung.

13. What is his hobby?
   a. dancing   c. Swimming
   (b.) listening music   d. Painting

Figure 4.2 The Example of English Final Term Examination item no.13

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option B as their answer, which is the correct answer. The index ranging of difficulty level has shown 0,54 as a moderate item. This data was obtained from 13 students who answered correctly from the total 24 students. Exactly, the moderate item is declared as a good item and can be reused. The student score shows if they are able to answer the question well. Because, the items are not too easy and not too difficult. Furthermore, in the scope of *easy level*, item number 22 felt as easy item. For example:

Look at the table for numbers 22 to 23!
Anton's schedule

Monday	Tuesday	Wednesday	Thursday	Friday

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[5] Kunandar, *Penilaian Autentik* 232.

English	Indonesian	Social	Math	Science
Math	Science	Sport	English	Indo
Art	Citizenship	Religion	Science	
Religion	Art	Art	Indo	

22. How many days does Anton have English?
    a. 2 days   c. 3 days
    b. 4 days   d. 5 days

Figure 4.3 The Example of English Final Term Examination item no.22

Based on the students answer sheet that has been analyzed, it was found that the student mostly chooses option A as their answer which is the correct answer. The index ranging of difficulty level has showed 0,71 as easy item. This data was obtained from 17 students who answered correctly from the total 24 students. Based on the student scores, only this number (22) is categorized as easy item. Because, the question is too easy and the student understand the question well. So that, the students got the right answer. Easy item could occur if the questions arranged do not following the rules of making a good questions and very loose test execution.[6] Thus, these things allow the students to choose the right answer and to work together.

2. Discrimination Power

In analyzing the discrimination power, the researcher listed the students answer sheet from the upper and the lower groups as analyzed the difficulty level. Then, the researcher counted the discrimination power by using the following formula:[7]

$$D = \frac{Ru - Rl}{½T}$$

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[6] Kunandar, *Penilaian Autentik* 233.
[7] Norman E. Gronlund, *Constructing Achievement Test.* Second Edition (USA: Prentice-Hall, Inc, 1977), 112-113.

Where:

D = the index of discriminating power

Ru = the number in the upper group who answered the item correctly

Rl = the number in the lower group who answered the item correctly

T = total number of students included in the item analysis

After counting the index of discrimination power, the result of each item will be in the form of decimal number. The researcher classified the result of discrimination power whether is considered as very poor/worst, poor, satisfactory, good and excellent, based on criteria of interpreting in the range scale bellow:

Table 4.5 The Classification of Item Discrimination Power [8]

Discrimination Index	Qualification	Interpretation
Negative Value	Very poor/ Worst	Definitely discard
<0.20	Poor	Deemed not to have good discriminating power and discard
0.20 – 0.40	Satisfactory	Has sufficient discriminating power and need to review
0.40 – 0.70	Good	Has good discriminating power and possibilities for improvement
0.70 – 1.00	Excellent	Has excellent discriminating power and retain

As a result, the following table of data interpretation of item discrimination power for each item of multiple choice are:

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[8] Anas Sudijono, *Pengantar Evaluasi Pendidikan.* Ed. 1. Cet.15 (Jakarta: Rajawali Press, 2016), 389.

Table 4.6 The Data Interpretation of Item Discrimination Power

Item Number	Ru	Rl	½T	$D = \dfrac{Ru - Rl}{½T}$	Classification
1	5	3	12	0,17	Poor
2	9	3	12	0,50	Good
3	11	2	12	0,75	Excellent
4	4	0	12	0,33	Satisfactory
5	10	1	12	0,75	Excellent
6	9	0	12	0,75	Excellent
7	8	2	12	0,50	Good
8	9	1	12	0,67	Good
9	12	2	12	0,83	Excellent
10	2	3	12	-0,08	Very Poor
11	9	1	12	0,67	Good
12	1	2	12	-0,08	Very Poor
13	10	3	12	0,58	Good
14	8	1	12	0,58	Good
15	9	4	12	0,42	Good
16	9	2	12	0,58	Good
17	3	2	12	0,08	Poor
18	9	1	12	0,67	Good
19	7	2	12	0,42	Good
20	11	3	12	0,67	Good
21	9	0	12	0,75	Excellent
22	10	7	12	0,25	Satisfactory
23	9	1	12	0,67	Good
24	9	4	12	0,42	Good
25	12	3	12	0,75	Excellent

Based on *Table 4.6*, it can be concluded that the discrimination power of the test item list as follows:

a. The item numbers 10 and 12 belong to the very poor item and definitely discarded.

b. Item numbers 1 and 17 belonged to the poor item and discarded.

c. The item numbers 4 and 22 are items that belong to the satisfactory and needed to be revised.

d. Item number 2, 7, 8, 11, 13, 14, 15, 16, 18, 19, 20, 23 and 24 belong to the good items and possibilities for improvement.

e. The item numbers 3, 5, 6, 9, 21 and 25 are the items that belong to the excellent items and retain.

In terms of item discrimination power, there are 2 (8%) items are classified as a *very poor item* with -0,08 as item discrimination index, and there are 2 (8%) items classified as *a poor item* with a range 0,08–0,17 as item discrimination index. There are 2 (8%) items for the *satisfactory item* with the range 0,25–0,33 as item discrimination index. Then, there are 13 (52%) classified as *good items* with range 0,42–0,67 as item discrimination index, and there are 6 (24%) as items classified as an *excellent item* with range 0,75–0,83 as items discrimination index. The chart below is the percentage of item difficulty level:
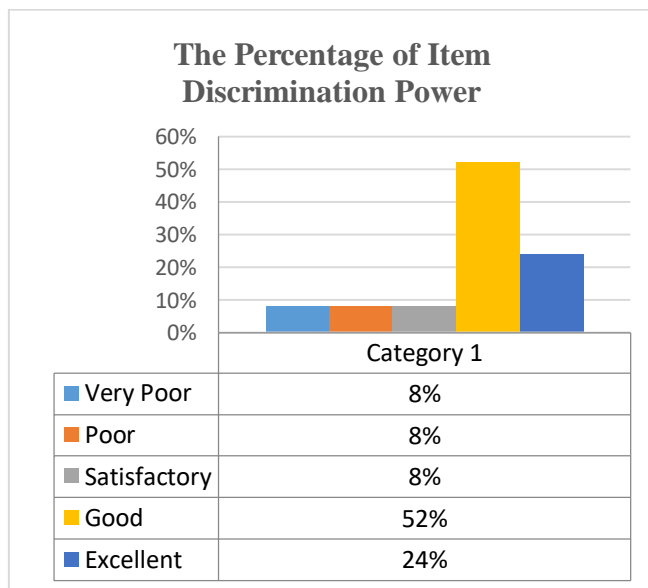
The Percentage of Item Discrimination Power

	Category 1
■ Very Poor	8%
■ Poor	8%
■ Satisfactory	8%
■ Good	52%
■ Excellent	24%

Chart 4.2 The Percentage of Item Discrimination Power

In the scope of *very poor item*s, the item numbers 10 and 12 felt into very poor items. For example, item number 12 is as follow:

> **Text for number 12-13!**
> Hello my name is Dicky. I was born twelve years ago in Bandung.
> I live at Jln. Ahmad Yani number 49 Magelang, and every
> afternoon I take English course. My favourite song is "She will be
> loved". My father is a teacher of SMP N 1 Seputih Agung.
>
> 12. Where does Dicky come from?
>   a. Bandung   c. SMP 5 Bandung
>   (b) Magelang   d. Jln. Ahmad Yani no. 49

Figure 4.4 The Example of English Final Term Examination item no.12

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option A as their answer. Meanwhile, the correct answer is option B. The index ranging of discrimination power has shown -0,08 as a very poor item. This data was obtained from 3 students who answered correctly from the total 24 students. The lower group choose the right answer dominated than the upper group and the result shows the negative value. It is obtained because the students do not understand the question and do not mastered the material as well as possible. The item with the negative value could not distinguish the student in the upper and lower groups, and definitely discarded. In the scope of *poor item*s, item numbers 1 and 17 fell into poor items. For example, item number 1 is as follow:

> 1. Which one of the following expressions is regarded as
>   greeting?
>   a. Thank you   (c) Good morning
>   b. I'm fine, thanks   d. Good bye

Figure 4.5 The Example of English Final Term Examination item no.1

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option C as their answer, which is correct. The index ranging of discrimination power has shown 0,17 as a poor item discarded. This data was obtained from 8 students who answered correctly from the total 24 students. Exactly, the students in the upper and lower group almost the same in answering the correct answer and could not distinguish between each other. It is obtained because the students do not master the material that have been taught. So that, the item in poor category also discarded. In the scope of *a satisfactory item*, item numbers 4 and 22 felt into a satisfactory item. For example, item number 22 is as follow:

Look the table for number 22 to 23!				
Anton's schedule				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
English	Indonesian	Social	Math	Science
Math	Science	Sport	English	Indo
Art	Citizenship	Religion	Science	
Religion	Art	Art	Indo	

23. How many days does Anton have English?
    c. 2 days   c. 3 days
    d. 4 days   d. 5 days

Figure 4.6 The Example of English Final Term Examination item no.22

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option A as their answer, which is the correct answer. The index ranging of discrimination power has shown 0,25 as a satisfactory item. This data was obtained from 17 students who answered correctly from the total 24 students. The upper group choose the right answer dominated than the lower group which sows the result as a satisfactory. It is because the students understand the

question and knows the answer of this item. Then, the satisfactory item is needed to review to build the quality of the item for the next exam. Furthermore, in the scope of *a good item,* item numbers 2, 7, 8, 11, 13, 14, 15, 16, 18, 19, 20, 23 and 24 falls into a good item. For example, item number 8 is as follow:

> **Text for number 8 to 9!**
> Arman : Hello Mansyur. How are you?
> Mansyur: I am fine, and you?
> Arman : I am fine too. What a surprise to meet you
>   here. What are you doing here? Are you on vacation?
> Mansyur: Yes, oups. That's the whistle for my train.
> See you!
> Arman : ....
>
> 8. Where does the conversation take place?
>   a. in the classroom c. at the bus station
>   b. at the library   d. at the railway station

Figure 4.7 The Example of English Final Term Examination item no.8

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option D as their answer, which is the correct answer. The index ranging of discrimination power has shown 0,67 as a good item. This data was obtained from 10 students who answered correctly from the total 24 students. Based on the result, this item can distinguish between the upper and the lower group. the student may easy to understand about the conversation and easy to determine the right answer. Exactly, the item in good category possibilities for improvement in the next exam. Meanwhile, in the scope of *an excellent item*, item numbers 3, 5, 6, 9, 21 and 25 falls into an excellent item. For example, item number 5 is as follow:

5. What time is it?

    a. Ten o'clock   c. A half past ten
    b. Ten past ten   d. Ten to ten

Figure 4.8 The Example of English Final Term Examination item no.5

Based on the student's answer sheet that has been analyzed, it was found that the student mostly chooses option B as their answer, which is the correct answer. The index ranging of discrimination power has shown 0,75 as an excellent item. This data was obtained from 11 students who answered correctly from the total 24 students. On the whole, the students mastered the material that have been learned and easy on determining the right answer. The items can distinguish between the students in the upper and the lower groups. Therefore, the item in excellent category is retain.

From the explanation above, it can be concluded that the result of the interpretation in index difficulty level and discrimination power from English final term examination in the academic year 2020/2021 at first semester has shown that the difficulty level is classified as *moderate*. The index range is 0,33–0,63 as item difficulty index with the percentage is 80% (20 test items). Meanwhile, the discrimination power is classified as *a good item* with a range 0,42–0,67 item discrimination index with the percentage is 52% (13 test items). It means, the test item has a good quality.

C. Discussion

Analysis of difficulty level and discrimination power of an item is needed in academic scopes. The item is analyzed in index difficulty level to know the level of each item. Meanwhile, the discrimination power was analyzed to distinguish between the upper and the lower groups. Divided students carried out the analysis into three groups: upper, middle and lower groups based on their scores. In the difficulty level, there are difficult, moderate and easy as the interpretation.[9] While in the discrimination power there are very poor, poor, satisfactory, good and excellent as the interpretation.[10] The formula and the range scale of interpretation of the item in difficulty level and discrimination power based on several experts have been explained in the theoretical framework.

The difficulty level and discrimination power exactly correlate with each other. It is analyzed the quality of an item based on student scores who answer each item correctly. Sudijono claims that the good item is items that not too easy and not too difficult. In order words, the degree of difficulty is moderate.[11] It means the result from the analysis of the test item of English final term examination in the academic year 2020/2021 above has been shown the result as the good item. The interpretation of index difficulty level has shown the average value of 0,43, which is classified as *moderate* with range 0,33–0,63 as item difficulty index with the percentage 80% (20 test items). Meanwhile, the interpretation in discrimination power has shown the

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[9] Kunandar, *Penilaian Autentik*, 241.

[10] Anas Sudijono, *Evaluasi Pengantar Pendidikan*, 386.

[11] Anas Sudijono, *Evaluasi Pengantar Pendidikan*, 371.

average value of 0,50 for index discrimination power and classified as *a good item* with a range 0,42–0,67 item discrimination index with 52% (13 test items) as the percentage and recommended to be used.

The researcher also took much previous research which related to and supported this research. There are researches conducted by Alif Fadillah A, Eni Larianti and Hisbullah. Although all of the research analyzed the test item, there was a difference between this research and their researches. The researcher took a different place, time and population. The researcher took an English final term examination in the academic year of 2020/2021. The researcher took a population in seventh grades. In contrast, Eni Larianti took a population at nine grades. The researcher also took place at MTs, while the other took a USBN test at SMP, final test at SMP and summative test at SMA to analyze. Exactly, all of those researches give a contribution to educational research. Therefore, the analysis of test items in level difficulty and discrimination power is essential for educational research.