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CHAPTER III

RESEARCH METHOD

III.1 Design of the Research

The design of this research is categorized into correlational research. According to Anderson and Arsenault, correlational research is one way of describing in quantitative terms the degree to which variables are related (Anderson: 2005). Correlational research is a type of non-experimental research where the researcher employs the data derived from pre-existing variables. There is no manipulation of the variables in that type of research. Besides that, a correlational research is useful in a wide variety of studies.

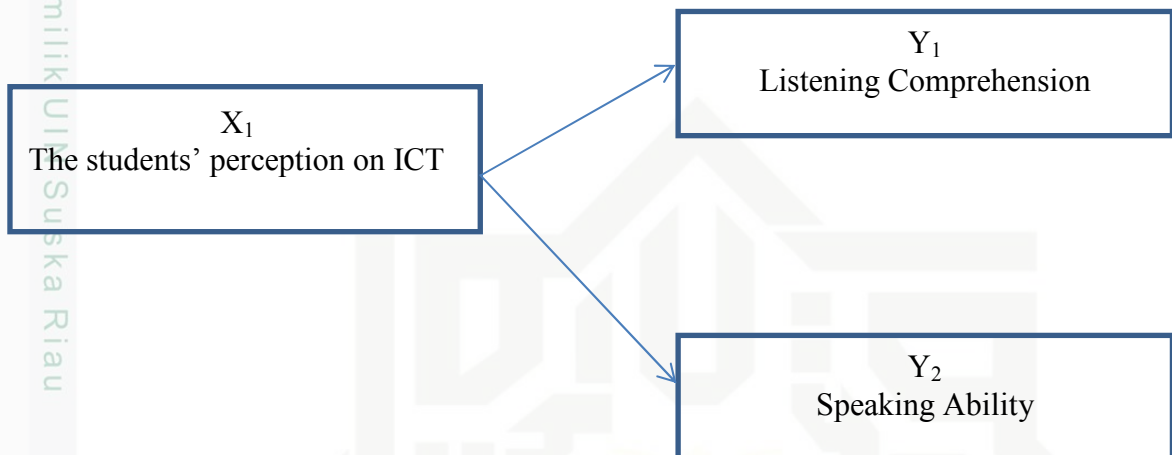
In this research, the researcher investigated the students' listening comprehension and speaking ability through the use of information, communication and technology. This research consisted of three variables. The first variable was students' habit in using ICT as independent variable which obtained by providing questionnaires. The second variable was listening comprehension as dependent variable and the third variable which categorized also as dependent variable was the students' speaking ability in English for Engineering subject which obtained by testing the students by giving them oral presentation.

Independent variable is as a variable which influences the dependent variables, but the dependent variables are not influenced the independent variable. Intervening variable here is as a connector or bridge of the independent variable toward dependent variables. The diagrams below are the design of the research:

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Table III.1
Research design diagram



III.2 The location and Time of Research

This research was conducted at Islamic University of Riau. It is located at Jalan Kaharuddin Nasution KM.13 Marpoyan, Pekanbaru from October 1st until November 30th, 2017.

III.3 Population and Sample of the Research

Population refers to the establishment of boundary conditions that specify who should be included in or excluded from the population (Tuckman 1978). In another opinion, population is defined as all members of any well-defined class of people, event, or object (Singh, Fook, Sidhu 2006). The population of the research was the students at Faculty of Engineering in Islamic University of Riau which consisted of 6 departments.

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Table III.2 Table for determining sample size of population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

Source: Krejcie & Morgan, 1970

Sample is representative group of all population to serve as respondents. In this research, in this research, simple random sampling technique was used. The researcher selected the particular elements from the population that representative or informative about the topic. Based on Morgan table, the sample should be 136 students. In this occasion, engineering students were more representative due to their experience in using ICT to support their process in learning activity. The researcher also decided kinds of instruments that suitable for students whom at least on third semester, because they had taken English for Engineering subject. Finally, the population of engineering students in Islamic University of Riau described below:

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Table III.3
The Population of Faculty of Engineering's Students at Islamic
University of Riau

No	Department	Population			Sample
		Male	Female	Total	
1	Civil Engineering	20	25	45	
2	Mechanical Engineering	20	25	45	
3	Petroleum Engineering	20	25	45	
4	Informatics Engineering	35	17	52	
5	Urban and Regional Planning	12	5	17	
6	Geology Engineering	10	6	16	
Total		117	103	220	136

The researcher did not take all of the students as the sample. Sample is representative group of all population to serve as respondents. In this research, simple random sampling technique will be used. Gay (2000, 131) states "simple random sampling is the process of selecting a sample in such a way that all individuals in the defined population have an equal and independent chance of selection for the sample. The selection of the sample is completely out of the

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researcher's control; instead, a random, or chance, procedure selects the sample. In other words, every individual has the same probability of being selected and selection of one individual in no way affects selection of another individual.

III.4 Data Collecting Technique

Two instruments of collecting data be used in this research. First is about students' habit and way on using ICT and the second is listening test and speaking test.

III.4.1 Instruments

- a. Questionnaire of students' use and habit in using ICT

Students' habit in learning listening and speaking skill by using ICT will be measured based on the Likert scale from Dane Bertam.

In this questionnaires consist of 20 questions, it consist of way about listening and speaking ability because the researcher just investigated about students' perception and habit and the effect in using ICT.

This instrument has been used by researchers before such as from the Sei Hwa Jung from RRC to find out the learners perception on using ICT in learning English. This questionnaire below is to find out the influence of students' ICT perception on English learning.

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Table III.4 Example of Questionnaire

Tell us how much you agree or disagree with the following statements by simply checklist

below the number from 1 to 5. Please do not leave out any items.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

No	Statement	1	2	3	4	5
1	I prefer to use ICT by myself to learn speaking and listening					
2	The use of ICT helps me to study English more effectively					
3	Using ICT to learn English is useful for me					
4	I know some applications or websites to learn English					
5	ICT is good for studying English					
6	I can use ICT on my own to learn English					
7	Feedback (answers or advices from the application) is useful to help me on learning					
8	I prefer to use online video or websites that help to improve my listening skill					
9	I prefer to use applications and games that help me to improve					

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	my speaking skill						
10	The use of ICT has helped me better in using English to communicate in my daily conversation						
11	The use of internet lets me gain access to more updated English materials						
12	It is better for me to improve y listening skill by using ICT						
13	It is better for me to improve my speaking skill by using ICT						
14	Using ICT to help me in sudy English is fun, so I use it often						
15	I love to join an online forum to discuss English learning with friends						
16	I think ICT should be used more frequently to make it more fun						
17	I prefer to communicate with English lecturer by email after class						
18	I love to use voice recording for speaking practice						
19	I love to watch Western movie from YouTube to learn listening						
20	My experience in using ICT to learn English has been satisfying (good)						

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b. Test

In this research, the researcher made an interview with the students especially about their perception and their habit of using ICT. The giving score is almost the same with questionnaire scoring. Each question has the same score with different category. The scoring can be drawn based on the indicator in the following table:

No	Speaking Components	Indicators	Points
1	Pronunciation	a. Students have few traces of foreign accents	5
		b. Students are always intelligible, though one is conscious of define accents	4
		c. Students have pronunciation problems	3
		d. Students are very hard to understand because of pronunciation problems.	2
		e. Students have pronunciation problem	1
2	Grammar	a. Students make few noticeable errors of grammar word order	5
		b. Students occasionally make grammatical error which or not, however obscure meaning.	4
		c. Students make frequent errors of	3

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		<p>grammar and word order, which occasionally obscure meaning.</p> <p>d. Students have grammar and word errors make comprehension difficult.</p> <p>e. Students have errors in grammar and word order so severe as to make speech virtually unintelligible.</p>	<p>2</p> <p>1</p>
3	Vocabulary	<p>a. Students' use of vocabulary and idioms is virtually that of native speaker.</p> <p>b. Students have speed of speech seems to be affected by language problem.</p> <p>c. Students have speed and fluently rather strongly.</p> <p>d. Students usually hesitant often force in to silence by language limitation.</p> <p>e. Students have speech is as halting and fragmentary to make conversation virtually impossible.</p>	<p>5</p> <p>4</p> <p>3</p> <p>2</p> <p>1</p>
4	Fluency	<p>a. Students have speech as fluent and effortless as that native speaker.</p> <p>b. Students have speed of speech seems</p>	<p>5</p> <p>4</p>

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		<p>to be affected by language problem.</p> <p>c. Students have speed and fluently rather strongly.</p> <p>d. Students usually hesitant often force in silence by language limitation.</p> <p>e. Students have speech as halting and fragmentary as to make conversation virtually impossible.</p>	<p>3</p> <p>2</p> <p>1</p>
5	Comprehension	<p>a. Students appear to understand everything without difficulties.</p> <p>b. Students understand nearly everything as normal speed, although occasionally repetition.</p> <p>c. Students understand most what is said at slower than normal speed with repetition.</p> <p>d. Students have great difficulty following what is said and can comprehend only social conversation spoken slowly.</p> <p>e. Students cannot say to understand even simple conversational English.</p>	<p>5</p> <p>4</p> <p>3</p> <p>2</p> <p>1</p>

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On listening test, the researcher made an adaptation from “Longman complete course for TOEFL Test” by Phillips (2011), which consists of 50 questions. The measurement of the test explained by the CEFR below:

1. C1

This is for those who can understand the main idea or purpose of a short academic lecture or extended conversation that requires integrating or synthesizing information. They can recall important details presented in a discussion of academic material. Understand complex time references and temporal relationships in a short dialogue, short academic lecture or extended conversation, Understand some difficult and abstract vocabulary and follow essential ideas in an extended conversation or academic lecture.

2. B2

This is for those who can integrate information across two utterances in order to understand implied meaning, and understand the meaning of a variety idioms and colloquial expressions.

3. B1

This is for those who can understand high frequency vocabulary and deduce the meaning of some lower frequency vocabulary. They can understand some commonly occurring idioms and colloquial expressions. They understand common language functions and recognize pronouns.

4. A2

This is for those who understand the main idea of conversation and understand the basic vocabulary. They can understand explicitly stated points that are reinforced or repeated and understand the basic pronouns.

5. A1

This is for those who could not understand even basic pronouns.

The listening comprehension test is based on the blue print which described below:

Table III.5

The Blueprint of Listening comprehension

No	The kinds of test	The skill	The number of test
1	Conversation	Students are able to determine the vocabulary meaning and its synonym	1,2,3,4,6,7,8,13, 16, 22, 26,28,
State Islamic University of Sultan Syarif		Students are able to find the general and specific information and find the conclusion. Students are able to identify the situation or the place where the dialog take place	5,9,10,14,31,32,33,34,35,36,37,38
		Students are able to identify the idiom and imply meaning of the word	20, 23,
		Students are able to identify negative expression	12,15, 18,21, 24, 27,
		Students are able to identify expression of uncertainty, suggestion, agreement, surprise, emphatic, and wishes.	11, 17, 19, 25,29, 30
2	Spoken text or	students are able to get the main	39, 47,49

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academic lecture	idea/ topic of spoken text/ academic lecture	
	Students are able to find the general and specific information and answer in order	40,41,42,44,46. 48,
	Students can draw the conclusion	43, 45,50

III.5 The Validity and Reliability of the Test

1. The Validity

Creswell (2008: 169) stated that validity was the individual's scores from an instrument make sense, meaningful, enable you as the researcher to draw good conclusions from the sample you are studying to the population. Validity in research is concerned with the accuracy and truthfulness of scientific findings. A valid study should demonstrate what actually exists and a valid instrument or measure should actually measure what it is supposed to measure (Brick: 1993).

Patten's (2004) three principles to improve content validity: 1) use a broad sample of content rather than a narrow one, 2) emphasize important material, and 3) write questions to measure the appropriate skill, were addressed when developing assessment items.

2. The Reliability

Reliability is concerned with the consistency, stability and repeatability of the informant's accounts as well as the investigators' ability to collect and record information accurately (Brink: 1993). It refers to the ability of a research method to yield consistently the same results over repeated testing periods. In other words, it requires that a researcher

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using the same or comparable methods obtained the same or comparable results every time he uses the methods on the same or comparable subjects. Brown states that the characteristic of reliability was sometimes termed consistency. The following table is the level of internal consistency of Cronbach Alpha.

Table III.6
A commonly accepted rule of thumb for describing internal consistency by using cronbach alpha

Cronbach Alpha	Internal Consistency
$\alpha \geq .9$	Excellent
$.9 > \alpha \geq .8$	Good
$.8 > \alpha \geq .7$	Acceptable
$.7 > \alpha \geq .6$	Questionable
$.6 > \alpha \geq .5$	Poor
$.5 > \alpha$	Unacceptable

The nature of reliability:

1. Reliability refers to the result obtained with an instrument and not to the instrument itself.
2. An estimate of reliability always refers to a particular type of consistency (time, task, students, and rater).
3. Reliability is a necessary but not sufficient condition for validity.
4. Reliability is assessed primarily with statistical indices.

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III.6 Data Analysis Technique

To find out whether there will be a significant correlation between the use of ICT and students' listening comprehension and speaking ability, the data will be analyzed by using SPSS 20. Identifying whether there is a significant correlation between two or more variables can be analyzed by using Pearson Product Moment correlation coefficient (r) technique as follows (Hartono : 2008). The validity can be got from item score which has the parallel of the total score. The parallel can be understood as correlation. To get the correlation, the researcher uses the product moment formula.

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\left(\sqrt{N \sum x^2 - (\sum x)^2}\right) \left(\sqrt{N \sum y^2 - (\sum y)^2}\right)}$$

Where:

r_{xy} = Coefficient correlation between x and y

N = the sum of samples

$\sum x$ = the sum of items

$\sum y$ = the total score of participants' test

$\sum x^2$ = the total score of x after quadratted

$\sum y^2$ = the total score

of y after quadratted

