CHAPTER IV

RESEARCH FINDING AND DISCUSSION

This chapter presents research finding and discussion. It is divided into the calculation of tryout test, the data description, the data analysis, and discussion.

4.1 The Calculation of Tryout Test

Trying out of instrument is needed to know the validity and the reliability of the test. In this part the researcher shows the validity and reliability of the test.

4.1.1 The Validity of Tryout Test

Formula:

$$r_{xy} \frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$$

The item test is valid if $r_{xy} > r_{table}$

$r_{table} = 0.3440$

Table 4.1. The Validity Computation Using Manual Calculation

No.	The Validity of r_{xy}	Criteria

1.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 477) - (17\ x\ 1009)}{\sqrt{\{33\ x\ 17 - 289\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{15741 - 17153}{\sqrt{272\ x\ 46400}}$ $= \frac{-1412}{\sqrt{12620800}}$ $= \frac{-1412}{355{,}257}$ $= -0.39745$	Invalid
2.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 754) - (24\ x\ 1009)}{\sqrt{\{33\ x\ 24 - 576\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{24882 - 24216}{\sqrt{216\ x\ 46400}}$ $= \frac{666}{\sqrt{10022400}}$ $= \frac{666}{3165817}$ $= 0.21037$	Invalid
3.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 831) - (27\ x\ 1009)}{\sqrt{\{33\ x\ 27 - 729\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{27423 - 27243}{\sqrt{162\ x\ 46400}}$ $= \frac{189}{\sqrt{75168000}}$ $= \frac{189}{866994}$ $= 0.217994$	Invalid

4.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 827)-(26\ x\ 1009)}{\sqrt{\{33\ x\ 26-676\}\{33\ x\ 32257-1018081\}}}$ $=\frac{27291-26234}{\sqrt{182\ x\ 46400}}$ $=\frac{1057}{\sqrt{8444800}}$ $=\frac{1057}{2905993}$ $=0.36385$	Valid
5.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 781)-(24\ x\ 1009)}{\sqrt{\{33\ x\ 24-576\}\{33\ x\ 32257-1018081\}}}$ $=\frac{25773-24216}{\sqrt{216\ x\ 46400}}$ $=\frac{1557}{\sqrt{100224000}}$ $=\frac{1557}{316581743}$ $=0.491943$	Valid
6.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 829)-(26\ x\ 1009)}{\sqrt{\{33\ x\ 26-676\}\{33\ x\ 32257-1018081\}}}$ $=\frac{27357-26234}{\sqrt{182\ x\ 46400}}$ $=\frac{1123}{\sqrt{8444800}}$ $=\frac{1123}{2905993}$ $=0.38657$	Valid

7.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 345)-(12\ x\ 1009)}{\sqrt{\{33\ x\ 12-144\}\{33\ x\ 32257-1018081\}}}$ $=\frac{11385-12108}{\sqrt{252\ x\ 46400}}$ $=\frac{-723}{\sqrt{116928000}}$ $=\frac{-723}{341947}$ $=-0.21146$	Invalid
8.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 922)-(29\ x\ 1009)}{\sqrt{\{33\ x\ 29-841\}\{33\ x\ 32257-1018081\}}}$ $=\frac{30426-29261}{\sqrt{116\ x\ 46400}}$ $=\frac{1165}{\sqrt{53824000}}$ $=\frac{1165}{733648417}$ $=0.502155$	Valid
9.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 923)-(29\ x\ 1009)}{\sqrt{\{33\ x\ 29-841\}\{33\ x\ 32257-1018081\}}}$ $=\frac{30459-29261}{\sqrt{116\ x\ 46400}}$ $=\frac{1198}{\sqrt{53824000}}$ $=\frac{1198}{7336484}$ $=0.516379$	Valid

10.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 925) - (29\ x\ 1009)}{\sqrt{\{33\ x\ 29 - 841\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{30525 - 29261}{\sqrt{116\ x\ 46400}}$ $= \frac{1264}{\sqrt{53824000}}$ $= \frac{1264}{7336484}$ $= 0.544827$	Valid
11.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 756) - (24\ x\ 1009)}{\sqrt{\{33\ x\ 24 - 576\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{24948 - 24216}{\sqrt{216\ x\ 46400}}$ $= \frac{732}{\sqrt{100224000}}$ $= \frac{732}{316607012}$ $= 0.231206$	Invalid
12.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 721) - (22\ x\ 1009)}{\sqrt{\{33\ x\ 22 - 282\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{23793 - 22198}{\sqrt{444\ x\ 46400}}$ $= \frac{1595}{\sqrt{206016000}}$ $= \frac{1595}{453889}$ $= 0.3514$	Valid

13.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 544)-(17\ x\ 1009)}{\sqrt{\{33\ x\ 17-289\}\{33\ x\ 32257-1018081\}}}$ $=\frac{17952-17153}{\sqrt{272\ x\ 46400}}$ $=\frac{799}{\sqrt{12620800}}$ $=\frac{799}{355257}$ $=0.22494$	Invalid
14.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 317)-(9\ x\ 1009)}{\sqrt{\{33\ x\ 9-81\}\{33\ x\ 32257-1018081\}}}$ $=\frac{232361-9081}{\sqrt{216\ x\ 46400}}$ $=\frac{223280}{\sqrt{100224000}}$ $=\frac{223280}{316581}$ $=0.705285$	Valid
15.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 323)-(10\ x\ 1009)}{\sqrt{\{33\ x\ 10-100\}\{33\ x\ 32257-1018081\}}}$ $=\frac{10659-10090}{\sqrt{230\ x\ 46400}}$ $=\frac{569}{\sqrt{106720000}}$ $=\frac{569}{326680}$ $=0.174219$	Invalid

16.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 645)-(21\ x\ 1009)}{\sqrt{\{33\ x\ 21-441\}\{33\ x\ 32257-1018081\}}}$ $=\frac{21285-21189}{\sqrt{252\ x\ 46400}}$ $=\frac{96}{\sqrt{116928000}}$ $=\frac{96}{341947}$ $=0.028078$	Invalid
17.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 742)-(23\ x\ 1009)}{\sqrt{\{33\ x\ 23-529\}\{33\ x\ 32257-1018081\}}}$ $=\frac{24486-23207}{\sqrt{230\ x\ 46400}}$ $=\frac{1279}{\sqrt{106720000}}$ $=\frac{1279}{326680}$ $=0.39161$	Valid
18.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 781)-(25\ x\ 1009)}{\sqrt{\{33\ x\ 25-625\}\{33\ x\ 32257-1018081\}}}$ $=\frac{25773-25225}{\sqrt{200\ x\ 46400}}$ $=\frac{548}{\sqrt{9280000}}$ $=\frac{548}{304630924}$ $=0.179908$	Invalid

19.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 726)-(23\ x\ 1009)}{\sqrt{\{33\ x\ 23-529\}\{33\ x\ 32257-1018081\}}}$ $=\frac{23958-23207}{\sqrt{230\ x\ 46400}}$ $=\frac{751}{\sqrt{106720000}}$ $=\frac{751}{326680}$ $=0.22994$	Invalid
20.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 630)-(19\ x\ 1009)}{\sqrt{\{33\ x\ 19-361\}\{33\ x\ 32257-1018081\}}}$ $=\frac{20790-19171}{\sqrt{266\ x\ 46400}}$ $=\frac{1619}{\sqrt{12342400}}$ $=\frac{1619}{35131752}$ $=0.460859$	Valid
21.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 888)-(28\ x\ 1009)}{\sqrt{\{33\ x\ 28-784\}\{33\ x\ 32257-1018081\}}}$ $=\frac{29304-28252}{\sqrt{140\ x\ 46400}}$ $=\frac{1052}{\sqrt{6496000}}$ $=\frac{1052}{254872517}$ $=0.41287$	Valid

22.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 499) - (15\ x\ 1009)}{\sqrt{\{33\ x\ 15 - 225\}\{33\ x\ 32p257 - 1018081\}}}$ $= \frac{16467 - 15135}{\sqrt{270\ x\ 46400}}$ $= \frac{1332}{\sqrt{12528000}}$ $= \frac{1332}{3539491}$ $= 0.376377$	Valid
23.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 445) - (14\ x\ 1009)}{\sqrt{\{33\ x\ 14 - 196\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{14685 - 14126}{\sqrt{266\ x\ 46400}}$ $= \frac{559}{\sqrt{12342400}}$ $= \frac{559}{3513175}$ $= 0.15923$	Invalid
24.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 492) - (16\ x\ 1009)}{\sqrt{\{33\ x\ 16 - 256\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{16236 - 16144}{\sqrt{272\ x\ 46400}}$ $= \frac{92}{\sqrt{12620800}}$ $= \frac{92}{355257653}$ $= 0.0259$	Invalid

25.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 527) - (17\ x\ 1009)}{\sqrt{\{33\ x\ 17 - 289\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{17391 - 17153}{\sqrt{272\ x\ 46400}}$ $= \frac{238}{\sqrt{1262018000}}$ $= \frac{238}{355248927}$ $= 0.067004$	Invalid
26.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 872) - (28\ x\ 1009)}{\sqrt{\{33\ x\ 28 - 784\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{28776 - 28252}{\sqrt{140\ x\ 46400}}$ $= \frac{524}{\sqrt{6496000}}$ $= \frac{524}{254872517}$ $= 0.20565$	Invalid
27.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 586) - (19\ x\ 1009)}{\sqrt{\{33\ x\ 19 - 361\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{19338 - 19171}{\sqrt{266\ x\ 46400}}$ $= \frac{167}{\sqrt{123424000}}$ $= \frac{167}{111096355}$ $= 0.15045$	Invalid

28.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 688)-(21\ x\ 1009)}{\sqrt{\{33\ x\ 21-441\}\{33\ x\ 32257-1018081\}}}$ $=\frac{22704-21189}{\sqrt{252\ x\ 46400}}$ $=\frac{1515}{\sqrt{10208000}}$ $=\frac{1515}{319499609}$ $=0.47432$	Valid
29.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 568)-(17\ x\ 1009)}{\sqrt{\{33\ x\ 17-289\}\{33\ x\ 32257-1018081\}}}$ $=\frac{18744-17153}{\sqrt{272\ x\ 46400}}$ $=\frac{1591}{\sqrt{12620800}}$ $=\frac{1591}{355257653}$ $=0.44791$	Valid
30.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 470)-(14\ x\ 1009)}{\sqrt{\{33\ x\ 14-196\}\{33\ x\ 32257-1018081\}}}$ $=\frac{15510-14126}{\sqrt{266\ x\ 46400}}$ $=\frac{1384}{\sqrt{12342400}}$ $=\frac{1384}{35131752}$ $=0.39396$	Valid

31.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 616)-(18\ x\ 1009)}{\sqrt{\{33\ x\ 18-324\}\{33\ x\ 32257-1018081\}}}$ $=\frac{20328-18162}{\sqrt{270\ x\ 46400}}$ $=\frac{2166}{\sqrt{12528000}}$ $=\frac{2166}{353949149}$ $=0.61203$	Valid
32.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 250)-(8\ x\ 1009)}{\sqrt{\{33\ x\ 8-64\}\{33\ x\ 32257-1018081\}}}$ $=\frac{8250-8072}{\sqrt{200\ x\ 46400}}$ $=\frac{178}{\sqrt{9280000}}$ $=\frac{178}{304630924}$ $=0.058437$	Invalid
33.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 675)-(20\ x\ 1009)}{\sqrt{\{33\ x\ 20-400\}\{33\ x\ 32257-1018081\}}}$ $=\frac{22275-20180}{\sqrt{260\ x\ 46400}}$ $=\frac{2095}{\sqrt{12064000}}$ $=\frac{2095}{347332694}$ $=0.60322$	Valid

34.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 738) - (23\ x\ 1009)}{\sqrt{\{33\ x\ 23 - 529\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{24354 - 23207}{\sqrt{230\ x\ 46400}}$ $= \frac{1147}{\sqrt{10672000}}$ $= \frac{1147}{326680272}$ $= 0.35119$	Valid
35.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 782) - (24\ x\ 1009)}{\sqrt{\{33\ x\ 24 - 576\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{25806 - 24216}{\sqrt{216\ x\ 46400}}$ $= \frac{1590}{\sqrt{10022400}}$ $= \frac{1590}{316581743}$ $= 0.50236$	Valid
36.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 484) - (16\ x\ 1009)}{\sqrt{\{33\ x\ 16 - 256\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{15972 - 16144}{\sqrt{272\ x\ 46400}}$ $= \frac{-16144}{\sqrt{12620800}}$ $= \frac{-16144}{355257653}$ $= -0.04544$	Invalid

37.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 770) - (24\ x\ 1009)}{\sqrt{\{33\ x\ 24 - 576\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{25410 - 24216}{\sqrt{216\ x\ 46400}}$ $= \frac{1194}{\sqrt{10022400}}$ $= \frac{1194}{316581743}$ $= 0.37725$	Valid
38.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 534) - (16\ x\ 1009)}{\sqrt{\{33\ x\ 16 - 256\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{17622 - 16144}{\sqrt{272\ x\ 46400}}$ $= \frac{1478}{\sqrt{12620800}}$ $= \frac{1478}{355257653}$ $= 0.416103$	Valid
39.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 553) - (18\ x\ 1009)}{\sqrt{\{33\ x\ 18 - 324\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{18249 - 18162}{\sqrt{270\ x\ 46400}}$ $= \frac{87}{\sqrt{12528000}}$ $= \frac{87}{353949149}$ $= 0.02458$	Invalid

40.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 500)-(15\ x\ 1009)}{\sqrt{\{33\ x\ 15-225\}\{33\ x\ 32257-1018081\}}}$ $=\frac{16500-15135}{\sqrt{270\ x\ 46400}}$ $=\frac{1365}{\sqrt{12528000}}$ $=\frac{1365}{353949149}$ $=0.385702$	Valid
41.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 786)-(24\ x\ 1009)}{\sqrt{\{33\ x\ 24-576\}\{33\ x\ 32257-1018081\}}}$ $=\frac{25938-24216}{\sqrt{216\ x\ 46400}}$ $=\frac{1722}{\sqrt{10022400}}$ $=\frac{1722}{316581743}$ $=0.54407$	Valid
42.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 692)-(23\ x\ 1009)}{\sqrt{\{33\ x\ 23-529\}\{33\ x\ 32257-1018081\}}}$ $=\frac{22836-23207}{\sqrt{230\ x\ 46400}}$ $=\frac{-371}{\sqrt{10672000}}$ $=\frac{-371}{326680272}$ $=-0.11359$	Invalid

43.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 646) - (20\ x\ 1009)}{\sqrt{\{33\ x\ 20 - 400\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{21318 - 20180}{\sqrt{260\ x\ 46400}}$ $= \frac{1138}{\sqrt{12064000}}$ $= \frac{1138}{347332694}$ $= 0.32767$	Invalid
44.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 677) - (21\ x\ 1009)}{\sqrt{\{33\ x\ 21 - 441\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{22341 - 21189}{\sqrt{252\ x\ 46400}}$ $= \frac{1152}{\sqrt{11692800}}$ $= \frac{1152}{341947364}$ $= 0.33694$	Invalid
45.	$r_{xy}\frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 594) - (18\ x\ 1009)}{\sqrt{\{33\ x\ 18 - 324\}\{33\ x\ 32257 - 1018081\}}}$ $= \frac{19602 - 18162}{\sqrt{270\ x\ 46400}}$ $= \frac{1440}{\sqrt{12528000}}$ $= \frac{1440}{353949149}$ $= 0.406894$	Valid

46.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 468)-(14\ x\ 1009)}{\sqrt{\{33\ x\ 14-196\}\{33\ x\ 32257-1018081\}}}$ $=\frac{15444-14126}{\sqrt{266\ x\ 46400}}$ $=\frac{1318}{\sqrt{12342400}}$ $=\frac{1318}{35131752}$ $=0.37517$	Valid
47.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 697)-(23\ x\ 1009)}{\sqrt{\{33\ x\ 23-529\}\{33\ x\ 32257-1018081\}}}$ $=\frac{23001-23207}{\sqrt{230\ x\ 46400}}$ $=\frac{-206}{\sqrt{10672000}}$ $=\frac{-206}{326680272}$ $=-0.063074$	Invalid
48.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 594)-(18\ x\ 1009)}{\sqrt{\{33\ x\ 18-324\}\{33\ x\ 32257-1018081\}}}$ $=\frac{19602-18162}{\sqrt{270\ x\ 46400}}$ $=\frac{1440}{\sqrt{12528000}}$ $=\frac{1440}{353949149}$ $=0.406894$	Valid

49.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 700)-(21\ x\ 1009)}{\sqrt{\{33\ x\ 21-441\}\{33\ x\ 32257-1018081\}}}$ $=\frac{23100-21189}{\sqrt{252\ x\ 46400}}$ $=\frac{1911}{\sqrt{11692800}}$ $=\frac{1911}{341947364}$ $=0.55893$	Valid
50.	$r_{xy}\frac{(N.\sum XY)-(\sum X\sum Y)}{\sqrt{\{N.\sum X^2-(\sum X)^2\}\{N.\sum Y^2-(\sum Y)^2\}}}$ $=\frac{(33\ x\ 667)-(20\ x\ 1009)}{\sqrt{\{33\ x\ 20-400\}\{33\ x\ 32257-1018081\}}}$ $=\frac{22011-20180}{\sqrt{260\ x\ 46400}}$ $=\frac{1831}{\sqrt{12064000}}$ $=\frac{1831}{347332694}$ $=0.527209$	Valid

The researcher determined the valid questions and invalid questions the table below, as follow:

Table 4.2. Calculation of Valid and Invalid Questions

Valid Questions	Invalid Questions
4, 5, 6, 8, 9, 10, 12, 14, 17, 20, 21, 22, 28, 29, 30, 31, 33, 34, 35, 37, 38, 40, 41, 45, 46, 48, 49, 50.	1, 2, 3, 7, 11, 13, 15, 16, 18, 19, 23, 24, 25, 26, 27, 32, 36, 39, 42, 43, 44, 47.
28 item numbers	22 item numbers

From the manual calculation above, it showed that there were 28 item numbers were valid but only 25 item numbers that was used for pretest and posttest. There were 22 item numbers were invalid that was not used for pretest.

4.1.2 The Reliability of Tryout Test

Formula:

$$r_{nn} \frac{2r_{1.2}}{1 + r_{1.2}}$$

The item test is reliability if $r_{nn} > 0,7$

Table 4.3. The Reliability Computation Using Manual Calculation

The Score of r_{nn}	Criteria
$r_{xy} \frac{(N.\sum XY) - (\sum X \sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$ $= \frac{(33\ x\ 8022) - (511\ x\ 498)}{\sqrt{\{33\ x\ 8259 - 261121\}\{33\ x\ 7954 - 248004\}}}$ $= \frac{264726 - 254478}{\sqrt{11426\ x\ 14478}}$ $= \frac{10248}{\sqrt{165425628}}$ $= \frac{10248}{12861.78}$ $= 0.7967$ $r_{nn} = \frac{2r_{1.2}}{1 + r_{1.2}}$	Reliable

$= \frac{2\ x\ 0.7967}{1 + 0.7967}$ $= \frac{1.5934}{1.7967}$ = 0.8868 > 0.7	

From the manual calculation above, it showed that the questions were reliable. The result of reliability calculation was 0.8868. It means the questions was reliable because the result was 0.8868 > 0.7 and the questions can be tested.

4.2 The Data Description

This part showed the general description of students' scores in both classes, it was experimental and control group. The description was divided into two sections. The first was pre-test scores, the second was post-test scores.

4.2.1 The Pre-test Scores

The table that will be showed by the researcher described the students' pre-test scores of the experimental group and control group. There were 19 students in experimental group and 21 students in control group.

Table 4.4. The Students' Pre-test Scores

1. The Experimental Group

Students	Scores

1	40
2	52
3	56
4	68
5	68
6	56
7	40
8	36
9	68
10	52
11	48
12	60
13	36
14	48
15	56
16	40
17	58
18	52
19	60
∑	994
Mean	52.31

2. The Control Group

Students	Scores
1	36
2	68
3	52
4	36
5	32
6	60
7	32
8	52
9	48
10	68
11	32
12	40
13	68
14	52
15	56
16	60
17	40
18	60
19	56
20	56
21	60

∑	1064
Mean	50.66

The above data showed the students' pretest scores of the experimental group and control group. The test was given to the students before the researcher giving the treatment. The experimental and control group had the same scores in the highest and the medium scores, but both of the group has different scores in the lowest scores. The highest scores in experimental and control group were 68. The medium scores in experimental and control group were 52. The lowest score in experimental group was 36 and in control group was 32. Then, the mean score of the experimental group was 52.31 and the control group was 50.66. Thus, from the tables and explanation above that the pre-test scores of the experimental group was higher than the pre-test scores control group.

After conducting the pretest to both of the group, the researcher gave the treatment toward the students in experimental group and control group. Then, after the experimental group and control group were given a treatment by the researcher, the students did the posttest.

4.2.2 The Post-test Scores

The table that will be showed by the researcher described the students' posttest scores of the experimental group and control group. There were 19 students in experimental group and 21 students in control group.

Table 4.5. The Students' Posttest Scores

1. The Experimental Group

Students	Scores
1	80
2	80
3	80
4	92
5	88
6	76
7	84
8	80
9	88
10	92
11	76
12	72
13	80
14	76
15	80
16	72
17	80
18	80
19	76
∑	1532

Mean	80.63

2. The Control Group

Students	Scores
1	60
2	76
3	76
4	60
5	68
6	80
7	64
8	72
9	68
10	72
11	60
12	72
13	76
14	68
15	72
16	76
17	76
18	68
19	60

20	64
21	72
∑	1460
Mean	69.52

The above data showed the students' posttest scores of the experimental group and control group. The test was given to the students after the researcher giving the treatment. The data showed the lowest score of the experimental group was 72 and the control group was 60. The median score of experimental group was 80 and the control group was 72. The highest score of experimental group was 92 and the control group was 80. In addition, the mean of the experimental group was 80.63 and the control group was 69.52. Thus, it was known that the score of the experimental group was higher than the score of the control group.

4.3 The Data Analysis

This section was intended to answer the problem statement whether pictionary game was effective to increase students' vocabulary mastery at the tenth grade multimedia major of SMK Islam Jepara or not. T-test was to answer the problem statement and conducted in the experimental group and the control group by manual calculation as follow:

4.3.1 The Analysis of Pre-test Scores

The calculation of pre-test scores in the experimental group and control group was used to know the scores of both classes before giving

the treatment. The researcher conducted the pre-test in the first meeting on January 12th, 2019. After conducting the pre-test, the researcher gave the treatment to the experimental group and the control group for two meetings. Post-test was given to the experimental group and control group in the last meeting. The analysis of pre-test scores can be seen as following table:

Table 4.6. The Analysis of Pre-test Scores

Students	Experimental Group	Control Group	X-MX	Y-MY	(X-MX)2	(Y-MY)2
1	40	36	-12.31	-14.66	151.5361	214.9156
2	52	68	-0.31	17.34	0.0961	300.6756
3	56	52	3.69	1.34	13.6161	1.7956
4	68	36	15.69	-14.66	246.1761	214.9156
5	68	32	15.69	-18.66	246.1761	348.1956
6	56	60	3.69	9.34	13.6161	87.2356
7	40	32	-12.31	-18.66	151.5361	348.1956
8	36	52	-16.31	1.34	266.0161	1.7956
9	68	48	15.69	-2.66	246.1761	7.0756
10	52	68	-0.31	17.34	0.0961	300.6756
11	48	32	-4.31	-18.66	18.5761	348.1956
12	60	40	7.69	-10.66	59.1361	113.6356
13	36	68	-16.31	17.34	266.0161	300.6756
14	48	52	-4.31	1.34	18.5761	1.7956

15	56	56	3.69	5.34	13.6161	28.5156
16	40	60	-12.31	9.34	151.5361	87.2356
17	58	40	5.69	-10.66	32.3761	113.6356
18	52	60	-0.31	9.34	0.0961	87.2356
19	60	56	7.69	5.34	59.1361	28.5156
20	-	56	-	5.34	-	28.5156
21	-	60	-	9.34	-	87.2356
∑	994	1064	0.11	0.14	1954.106	3050.668
Mean	52.31	50.66	0	0	102.84	145.26

The procedures of calculating are as follow:

a. The mean of experimental group

$$X_1 = \frac{\sum X}{n}$$

$$X_1 = \frac{994}{19}$$

$$X_1 = 52.31$$

b. The mean of control group

$$X_2 = \frac{\sum Y}{n}$$

$$X_2 = \frac{1064}{21}$$

$X_2 = 50.66$

c. Determining standard of deviation score of experimental group

$SD_x = \sqrt{\frac{\sum(X_1 - \overline{X})^2}{n}}$

$SD_x = \sqrt{\frac{1954.1}{19}}$

$SD_x = \sqrt{102.84}$

$SD_x = 10.4 = 10$

d. Determining standard of deviation score of control group

$SD_y = \sqrt{\frac{\sum(Y_2 - \overline{Y})^2}{n}}$

$SD_y = \sqrt{\frac{3050.66}{21}}$

$SD_y = \sqrt{145.26}$

$SD_y = 12.05 = 12$

After calculating the mean scores and the standard of deviation scores of the experimental group and the control group, the researcher calculated the t-test.

$S^2 = \frac{(n1-1)\ S1^2 + (n2-1)S2^2}{n1+n2-2}$

$S^2 = \frac{(19-1)\ 10^2 + (21-1)\ 12^2}{19+21-2}$

$S^2 = \frac{18\ x\ 100 + 20\ x\ 144}{38}$

$S^2 = \frac{1800+2880}{38}$

$S^2 = \frac{4680}{38}$

$S^2 = 123.15$

$S = 11$

e. Determining of t_o

$$t_o = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n1} + \frac{1}{n2}}}$$

$$t_o = \frac{52.31 - 50.66}{11\sqrt{\frac{1}{19} + \frac{1}{21}}}$$

$$t_o = \frac{1.65}{11\sqrt{\frac{2.1}{40} + \frac{1.9}{40}}}$$

$$t_o = \frac{1.65}{11\sqrt{0.1}}$$

$$t_o = \frac{1.65}{3.634}$$

$$t_o = 0.454$$

f. Determining t-table in significance level 5% with degree of freedom (df)

$df = (N_x + N_y) - 2$

$df = (19 + 21) - 2$

$df = 40 - 2$

$df = 38$

Thus, the degree of freedom (df) was 38 by using the degree of significance 5% was 2.021 and the $t_{observe}$ was 0.454. The result of the

comparison between $t_{observe}$ and t_{table} was $0.454 < 2.021 = t_{observe} < t_{table}$. It means there was no significant different between students' pre-test score in the experimental group and students' pre-test score in the control group before giving the treatment. Besides, the researcher also made calculation from the pre-test scores of the experimental group and the control group by using SPSS 17.0 calculation. The t-test calculation can be seen as following table:

Table 4.7. The T-Test of Pre-test Scores in the Experimental Group and the Control Group

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	Exp	19	52.3158	10.41928	2.39035
	Contr	21	50.6667	12.35044	2.69509

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Score	Equal variances assumed	1.164	.287	.454	38	.653	1.64912	3.63366	-5.70683	9.00508
	Equal variances not assumed			.458	37.831	.650	1.64912	3.60240	-5.64462	8.94286

The table above described the t-test analysis using SPSS of students' pre-test score in the experimental group and students' pre-test score in the control group. There were two tables, namely "Group Statistics" and "Independent Sample Test". In Group Statistics table showed the calculation of experimental group and control group. The mean score of experimental group was 52.31 and the mean score of control group was 50.66. The standard deviation of experimental group was 10.41 and the standard deviation of control group was 12.35. The standard error mean of experimental group was 2.39 and the standard error of control group was 2.69. It was known from the mean score of both of the group; the experimental group was higher than the control group.

In Independent Sample Test table showed the result of t-test for equally of means. The result of t-value in this table was 0.454. Thus, to know pictionary game can increase students' vocabulary mastery or not by comparing the t-value and t-table. The degree of freedom (df) was 38 by using the degree of significance 5% was 2.021. It can be known that t-value (0.454) < t-table (2.021). It means that there was no significant between the experimental group and the control group in increasing

students' vocabulary mastery at the tenth grade multimedia students of SMK Islam Jepara in the academic year of 2018/2019.

4.3.2 The Analysis of Post-test Scores

The calculation of post-test scores in the experimental group and control group was used to know the scores of both classes after giving the treatment. The researcher conducted the post-test on January 12th, 2019 to January 24th, 2019 for two meeting of each class. After conducting the pre-test, the researcher gave the treatment to the experimental group and the control group for two meetings. Post-test was given to the experimental group and control group in the last meeting. The calculation of pre-test scores can be seen as following table:

Table 4.8. The Analysis of Post-test Scores

Students	Experimental Group	Control Group	X-MX	Y-MY	(X-MX)2	(Y-MY)2
1	80	60	-0.63	-9.52	0.3969	90.6304
2	80	76	-0.63	6.48	0.3969	41.9904
3	80	76	-0.63	6.48	0.3969	41.9904
4	92	60	11.37	-9.52	129.2769	90.6304
5	88	68	7.37	-1.52	54.3169	2.3104
6	76	80	-4.63	10.48	21.4369	109.8304
7	84	64	3.37	-5.52	11.3569	30.4704
8	80	72	-0.63	2.48	0.3969	6.1504

9	88	68	7.37	-1.52	54.3169	2.3104
10	92	72	11.37	2.48	129.2769	6.1504
11	76	60	-4.63	-9.52	21.4369	90.6304
12	72	72	-8.63	2.48	74.4769	6.1504
13	80	76	-0.63	6.48	0.3969	41.9904
14	76	68	-4.63	-1.52	21.4369	2.3104
15	80	72	-0.63	2.48	0.3969	6.1504
16	72	76	-8.63	6.48	74.4769	41.9904
17	80	76	-0.63	6.48	0.3969	41.9904
18	80	68	-0.63	-1.52	0.3969	2.3104
19	76	60	-4.63	-9.52	21.4369	90.6304
20	-	64	-	-5.52	-	30.4704
21	-	72	-	2.48	-	6.1504
∑	1532	1460	0.03	0.08	616.4211	783.2384
Mean	80.63	69.52	0	0	32.44	37.29

The procedures of calculating are as follow:

a. The mean of experimental group

$$X_1 = \frac{\sum X}{n}$$

$$X_1 = \frac{1532}{19}$$

$$X_1 = 80.63$$

b. The mean of control group

$$X_2 = \frac{\sum Y}{n}$$

$$X_2 = \frac{1460}{21}$$

$X_2 = 69.52$

c. Determining standard of deviation score of experimental group

$$SD_x = \sqrt{\frac{\sum(X_1 - \overline{X})^2}{n}}$$

$$SD_x = \sqrt{\frac{616.42}{19}}$$

$SD_x = \sqrt{32.44}$

$SD_x = 5.69 = 6$

d. Determining standard of deviation score of control group

$$SD_y = \sqrt{\frac{\sum(Y_2 - \overline{Y})^2}{n}}$$

$$SD_y = \sqrt{\frac{783.23}{21}}$$

$SD_y = \sqrt{37.29}$

$SD_y = 6.1 = 6$

After calculating the mean scores and the standard of deviation scores of the experimental group and the control group, the researcher calculated the t-test.

$$S^2 = \frac{(n1-1)\,S1^2 + (n2-1)S2^2}{n1+n2-2}$$

$$S^2 = \frac{(19-1)\,6^2 + (21-1)\,6^2}{19+21-2}$$

$$S^2 = \frac{18\,x\,36 + 20\,x\,36}{38}$$

$$S^2 = \frac{648+720}{38}$$

$$S^2 = \frac{1368}{38}$$

$$S^2 = 36$$

$$S = 6$$

e. Determining of t_o

$$t_o = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n1}+\frac{1}{n2}}}$$

$$t_o = \frac{80.63 - 69.52}{6\sqrt{\frac{1}{19}+\frac{1}{21}}}$$

$$t_o = \frac{11.11}{6\sqrt{\frac{2.1}{40}+\frac{1.9}{40}}}$$

$$t_o = \frac{11.11}{6\sqrt{0.1}}$$

$$t_o = \frac{11.11}{1.92}$$

$$t_o = 5.780$$

f. Determining t-table in significance level 5% with degree of freedom (df)

$df = (N_x + N_y) - 2$

$df = (19 + 21) - 2$

$df = 40 - 2$

$df = 38$

Thus, the degree of freedom (df) was 38 by using the degree of significance 5% was 2.021 and the $t_{observe}$ was 5.780. The result of the comparison between $t_{observe}$ and t_{table} was $5.780 > 2.021 = t_{observe} > t_{table}$. It means there was significant different between students' post-test score in the experimental group and students' post-test score in the control group after giving the treatment. Besides, the researcher also made calculation from the pre-test scores of the experimental group and the control group by using SPSS 17.0 calculation. The t-test calculation can be seen as following table:

Table 4.9. The T-Test of Post-test Scores in the Experimental Group and the Control Group

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	Exp	19	80.6316	5.85198	1.34254
	Contr	21	69.5238	6.25795	1.36560

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Score	Equal variances assumed	.750	.392	5.780	38	.000	11.10777	1.92160	7.21769	14.99784
	Equal variances not assumed			5.800	37.952	.000	11.10777	1.91501	7.23088	14.98466

The table above described the t-test analysis using SPSS of students' post-test score in the experimental group and students' post-test score in the control group. There were two tables, namely "Group Statistics" and "Independent Sample Test". In Group Statistics table showed the calculation of experimental group and control group. The mean score of experimental group was 80.63 and the mean score of control group was 69.52. The standard deviation of experimental group was 5.85 and the standard deviation of control group was 6.25. The standard error mean of experimental group was 1.34 and the standard error of control group was 1.36. It was known from the mean score of both of the group; the experimental group was higher than the control group.

In Independent Sample Test table showed the result of t-test for equally of means. The result of t-value in this table was 5.780. Thus, to

know pictionary game can increase students' vocabulary mastery or not by comparing the t-value and t-table. The degree of freedom (df) was 38 by using the degree of significance 5% was 2.021. It can be known that t-value (5.780) > t-table (2.021). It means that there was significant between the experimental group and the control group in increasing students' vocabulary mastery at the tenth grade multimedia students of SMK Islam Jepara in the academic year of 2018/2019.

4.3.3 Hypothesis Testing

In this section, the researcher described the interpretation of the research finding and summarized the hypothesis. The research was to answer the problem statement whether the use of pictionary game was effective to increase students' vocabulary mastery at the tenth grade multimedia major of SMK Islam Jepara or not. In order to answer the problem statement, the researcher writes the Alternative Hypothesis (H_a) and the Null Hypothesis (H_o) as follow:

a. Alternative Hypothesis (H_a)

There was a significant difference of the students' achievement in increasing vocabulary mastery between students who were taught by using pictionary game and students who were not taught by using pictionary game.

b. Null Hypothesis (H_o)

There was no a significant difference of the students' achievement in increasing vocabulary mastery between students who

were taught by using pictionary game and students who were not taught by using pictionary game.

To know the hypothesis, the data obtained in the experimental group and the control group were calculated by using t-test formula with assumption as follow:

a. If t-value > t-table, the Null Hypothesis (H_o) was rejected and the Alternative Hypothesis (H_a) was accepted. It was known that Pictionary game was effective to increase students' vocabulary mastery.
b. If t-value < t-table, the Null Hypothesis (H_o) was accepted and the Alternative Hypothesis (H_a) was rejected. It was known that Pictionary game was not effective to increase students' vocabulary mastery.

According to the analysis of the results above, there was a significant different between students' post-test score in the experimental and the control group. The t-test results of the experimental group and the control group by manual formula and using SPSS were the same. The results also showed that the experimental group got higher gained score than the control group.

The result of t-test was higher than t-table (5.780 > 2.021). It was known that using pictionary game to increase students' vocabulary mastery was significant. Thus, the Alternative Hypothesis (H_a) was accepted and the Null Hypothesis (H_o) was rejected. In other words, using pictionary game to increase students' vocabulary mastery is significant to make them memorize the word or vocabulary easily by picture.

4.4 Discussion

This study is about the use of pictionary game to increase students' vocabulary mastery. This research used quasi experimental research as the research design. This section was intended to analyze the result of research findings based on the related theories. The data collected from the research findings. The result of the students' scores is calculated by using manual calculation and SPSS 17.0 calculation. The researcher conducted the research for four meetings in each class. In the first meeting, the researcher gave a pre-test for experimental group and control group. The aim of giving pre-test to both of the class was to know the students' achievement before giving the treatment. Besides, pre-test was also to know that there was similarity between experimental group and control group or not. The second and the third meeting, the researcher gave a treatment for experimental group and control group. In the experimental group was given pictionary game and in the control group was given discussion teaching by the researcher. The researcher did the treatment for two meetings in each class. In the last meeting, the researcher gave post-test for experimental group and control group after giving a treatment. It was to know the students' improvement after getting a treatment.

Aslan (2016:1) states that vocabulary is one of the most important elements between others while learning a new language, because learning a new language will acquire a new word. Word limitations pose obstacles while understanding a language. In order to face these obstacles, vocabulary enrichment is needed. To make the learners can increase their vocabulary

mastery is the teacher has to know the suitable method. Many methods for increasing students' vocabulary mastery, one of them are pictionary game. According to Karam (2012:1) in Dwi (2017:2) states that pictionary board game is extraordinary game for vocabulary learning because this game depend on words, definitions, and how learner plays the strategy. It means the student who draws the vocabulary is important in success of this game. Based on the theory, the researcher implemented the use of pictionary game to increase students' vocabulary mastery at the tenth grade multimedia students to the experimental group. The students were given narrative text and they had to find some vocabulary related to the major. After the students found some vocabularies and learnt some vocabularies related to the major, the teacher played the game, namely pictionary game. The aim was to make the students remember the word easily by picture and enjoy the class. In short, the researcher introduced new method toward the students in learning vocabulary for the students of SMK Islam Jepara.

The result of increasing students' vocabulary mastery could be seen from pre-test and post-test that had given by the researcher from experimental group and control group. The researcher used t-test manual calculation and t-test SPSS calculation to test the hypothesis and know the significant deference between experimental group and control group. It was used to know whether the Null Hypothesis (H_o) or the Alternative Hypothesis (H_a) was accepted or not. The criteria is If t-value > t-table, the Null Hypothesis (H_o) was rejected and the Alternative Hypothesis (H_a) was accepted. If t-value < t-table, the Null Hypothesis (H_o) was accepted and the

Alternative Hypothesis (H_a) was rejected. From the calculation above, it could be seen that t-value was 5.780. Whereas the t-table with the level significant is 5% and degree of freedom 38 are 2.021. It means that t-value (5.780) > t-table (2.021), the Null Hypothesis (H_o) was rejected and the Alternative Hypothesis (H_a) was accepted. In this research, the Alternative Hypothesis (H_a) stated that there was a significant difference of the students' achievement in increasing vocabulary mastery between students who were taught by using pictionary game and students who were not taught by using pictionary game. In the contrary, the Null Hypothesis (H_o) stated that there was no a significant difference of the students' achievement in increasing vocabulary mastery between students who were taught by using pictionary game and students who were not taught by using pictionary game.

The result of the research showed that the score of experimental group was higher than score of control group after giving treatment. It can be conclude that the Alternative Hypothesis (H_a) was accepted which was there was a significant difference of the students' achievement in increasing vocabulary mastery between students who were taught by using pictionary game and students who were not taught by using pictionary game.


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