

Chapter Four

Results and Discussion

In this chapter, the researcher presents results and discusses the results.

There are four results. The first result is demographic information about the use of ICT in English learning. The second result is male students' attitude on the use of ICT in English learning. The third result is female students' attitude on the use of ICT in English learning. The fourth result is significant difference between male and female students' attitude on the use of ICT in English learning along with the result of normality and linearity test. At the end of this chapter, the results are discussed.

Demographic Information

The following results are related to demographic information to obtain the information about the use of ICT in English learning by students of Muhammadiyah senior high school. There are three demographic information resulted in the questionnaire of this study. They are students' gender, electronic devices used by the students, the use of electronic devices by the students, and the use of ICT in English learning.

Students' gender. In this study, as seen on Table 10, the percentage of male students (52%) is bigger than female students (48%). There are 125 male students, and there are 114 female students.

Table 10

Gender of respondents

	Frequency	Percent
Male	125	52.0%
Female	114	48.0%
Total	239	100.0%

Electronic devices used by students. There are four electronic devices presented, namely computer, laptop, tablet and smartphone or mobile phone. *Figure 2* below shows electronic devices used by male and female students of Yogyakarta Muhammadiyah senior high school.

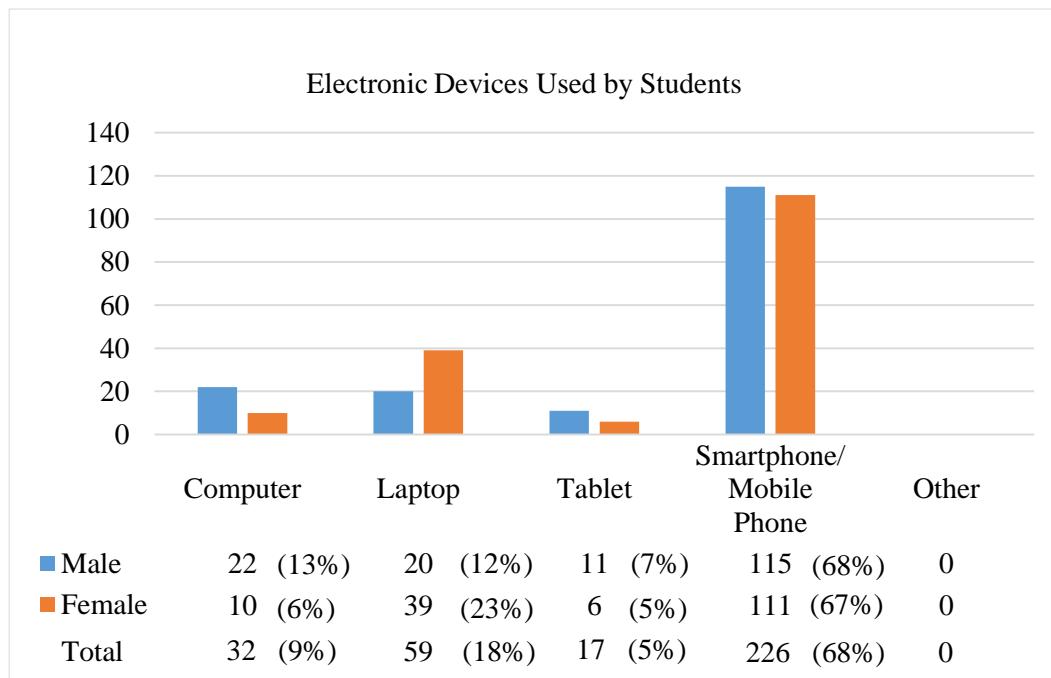


Figure 2. Electronic devices used by male and female students of Yogyakarta Muhammadiyah senior high school

Male students mostly used smartphone or mobile phone in their daily activities as seen from the highest percentage among other devices (68%, n=115). The percentage of computer and laptop use was almost the same; computer was

13% (n=22), and laptop was 12% (n=20). The last, tablet had the lowest use by the male students (7%, n=11). Similar to male students, female students showed the same results that 111 female students (67%) used mobile phone at the most in their daily activities. The second highest device use (23%, n=39) was laptop. Only 10 female students (6%) used computer, and 6 students used tablet (4%).

To conclude, the use of mobile phone got the highest score from both male and female students of Yogyakarta Muhammadiyah senior high school (68%, n=226). The second was laptop (18%, n=59). The third was computer (9%, n=32). The last was tablet (5%, n=17).

The use of electronic devices by students. There are six purposes of using electronic devices presented in this study according to Lei (2009). The first purpose is related to learning, for instance, using smartphone to open application or website for e-learning. The second purpose is related to entertainment, simply for playing games or watching videos. The third purpose is related to social or communication activities such as chat, e-mail, messaging. The fourth purpose is related to practical purposes or finding information. The fifth purpose is self-expression such as blogging and commenting. The last purpose is related to constructive activities such as creating blog and uploading video, audio, music or file. The results regarding the use of electronic devices by students are presented in *Figure 3* below based on gender by showing the frequencies.

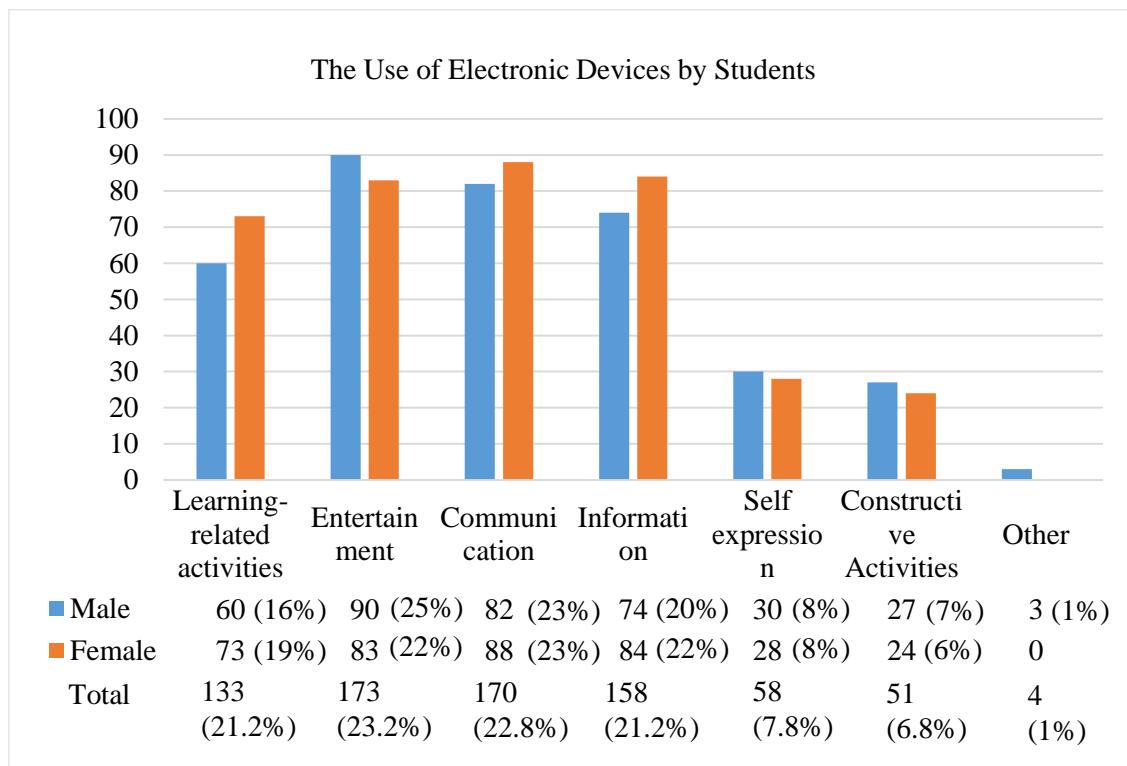


Figure 3. The use of electronic devices by male and female students of Yogyakarta Muhammadiyah senior high school

Male students of Yogyakarta Muhammadiyah senior high school use their devices for entertainment at the highest score that 90 male students (25%) use their devices for pleasure. The use of electronic devices for communication obtained 23% (n=82). 74 male students (20%) use their devices for finding information they need. Then, 60 students (16%) intend to use their devices for learning. 30 students (8%) use their devices for self-expression, and 27 students (7%) use their devices for constructive activities. Besides, from the questionnaire, there are three students (1%) who chose ‘other’, meaning that they also use their devices except what was presented in the questionnaire. In the questionnaire, they wrote specific uses of electronic devices, namely photo and video editing and running his business. Two students (0.006%) use their devices for photo and video

editing, and one student (0.003%) makes use of his devices for running his business. Hence, male students of Yogyakarta Muhammadiyah senior high school use their devices the most for entertainment.

Different from male students, female students of Yogyakarta Muhammadiyah senior high school use their electronic devices for communication (23%, n=88) at highest. 84 female students (22%) use their devices for finding information, and 83 female students (22%) use their devices for entertainment. Only 73 female students (19%) use their devices for learning. Then, 28 female students (8%) use their devices for activities to express themselves, and 24 female students (6%) use their devices for constructive activities.

In conclusion, Yogyakarta Muhammadiyah senior high school students tend to use their devices for entertainment (23.2%, n=173), communication (22.8%, n=170), and finding information (21.2%, n=158). They use it for learning at 21.2%, meaning that there are 133 students intend to use their devices for learning. Then, 58 students (7.8%) use it for self-expression, and 51 students (6.8%) use it for constructive activities. Finally, there are only three students (1%) specified their activities using their devices, namely photo and video editing and activity related to business.

The use of ICT in English learning. There are seven statements showing the data for the use of ICT in English learning by male and female students. The following mean score of each item were obtained from calculating the results of

Part B in the questionnaire using SPSS version 20. The mean scores were categorised into:

Never	1.00 – 1.75
Rarely	1.76 – 2.50
Often	2.51 – 3.25
Always	3.26 – 4.00

Statement 1: Surfing Internet to get information. The male students' mean score for statement 1, 'Surfing Internet to get information', was 2.42 which belongs to 'rarely' category. It means that the male students rarely use ICT for surfing Internet to get information. Meanwhile, the female students' mean score was 2.55 which is categorised to 'often'. It means that the female students often use ICT for surfing Internet to get any information. Thus, seen from the total mean score which was 2.49, male and female students 'rarely' use ICT for surfing Internet to get information because 2.49 belongs to 'rarely' category.

Table 11	
<i>Surfing Internet to get information</i>	
	Mean
Male	2.42
Female	2.55
Total	2.49

Statement 2: Writing blogs in English. The male students' mean score for statement 2 'Surfing Internet to get information' was 1.45. It was categorised to 'never'. Similar to male students' mean score, female students' mean score also belongs to 'never' category since the mean score was 1.35. However, female students received the mean score less than male students' mean score. To

conclude, the results mean that both male and female students never use ICT for writing blogs in English. It can also be seen from the total mean score which was 1.40 and belongs to ‘never’ category.

Table 12	
<i>Writing blogs in English</i>	
	Mean
Male	1.45
Female	1.35
Total	1.40

Statement 3: Reading English newspaper online. The male students’ mean score for statement 3 ‘Reading English newspaper online’ was 2.02 which belongs to ‘rarely’ category. It means that the male students rarely use ICT for reading English newspaper online. Different with the male students, the female students’ mean score was 1.70 which is categorised to ‘never’. It means that the female students never use ICT for reading English newspaper online. Thus, male and female students ‘rarely’ use ICT for reading English newspaper online as seen from the total mean score which was 2.49 and belongs to ‘rarely’ category

Table 13	
<i>Reading English newspaper online</i>	
	Mean
Male	2.02
Female	1.70
Total	1.87

Statement 4: Practicing grammar exercise. The male students’ mean score for statement 4 ‘Practicing grammar exercises’ was 1.90 which was

categorised to ‘rarely’. Female students’ mean score also belongs to ‘rarely’ category since the mean score was 1.89. However, female students received the mean score less than male students’ mean score. It means mean that both male and female students rarely use ICT for practicing grammar exercises which can be seen from the total mean score which was 1.90 and belongs to ‘rarely’ category.

Table 14 <i>Practicing grammar exercises</i>	
	Mean
Male	1.90
Female	1.89
Total	1.90

Statement 5: Practicing vocabulary exercises. The male students’ mean score for statement 5 ‘Practicing vocabulary exercises’ was 1.95 which belongs to ‘rarely’ category. Different with the male students, female students’ mean score also belongs to ‘rarely’ category since the mean score was 2.04. However, female students received the mean score more than male students’ mean score. It means mean that both male and female students rarely use ICT for practicing vocabulary exercises. It can be seen from the total mean score which was 1.90 and belongs to ‘rarely’ category.

Table 15 <i>Practicing vocabulary exercises</i>	
	Mean
Male	1.95
Female	2.04
Total	2.00

Statement 6: Searching for words meaning and its pronunciation. The male students' mean score for statement 6 'Searching for words meaning and its pronunciation' was 2.80 which was categorised to 'often'. Female students' mean score also belongs to 'often' category since the mean score was 3.02. Besides, female students received the mean score more than male students' mean score. It means mean that both male and female students often use ICT for searching for words meaning and its pronunciation which can be seen from the total mean score which was 2.90 and belongs to 'often' category.

Table 16	
<i>Searching for words meaning and its pronunciation</i>	
	Mean
Male	2.80
Female	3.02
Total	2.90

Statement 7: Communicating each other in English learning using Edmodo or Schoology. The male students' mean score for statement 7 'Communicating each other in English learning using Edmodo or Schoology' was 1.82 and it was categorised to 'rarely'.

Table 17	
<i>Communicating each other in English learning using Edmodo or Schoology</i>	
	Mean
Male	1.82
Female	1.68
Total	1.76

However, female students' mean score belongs to 'never' category since the mean score was 1.68. It means that female students received the mean score less than male students' mean score. Hence, both male and female students rarely use ICT for communicating each other in English learning using Edmodo or Schoology which can be seen from the total mean score which was 1.76 and belongs to 'rarely' category.

Items	Mean		
	Male	Female	Total
Surfing Internet to get information	2.42	2.55	2.49
Writing blogs in English	1.45	1.35	1.40
Reading English newspaper online	2.02	1.70	1.87
Practicing grammar exercises	1.90	1.89	1.90
Practicing vocabulary exercises	1.95	2.04	2.00
Searching for words meaning and its pronunciation	2.80	3.02	2.90
Communicating each other in English learning using Edmodo or Schoology	1.82	1.68	1.76
Total	2.05	2.03	2.03

Therefore, seen in Table 18 above, the total mean score for male students' use of ICT in English learning showed 2.05. The male total mean score belongs to 'rarely' which means that male students do not intend in using ICT for English learning, however, they often use ICT for one of English learning activities that is searching for words meaning and its pronunciation. This item has a mean score of 2.80 which belongs to 'often'. In other words, the male students of Yogyakarta

Muhammadiyah senior high school rarely use ICT in English learning. The results also showed the total mean score for female students' use of ICT in English learning of 2.03 which belongs to 'rarely'. It means that female students also do not intend in using ICT for English learning. Nevertheless, female students often use ICT for searching for words meaning and its pronunciation which has a mean score of 3.02 because it belongs to 'often'. They also often search any information on the Internet as the mean score is 2.55, and it also belongs to 'often'. So, female students of Yogyakarta Muhammadiyah senior high school rarely use ICT in English learning. To conclude, male and female students rarely use ICT in English learning as seen from the total mean score of 2.03.

Results

This section presented the results of questionnaire data. There are three results based on the research questions of this study. They are male students' attitude on the use of ICT in English learning, female students' attitude on the use of ICT in English learning, and significant difference between students' gender and their attitude on the use of ICT in English learning.

Result 1: Male students' attitude on the use of ICT in English learning. The first question proposed in this study is what the male students' attitude on the use of ICT in English learning. In order to answer this question, a questionnaire was distributed to students of Yogyakarta Muhammadiyah senior high schools, and part C items in the questionnaire were analysed using descriptive statistics by looking at the mean score. These items are 11 statements that indicate male students' attitude on the use of ICT in English learning. The results of the mean score of each statement were categorised into:

Table 19	
<i>Range of students attitudes means</i>	
Positive attitude	2.51 – 4.0
Negative attitude	1.0 – 2.50

Statement 1: The use of ICT has helped improve my English writing skills. Male students responded positively that the use of ICT has helped them improve their English writing skills as seen from the mean score of this statement which is 2.98. The mean score belongs to 'positive attitude'. The result has the opposite result from the fact that male students never write blogs in English which was seen from the mean score of the use of ICT for writing blogs in English

showing 1.45 (see Table 12, p. 61) and indicating ‘never’ category. Perhaps it is because they have another activity using ICT which is related to improving writing skills. To conclude, the male students tend to have positive attitude on which the use of ICT has helped them improve their English writing skills.

Table 20

The use of ICT has helped improve my English writing skills

	Mean	Std. Deviation
Male	2.98	.756

Statement 2: The use of ICT has helped me enrich my English vocabulary. Male students responded positively that the use of ICT has helped them enrich their English vocabulary. It can be seen from the mean score of this statement which is 3.02 and belongs to ‘positive attitude’. The fact that most male students often search for words meaning and its pronunciation using ICT led them to have positive attitude that ICT has helped them enrich their English vocabulary. Therefore, the male students have positive attitude on which the use of ICT has helped them enrich their English vocabulary.

Table 21

The use of ICT has helped me enrich my English vocabulary

	Mean	Std. Deviation
Male	3.02	.653

Statement 3: The use of ICT has helped me improve my English grammar. Male students responded positively that the use of ICT has helped them improve their English grammar as seen from the mean score of this statement which is 2.74. The mean score belongs to ‘positive attitude’. With the result from

the mean score, it is opposite to the fact that most male students rarely practice grammar exercises using ICT. It might be because the students have another activity which can enhance their English grammar skill. Hence, the male students have positive attitude on which the use of ICT has helped them improve their English grammar.

Table 22

The use of ICT has helped me improve my English grammar

	Mean	Std. Deviation
Male	2.74	.742

Statement 4: The use of ICT has helped me better in using English to communicate in my daily conversation. Male students reported positively that the use of ICT has helped them better in using English to communicate in their daily conversation as the mean score of this statement is 2.86 and belongs to ‘positive attitude’. The fact that most male students rarely communicate each other in English learning using Edmodo or Schoology does not influence them not to have negative attitude on which the use of ICT has helped them better in using English to communicate in their daily conversation. Thus, the male students have positive attitude on which the use of ICT has helped them better in using English to communicate in their daily conversation.

Table 23

The use of ICT has helped me better in using English to communicate in my daily conversation

	Mean	Std. Deviation
Male	2.86	.704

Statement 5: The use of ICT has helped me obtain up to date information.

information. Male students reported positively that the use of ICT has helped them obtain up to date information as the mean score of this statement is 3.06 which categorised to ‘positive attitude’. Based on Table 11 (p. 60), the mean score of male students using ICT for surfing Internet to get information of 2.42 which was categorised to ‘rarely’ category has led them have positive attitude on which ICT has helped them obtain up to date information even though they rarely use ICT for it. In short, the male students have positive attitude on which the use of ICT has helped them obtain up to date information.

Table 24

The use of ICT has helped me obtain up to date information

	Mean	Std. Deviation
Male	3.06	.606

Statement 6: The use of ICT has helped me increase my motivation.

Based on Table 24, male students reported positively that the use of ICT has helped them increase their motivation as the mean score of this statement is 2.80 and belongs to ‘positive attitude’ category. In short, the male students have positive attitude on which the use of ICT has helped them increase their motivation.

Table 25

The use of ICT has helped me increase my motivation

	Mean	Std. Deviation
Male	2.80	.635

Statement 7: I can test my listening skill using application, games or listening exercises and English dialogues on the Internet. Male students reported positively to the statement ‘I can test my listening skill using application, games or listening exercises and English dialogues on the Internet’ as the mean score of this statement is 3.07 and categorised to ‘positive attitude’. Thus, the male students have positive attitude on which they can test their listening skill using application, games or listening exercises and English dialogues provided on the Internet.

Table 26

I can test my listening skill using application, games or listening exercises and English dialogues on the Internet

	Mean	Std. Deviation
Male	3.07	.774

Statement 8: I get English learning materials easily on the Internet.

Male students responded positively to the statement ‘I get English learning materials easily on the Internet’ as the mean score of this statement is 3.03 and categorised to ‘positive attitude’. Most male students can get English learning materials easily on the Internet is because they use their device to activity related to learning that yields 16% (see *Figure 3*, p. 58). In short, the male students have positive attitude that they get English learning materials easily on the Internet.

Table 27

I get English learning materials easily on the Internet

	Mean	Std. Deviation
Male	3.03	.683

Statement 9: ICT is convenience to use to get information. Male students responded positively to the statement ‘ICT is convenience to use to get information’ as the mean score of this statement is 2.90 which belongs to ‘positive attitude’. The positive attitude this statement is due to the fact that 20% of male students use their device for finding information (see *Figure 3*, p. 58) even though they rarely make use of ICT to get information on the Internet seen from the mean score of 2.42 in Table 11 (p. 60). These can be the evidence that they think ICT is convenience to use to get information they want, especially for their learning. In conclusion, the male students have positive attitude that ICT is convenience to use to get information.

Table 28		
<i>ICT is convenience to use to get information</i>		
	Mean	Std. Deviation
Male	2.90	.682

Statement 10: Using ICT in learning English is interesting. Based on Table 29, male students reported positively to the statement ‘Using ICT in learning English is interesting’ as the mean score of this statement is 2.93 which belongs to ‘positive attitude’ category.

Table 29		
<i>Using ICT in learning English is interesting</i>		
	Mean	Std. Deviation
Male	2.93	.674

That the male students find various activities using ICT then perhaps becomes the reason they feel that ICT in English learning is interesting to use.

Therefore, the male students have positive attitude that using ICT in learning English is interesting.

Statement 11: I like to use ICT in English learning. Male students reported positively to the statement ‘I like to use ICT in English learning’ as the mean score of this statement is 2.90 and categorised to ‘positive attitude’. It means that the male students like to use ICT in their English learning ICT as they also perceived that ICT is convenience to use and interesting.

Table 30

I like to use ICT in English learning

	Mean	Std. Deviation
Male	2.90	.607

To summarize, Table 31 below illustrated the total mean score of male students’ attitude on the use of ICT in English learning which indicated positive attitude as the total mean score was 2.93. This score was categorised to ‘positive attitude’ because positive attitude range from 2.51 to 4.00 and negative attitude range from 1.00 to 2.50.

Table 31

Mean and standard deviation for the male students’ attitude on the use of ICT in English learning

Item	Mean	Std. Deviation
The use of ICT has helped me improve my writing skills	2.98	.756
The use of ICT has helped me enrich my English vocabulary	3.02	.653

The use of ICT has helped me improve my English grammar	2.74	.742
The use of ICT has helped me better in using English to communicate in my daily conversation	2.86	.704
The use of ICT has helped me obtaining up to date information	3.06	.606
The use of ICT has helped me increase my motivation	2.80	.635
I can test my listening skill using application, games or listening exercises and English dialogues on the Internet	3.07	.774
I get English learning materials easily on the Internet	3.03	.683
ICT is convenience to use to get information	2.90	.682
Using ICT in learning English is interesting	2.93	.674
I like to use ICT in learning English	2.90	.607
Total mean score	2.93	.413

Among the 11 items, ‘I can test my listening skill using application, games or listening exercises and English dialogues on the Internet’ has the highest mean score which is 3.07 followed by ‘The use of ICT has helped me increase my motivation’ which is 3.06. The mean score of 3.07 and 3.06 belong to ‘positive attitude’ category. Then, the lowest mean score is 2.80 that is ‘The use of ICT has helped me increase my motivation’. Although 2.80 is the lowest mean score, it is still categorized to high. Hence, Yogyakarta Muhammadiyah senior high school students have positive attitude on the use of ICT in English learning.

Result 2. Female students' attitude on the use of ICT in English learning.

The second question proposed in this study is what the female students' attitude on the use of ICT in English learning. In order to answer this question, a questionnaire was distributed to students of Yogyakarta Muhammadiyah senior high schools, and part C items in the questionnaire were analysed using descriptive statistics by looking at the mean score. These items are 11 statements that indicate female students' attitude on the use of ICT in English learning. The results of the mean score of each statement were categorised to 'positive attitude' which range from 2.51 to 4.00 and 'negative attitude' which range from 1.00 to 2.50 (Table 19, p. 66).

Statement 1: The use of ICT has helped improve my English writing skills.

Female students reported positively that the use of ICT has helped them improve their English writing skills as seen from the mean score of this statement which is 2.99. This score was categorised to 'positive attitude'.

Table 32		
<i>The use of ICT has helped improve my English writing skills</i>		
	Mean	Std. Deviation
Female	2.99	.507

However, the female students never write blogs in English which was seen from the mean score of the use of ICT for writing blogs in English showing 1.35 (see Table 12, p. 61) and indicating 'never' category. The result might be because they have another activity using ICT which is related to improving writing skills rather than writing blogs in English which can improve their writing. Thus, the female

students tend to have positive attitude on which the use of ICT has helped them improve their English writing skills.

Statement 2: The use of ICT has helped me enrich my English vocabulary.

vocabulary. Female students responded positively that the use of ICT has helped them enrich their English vocabulary as seen from the mean score of this statement which is 3.11 and categorised to ‘positive attitude’. The female mean score of using ICT for searching for words meaning and pronunciation which was 3.02 (see Table 16, p. 63) and categorised to ‘often’ have led them to have positive attitude that ICT has helped them enrich their English vocabulary. Hence, the female students have positive attitude on which the use of ICT has helped them enrich their English vocabulary.

Table 33

The use of ICT has helped me enrich my English vocabulary

	Male	Std. Deviation
Female	3.11	.528

Statement 3: The use of ICT has helped me improve my English grammar.

grammar. Female students responded positively that the use of ICT has helped them improve their English grammar as seen from the mean score of this statement which is 2.94 and belongs to ‘positive attitude’ category.

Table 34

The use of ICT has helped me improve my English grammar

	Mean	Std. Deviation
Female	2.94	.569

Because most female students rarely practice grammar exercises using ICT as seen from the mean score of using ICT for practicing grammar exercise in Table 14 (p. 62) which showed 1.89 and belonged to ‘rarely’ category, it is contrary to this result. It might be because the female students have another activity using ICT that can help them improve their English grammar. Hence, the female students have positive attitude on which the use of ICT has helped them improve their English grammar.

Statement 4: The use of ICT has helped me better in using English to communicate in my daily conversation. Female students reported positively that the use of ICT has helped them better in using English to communicate in their daily conversation as the mean score of this statement is 2.92 and belongs to ‘positive category’. Even though most female students rarely communicate each other in English learning using Edmodo or Schoology, it does not influence to have attitude on which the use of ICT has helped them better in using English to communicate in their daily conversation. Thus, the female students have positive attitude on which the use of ICT has helped them better in using English to communicate in their daily conversation.

Table 35

The use of ICT has helped me better in using English to communicate in my daily conversation

	Mean	Std. Deviation
Female	2.92	.612

Statement 5: The use of ICT has helped me obtain up to date information.

information. Female students reported positively that the use of ICT has helped them obtain up to date information as the mean score of this statement is 3.08 and categorised to ‘positive attitude’. In Table 11 (p. 60), the mean score of female students using ICT for surfing Internet to get information was 2.55 and categorised to ‘rarely’ category has led them have positive attitude on which ICT has helped them obtain up to date information even though they rarely use ICT for it. Therefore, the female students have positive attitude on which the use of ICT has helped them obtain up to date information.

Table 36

The use of ICT has helped me obtain up to date information

	Mean	Std. Deviation
Female	3.08	.582

Statement 6: The use of ICT has helped me increase my motivation.

Female students reported positively that the use of ICT has helped them increase their motivation as the mean score of this statement is 3.06 and categorised to ‘positive attitude’. In short, the female students have positive attitude on which the use of ICT has helped them increase their motivation.

Table 37

The use of ICT has helped me increase my motivation

	Mean	Std. Deviation
Female	3.06	.628

Statement 7: I can test my listening skill using application, games or listening exercises and English dialogues on the Internet. Female students reported positively to the statement ‘I can test my listening skill using application, games or listening exercises and English dialogues on the Internet’ as the mean score of this statement is 3.17 and belongs to ‘positive attitude’ category. In short, the female students have positive attitude on which they can test their listening skill using application, games or listening exercises and English dialogues provided on the Internet such as listening to a dialogue and answering the questions.

Table 38

I can test my listening skill using application, games or listening exercises and English dialogues on the Internet

	Mean	Std. Deviation
Female	3.17	.628

Statement 8: I get English learning materials easily on the Internet.

Female students responded positively to the statement ‘I get English learning materials easily on the Internet’ as the mean score of this statement is 3.13. This score was categorised to ‘positive attitude’.

Table 39

I get English learning materials easily on the Internet

	Mean	Std. Deviation
Female	3.13	.617

Most female students can get English learning materials easily on the Internet is because they use their device to activity related to learning that yields 73 students

(see *Figure 3*, p. 58). In short, the female students have positive attitude that they get English learning materials easily on the Internet.

Statement 9: ICT is convenience to use to get information. Female students responded positively to the statement ‘I get English learning materials easily on the Internet’ as the mean score of this statement is 3.08 and belongs to ‘positive attitude’ category. The positive attitude this statement is due to the fact that 22% of female students use their device for finding information (see *Figure 3*, p. 58). They also often make use of ICT to get information on the Internet seen from the mean score of 2.55 in Table 11 (p. 60) indicating ‘often’ category. These can be the evidence that they argued that ICT is convenience to use to get information they want, especially for their learning. In conclusion, the female students have positive attitude that ICT is convenience to use to get information.

Table 40
ICT is convenience to use to get information

	Mean	Std. Deviation
Female	3.08	.518

Statement 10: Using ICT in learning English is interesting. Based on Table 34, female students reported positively to the statement ‘Using ICT in learning English is interesting’ as the mean score of this statement is 3.10 and categorised to ‘positive attitude’.

Table 41
Using ICT in learning English is interesting

	Mean	Std. Deviation
Female	3.10	.532

The male students perhaps find various activities using ICT, so that they perceived that ICT in English learning is interesting to use. Therefore, the female students have positive attitude that Using ICT in learning English is interesting.

Statement 11: I like to use ICT in English learning. Female students reported positively to the statement ‘I like to use ICT in English learning’ as the mean score of this statement is 3.03. This score was categorised to ‘positive attitude’. Therefore, the female students have positive attitude by showing that they like to use ICT in their English learning.

Table 42
I like to use ICT in English learning

	Mean	Std. Deviation
Female	3.03	.540

In summary, Table 43 below illustrated the mean score for the female students’ attitude on the use of ICT in English learning which was 3.05.

Table 43
Mean and standard deviation for the female students’ attitude on the use of ICT in English learning

Item	Mean	Std. Deviation
The use of ICT has helped me improve my writing skills	2.99	.507
The use of ICT has helped me enrich my English vocabulary	3.11	.528
The use of ICT has helped me improve my English grammar	2.94	.569

The use of ICT has helped me better in using English to communicate in my daily conversation	2.92	.612
The use of ICT has helped me obtaining up to date information	3.08	.582
The use of ICT has helped me increase my motivation	3.06	.628
I can test my listening skill using application, games or listening exercises and English dialogues on the Internet	3.17	.594
I get English learning materials easily on the Internet	3.13	.617
ICT is convenience to use to get information	3.08	.518
Using ICT in learning English is interesting	3.10	.532
I like to use ICT in learning English	3.03	.540
Total mean score	3.05	.527

Among the 11 items, ‘I can test my listening skill using application, games or listening exercises and English dialogues on the Internet’ has the highest mean score which is 3.17 followed by ‘I get English learning materials easily on the Internet’ which is 3.13. The mean scores of these items indicated positive attitude based on the category for attitudes on the use of ICT in English learning. Then, the lowest mean score is 2.92 that is ‘The use of ICT has helped me better in using English to communicate in my daily conversation’. Therefore, female students of Yogyakarta Muhammadiyah senior high school have positive attitude on the use of ICT in English learning with the total mean score of 3.05.

Result 3. Significant difference between students' gender and their attitude on the use of ICT in English learning. The third research question proposed in this study is whether students' attitude on the use of ICT in English learning has significant differences according to gender. In order to answer this question, the researcher used independent samples t-test. This test statistically compares the means of male and female students' attitude on the use of ICT in English learning from Part C. Because this test is categorised to inferential statistics, Berg (2014) suggested that dependent variables should be normally distributed in both samples, and the variances of the samples should be equal. So, the researcher tested the normality and homogeneity. These tests including independent samples t-test were analysed using SPSS program version 20 (a software package used for statistical analysis).

Normality test. The researcher tested the normality using One-Sample Kolmogorov-Smirnov test to see whether the data were distributed normally. SPSS program version 20 run the analysis and the results were shown in a Table 44 below. To analyse the result, it can be seen from significance score (Asymp. Sig.) from dependent variable which is students' attitude on the use of ICT in English learning. The data distribution is normal if Asymp. Sig. (2-tailed) score is greater than 0.05 ($p > 0.05$).

Table 44

One-Sample Kolmogorov-Smirnov Test

Students' attitude on the use of ICT in English learning	
N	239
Kolmogorov-Smirnov Z	1.252
Asymp. Sig. (2-tailed)	.087
a. Test distribution is Normal.	
b. Calculated from data.	

The result showed that the significance value of dependent variable ‘students’ attitude on the use of ICT in English learning’ is 0.087. This score is greater than 0.05 ($0.087 > 0.05$), so *the data distribution was normal*. It also means that the respondents of this study are from the same proficiency and ability.

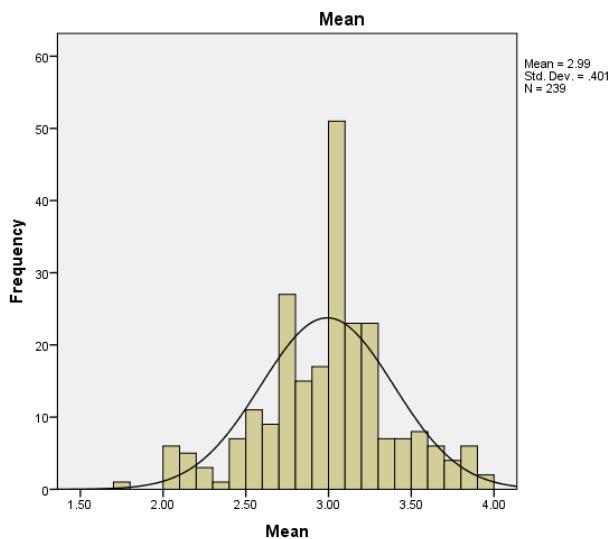


Figure 4. Histogram of dependent variable ‘Students’ attitude on the use of ICT in English learning’

In addition, the normal data distribution can also be shown from the histogram of the mean score from dependent variable ‘Students’ attitude on the use of ICT in

English learning'. *Figure 4* illustrated the normal curve of distribution which is smooth and has symmetrical curve or bell-shaped. Thus, this curve showed the normal distribution.

Homogeneity test. Homogeneity test was done to show that the groups in the samples come from the same variances. The researcher analysed the homogeneity using One-Way Analysis of Variance in the SPSS program. The program run the analysis and showed the result of homogeneity of variances test as seen in Table 45. The data are homogenous if the significance value is greater than 0.05 ($p > 0.05$).

Table 45			
<i>Test of homogeneity of variances</i>			
Students' attitude on the use of ICT in English learning			
Levene Statistic	df1	df2	Sig.
2.623	1	237	.107

The results showed that the value of significance is 0.107. It means that it is greater than significance level ($0.107 > 0.05$). It showed that *the data distribution are homogenous*. This test also appears in the independent samples t-test result that can be used to see the homogeneity of variances. The value of significance (0.107) was also used to determine which t score used to see the mean differences which were tested. It was explained in the following.

Independent samples t-test. An independent t-test is a test used to test if the means of two samples are independent and are significantly different from one another (Bluman, 2009). In this study, the independent variables are male and female students, and dependent variable is students' attitude on the use of ICT in

English learning. This test examines independent samples, male and female students, on the dependent variable. Then, this test is also examined if the alternative hypothesis (H_1) is accepted. Thus, the researcher needs to accept this hypothesis that there is any statistically significant difference between the means of the male and female students and their attitude on the use of ICT in English learning.

Table 46

Group statistics of independent samples t-test

Gender		N	Mean	Std. Deviation	Std. Error
					Mean
Attitude on the use of ICT in English learning	Male	125	2.9349	.41293	.03693
	Female	114	3.0551	.38017	.03561

Table 46 showed the result of group statistics of independent samples t-test. The mean score of male students' attitude was 2.9, and the mean score of female students was 3.05. The results indicated that the mean score of the female students is higher than the mean score of the male students ($3.05 > 2.93$). Thus, the female students perceived more positive attitude on the use of ICT in English learning.

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Attitude	Equal variances assumed	2.623	.107	-2.334	237	.020	-.12021	.05150
	Equal variances not assumed			-2.343	236.977	.020	-.12021	.05130
							-.22166	-.01876
							-.22127	-.01914

Figure 5. The result of independent samples t-test

The result of Levene's Test for Equality of Variances in *Figure 5* is a guide to choose which row of the two ('equal variances assumed' and 'equal variances not assumed'). It can be seen that the significance value (p value) is not significant ($p=0.107$, $p>0.05$) which means that the equal variances were assumed or homogenous, so then the researcher needs to choose the first row of the data ('Equal variances assumed').

After deciding which row to follow, the result of independent samples t-test can be seen from t value and significance value. The result showed that t value is higher than t table ($2.334 > 1.972$). It means that there is a statistically significant difference between students' gender and their attitude on the use of ICT in English learning. Besides, it also can be seen from the significance value. The result showed that the significance value is less than the significance level ($0.020 < 0.05$). It also means that there is a statistically significant difference between students' gender and their attitude on the use of ICT in English learning.

In this study, the task of the researcher is to accept or not accept alternative hypothesis (H1). The alternative hypothesis (H1) is that there is a statistically significant difference between students' gender and their attitude on the use of ICT in English learning. From the result of independent samples t-test, the alternative hypothesis (H1) is accepted. Thus, students' gender may cause the students' attitude on the use of ICT in English learning, meaning that students' gender and attitude may be the factors influencing the use of ICT in English learning.

Discussion

In this section, the researcher discussed the results and related the results to the theories and related studies in this research. The discussion are about electronic devices used by students, the use of electronic devices by students, the use of ICT in English learning, students' attitude on the use of ICT in English learning, and gender differences in students' attitude on the use of ICT in English learning.

Electronic devices used by students. From the surveys, the students of Yogyakarta Muhammadiyah senior high schools were asked as to what electronic devices used in their daily activities. The electronic devices include computer, laptop, tablet, and mobile phone or smartphone. This study found that the students used a mobile phone at the highest frequency (68%, n=226), and male students have the frequency score of 1% higher than female students. That most of them used a mobile phone was consistent with the previous study from Palekahelu, Hunt, and Thrupp (2016), undertaken in Salatiga with the respondents from 1738 students of fifty-two primary, lower secondary, senior secondary, and vocational schools. Their study revealed that 88.5% students used a mobile phone outside the school. Mobile phone is a portable electronic which has multi-functions such as short text messaging, electronic mail, Internet access, and other functions and is useful for people (Celebic & Rendulic, 2011). The benefits and easiness of using mobile phone are in people's daily life, so the students get used to use this device.

In addition, laptop become the second highest score (18%, n=59) after mobile phone since it is a personal computer in small shape which it is easy to

bring, and it has the same function with computer, so it will help the students do the task using their personal laptop. Because computer cannot be moved, the percentage of using computer is only 9%. Then, although tablet is also a portable device, little students use tablet in their daily life (5%). It might be because the size is bigger than mobile phone. Thus, both male and female students of Yogyakarta Muhammadiyah senior high school have various electronic devices used in their daily lives as they are in the 21st generation who are familiar with technology, and the most device that they use is a mobile phone.

The use of electronic devices by students. The use of electronic devices by students of Yogyakarta Muhammadiyah senior high schools is various. Using electronic devices for entertainment was found at the highest score (23.2%) with 173 out of 239 students choosing it as their purpose of using their electronic devices. It indicated that most of them did not use their devices for learning since the two second highest percentages in using their devices are for communication and finding information. However, the students' intention in using their devices for learning-related activities is 21.2% (n=123). The result is different with Suratno and Aydawati's (2016) study that the students used their gadget for doing homework and surfing the Internet for school assignment, and these were related to learning-related activities.

The students were also interested in activities which can express themselves such as blogging, commenting on social media or other platforms and constructive activities such as uploading video on Youtube. These activities got less percentage that to do these activities, they should have interests for it. In

addition to this, there were activities which caught the students' interest, namely photo and video editing, and there were two students use their device for this activities. Then, there was one student who used his device for running business. Therefore, the purpose of using electronic devices by male and female students in their daily activities was various, and the activities using them were hardly related to learning-related activities.

Male and female students have different purpose in using their devices. Male students of Yogyakarta Muhammadiyah senior high school intend in using their devices for entertainment, while female students use their devices for communication. This happened as they have different characteristics. Ilie et al. (2005) stated that women like to do messaging, conversation and other social activities, meaning that they like to talk, while men tend to talk less. These characteristics may happen to the students of Yogyakarta Muhammadiyah senior high school and cause male students use their devices for pleasure and female students use their devices to communicate with their friends.

The use of ICT in English learning. Yogyakarta Muhammadiyah senior high school students rarely use ICT in English learning. It was seen from the mean score from all the statements in Part B of the questionnaire about the use of ICT in English learning which showed 2.05 for male students and 2.03 for female students. These mean scores were categorised to 'rarely'. Although the total mean scores belong to 'rarely', there were items regarding the use of ICT in English learning which indicated 'often' category. It means that the students also often use

ICT in English learning for particular activities related to using ICT which might lead the students to have positive attitude on the use of ICT in English learning.

From the results of mean score of each item about the use of ICT in English learning, female students of Yogyakarta Muhammadiyah senior high school have three activities which indicated that they never do that activities. The female students never write blogs in English with the mean score of 1.3, read English online newspaper with the mean score of 1.70, and communicate with their friends in English learning using Edmodo or Schoology with the mean score of 1.68. Surprisingly, male students only have an activity that they never do. They never write blogs in English. Writing blogs in English and reading English newspaper are activities that can promote learning process better using ICT (Lin, Huang, & Chen, 2014), however, the students of Yogyakarta Muhammadiyah senior high school never use ICT for this activity.

Male and female students also often search for words meaning and its pronunciation as the mean score was 2.90. Yunus, Lubis, and Lin (2009) believed that students' vocabulary will increase if they do the activities which are related to language skills. Searching for words meaning and its pronunciation, both using Internet and an application of dictionary, is one of the activities to promote their learning achievement.

Moreover, the female students of Yogyakarta Muhammadiyah senior high school often use ICT for surfing Internet to get information. It is in line with the study from Kopinska (2013) and Kubiak (2010) that their respondents in their study perceived that learning English is important using ICT, especially for

information search on the Internet. In the recent study, although female students often search information on the Internet, they never enhance their learning using Edmodo or Schoology. These two activities, surfing Internet to get information and communicating using Edmodo or Schoology, can create collaborative learning enhancement, and it will give benefits for the students in their English learning. Abukhattala (2016) suggested that by collaborative learning, the students can collect any information and resources and get connected outside the classroom using communicative platform such as Edmodo or Schoology. On the Internet, the students not only get general information but also learning materials (Isisag, 2012) and authentic materials easily (Tri & Nguyen, 2014). Communicating with others using learning platforms also helps shy or quite students ask questions and communicate, and in the recent study, however, the students like to communicate face-to-face as male students rarely and female students never use Edmodo or Schoology for communicating.

Students' attitude on the use of ICT in English learning. Male and female students of Yogyakarta Muhammadiyah senior high school have positive attitude on the use of ICT in English learning. It was seen from the results of male and female students' mean scores. The total mean score of male students' attitude on the use of ICT in English learning was 2.93 and indicated to positive attitude and so was the female students because the total mean score by female students was 3.05 and also indicated positive attitude. The highest mean score from both male and female students is in the item 'I can test my listening skill using application, games or listening exercises and English dialogues on the Internet'.

This statement showed behavioural attitude since behavioural attitude relates to action of what people believe on object or situation (Borkowski, 2011). From this result, the students believed that listening using application, games or listening exercises and English dialogues on the Internet gives benefits in their English learning, as a result, the students can test their listening skill through this activities. In other words, they have a positive attitude about using application, games or listening exercises, and English dialogues on the Internet.

Using ICT to enhance listening skill is fruitful for students since Houcine (2011) accepted that regular exposures such as audio and video recordings, podcasts and pronunciation software can develop the students' listening skill. Jayanthi and Kumar (2016) added that computer-assisted packages, games or online exercise on the Internet such as listening to a dialogue and answering the questions are able to create an opportunity to monitor the students' learning progress. They can assess themselves, so they have a freedom to learn by themselves with their own style (Kopinska, 2013).

Male and female students of Yogyakarta Muhammadiyah senior high school like to use ICT in their English learning. The students responded that they like to use ICT in learning English which the mean score of male students was 2.90 and female students was 3.03. Liking and disliking to objects or people is an affective attitude because it relates to neural process and emotional response (Borkowski, 2011). In other words, the students of Yogyakarta Muhammadiyah senior high school have an affective attitude on the use of ICT in English learning.

A cognitive attitude refers to thoughts and beliefs and it relates to mental process and evaluation of the objects or people (Borkowski, 2011). The students also showed cognitive attitudes, for examples in items ‘ICT is convenience to use to get information’ which the mean score of the male students was 2.90 and the female students was 3.08 and ‘Using ICT in learning English is interesting’ which the mean score of male students was 2.93 and female students was 3.10. These attitudes can lead them to behave in a particular way and it creates behavioural attitudes. Borkowski (2011) stated that behavioural attitude refers to verbal or nonverbal behaviour of individual or simply an action to do something. The students showed behavioural attitude as in the item ‘The use of ICT has helped me increase my motivation’. In this study, therefore, Yogyakarta Muhammadiyah senior high school students believed that ICT is convenience and interesting to use.

Male students' attitude on the use of ICT in English learning. Male students of Yogyakarta Muhammadiyah senior high school showed positive attitude on the use of ICT in English learning. The mean scores of each item and the total mean score were categorised to positive attitude. Male students believed that ICT has helped them obtain up-to-date information as seen from the mean score of 3.06 at the second highest score and they can get English learning materials easily on the Internet as seen from the mean score of 3.03 at the third highest score. It is in line with the study from Yunus, Lubis, and Lin (2009) that the most activities related to English learning by the students is surfing on the Internet to get information. The presence of Internet eases them to learn anywhere

since they can get the materials easily on the Internet. Isisag (2012) declared that Internet gives students experience to learn English anywhere because the availability of materials are easy to get.

The male students also believed that the use of ICT has helped them enrich their English vocabulary as seen from the mean score of 3.02. It is consistent with the fact that they use their devices the most for searching for words meaning and its pronunciation as seen from the mean score of 2.80, so it helped them enrich their English vocabulary. This result is also consistent with the study from Yunus, Lubis, and Lin (2009) that the students' language skills especially vocabulary mastery were improved as it has the greatest mean score. Then, the lowest mean score but still positive attitude is that using ICT has helped male students improve their English grammar. It is because the male students rarely use their devices to practice grammar exercises so that when asked if the use of ICT helped them improve their English grammar skill, the average mean score gained from the questionnaire got the lowest score of all mean scores. However, the male students still have positive attitude on the use of ICT in English learning.

Female students' attitude on the use of ICT in English learning. Female students of Yogyakarta Muhammadiyah senior high school also showed positive attitude on the use of ICT in English learning, seen from the mean scores of each item and the total mean score which were categorised to positive attitude. The female students believed that the use of ICT has helped them get English learning materials easily as seen from the mean score of 3.13 at the second highest score, enrich their English vocabulary as seen from the mean score of 3.11 at the third

highest score, and obtain up-to-date information as seen from the mean score of 3.08 at the fourth highest score. Then, the lowest mean score (mean score of 1.82) is that using ICT has helped them better in using English to communicate in their daily life. It is however not consistent with the fact that they never use Edmodo or Schoology to communicate each other in their English learning. It might be because they tend to communicate face-to-face, and they have other tools of ICT to improve their communication skill both written and spoken expression instead of interacting with friends in learning platforms such as Edmodo or Schoology.

The female students also agreed that the use of ICT has helped them improve their English writing skills as seen from the mean score of 2.99 and so did the male students as seen from the mean score of 2.98 although both of them never write blogs in English. They may do other activities using ICT which can improve their English writing skill, so that they believed that the use of ICT has helped them improve their writing skill. More importantly, the female students believed that the use of ICT has helped them increase their motivation as seen from the man score of 3.06 and so did the male students as seen from the mean score of 2.80. United States Department of Education stated that the use of ICT makes students keep learning and more engage to the learning, so they are motivated. Tri and Nguyen (2014) also agreed that ICT can increase students' motivation as it attracts their attention and interest in the learning process. Hence, female students of Yogyakarta Muhammadiyah senior high school make use of ICT in learning English and believed that ICT gives benefits.

In conclusion, Yogyakarta Muhammadiyah senior high school students indicated positive attitude on the use of ICT in English learning. It is in line with the study from Yunus, Lubis, and Lin (2009) undertaken in the schools of Malaysia that the students showed positive attitude as they perceived that the ICT helps them in increasing their English and ICT skills, giving the easiness to find information, widening the knowledge, and increasing their motivation. In Indonesia, the previous study from Palekahelu, Hunt, and Thrupp (2016) undertaken in Salatiga that the students of elementary, lower secondary, senior secondary and vocational coming from urban and periurban areas indicated positive attitude to school and ICT use. 97.3% of students expressed their opinion that they learn a lot of new things at school using ICT. In Semarang, Suratno and Aydawati (2016) found that gadgets and ICT use in the school and outside the school for English language learning-related activities have brought them to have positive attitudes. Thus, the use of ICT in English learning bring positive attitudes by the students.

Gender differences in students' attitude on the use of ICT in English learning. The recent study sought to ascertain Yogyakarta Muhammadiyah senior high school students' attitude on the use of ICT in English learning which might have gender differences in their attitudes. The result was gained from analysing inferential statistics using independent samples t-test. The t value is higher than t-table ($2.334 > 1.972$) and the significance value is less than the significance level ($0.020 < 0.05$). The result also showed that the female mean score was higher than male mean score ($3.02 > 2.93$). From these results, it demonstrated that there is a

statistically significant difference between students' gender and their attitude on the use of ICT in English learning, and female students perceived more positive attitude. Besides, the researcher accepted the alternative hypothesis (H1) that there is a statistically significant difference between students' gender and their attitude on the use of ICT in English learning. It means that the students' gender may cause the students' attitude on the use of ICT in English learning, and students' gender and attitude may be the factors influencing the use of ICT in English learning.

The result is in line with what Andoh and Yidana (2014) found in a study that male and female students have different attitudes towards pedagogical use of ICT. However, their study revealed that male students showed more positive attitude than female students. It means that their result about gender difference is contrary to the recent result. The male students in their study have socialised in and familiar with today's technology, so that they become more comfortable with the use of ICT. Another study from Opoku and Kuranchie (2014) also found the same result with the recent study that the students have positive attitude towards ICT education and female students perceived more positive attitudes. However, there was no preferential treatment by the teachers when teaching using ICT.