

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **1.1 Research Design**

This research applied the quantitative and qualitative approach. The initial goal of this research is finding the extent of smartphone use relationship and influence on the autonomous learning strategies and how do the strategies applied during the use of smartphone in learning English. To answer the quantitative problems proposed in this research, the correlational design was initially applied. Correlational research methods are used to assess relationships and patterns of relationship among variables in a single group of subjects (Ary, et al., 2010). Afterwards, the correlational design finding was supported by the regression analysis to reveal the influence of smartphone use towards students' autonomous learning strategies. Furthermore, participants' verbal interview data that had been collected for further exploration was also analyzed to strengthen this research findings.

#### **1.2 Variables**

There are two variables mainly investigated in this research. They are the use of smartphone and the autonomous learning strategies in learning English. The use of smartphone applied as the independent variable, meanwhile the learning strategies applied as the dependent variable. The learning strategies variable, further specifically defined into three sub-variables, which are metacognitive variable, cognitive variable, and social/affective variable.

#### **1.3 Instrumentation**

There are two types of instrument that applied in this research. The first is questionnaires and second is interview sheet. Both instruments were developed in

some procedures to ensure that they could obtain the data intended for this research.

### 1.3.1 The Questionnaires

The participants fulfilled questionnaires related to both the autonomous learning strategies and their activities in using smartphones in learning English.

The questionnaire of autonomous learning strategy was adapted from a thesis written by White (1993). The reason of the adaptation from the particular thesis was because of the similarity on the investigated variables. This research aimed to explore the learning strategies which specifically focus on the metacognitive, cognitive, and social/affective strategy. It was strongly related to the basic theory of the questionnaire establishment in the chosen thesis. The questionnaire was composed to measure the learners' metacognitive, cognitive, and social/affective strategies in relation to several learning contexts and learner characteristics. Considering the identical purpose in terms of the exploration of learning strategies, the questionnaire was considered to be an appropriate instrument to measure the learning strategies investigated in this research. Below are the tables of the strategies' description composed by for the questionnaires' establishment.

**Table 3.1 Metacognitive Strategy Description**

No.	Metacognitive Strategy	Description
1.	Advance Organisation	Previewing the organizing concept or principle of an anticipated learning task.
2.	Selective Attention	Deciding in advance to attend the specific aspects of input, often by scanning for key words, concepts and/or linguistic markers.
3.	Directed Attention	Deciding in advance to attend in general to a learning task and to ignore irrelevant distractors.

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4.	Delayed Production	Consciously deciding to postpone speaking to learn initially through listening comprehension.
5.	Self-management	Understanding the condition that help one successfully accomplish language task and arrange for the presence of those conditions.
6.	Problem Identification	Explicitly identifying the central point needing resolution in a task or identifying an aspect of the task that hinders its successful completion.
7.	Self-monitoring	Checking one's comprehension during listening or reading or checking the accuracy and/or appropriateness of one's oral or written production while it is taking place.
8.	Self-evaluation	Checking the outcomes of one's own language learning against an internal measure of completeness and accuracy.
9.	Prioritising	Prioritising learning according to one's personal needs and/or wants.
10.	Revision	Systematically reviewing in order to aid long-term retention.

*White (1993)*

**Table 3.2 Cognitive Strategy Description**

No.	Cognitive Strategy	Description
1.	Repetition	Repeating a chunk of language ( a word or phrase) in the course of performing a language task.
2.	Resourcing	Using target language reference materials such as dictionaries, encyclopedias, or textbooks.
3.	Grouping	Ordering, classifying or labeling material used in a language task based on common attributes.
4.	Note taking	Writing down key words and concepts in abbreviated

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		verbal, graphic, or numerical form to assist performance of a language task.
5.	Deduction	Consciously applying learned or self-developed rules to produce or understand the second language.
6.	Substitution	Selecting alternative approaches, revised plans, or different words or phrases to accomplish a language task.
7.	Imagery Elaboration	Using mental or actual pictures to represent information.
8.	Visualisation	Using visual stimuli to clarify meaning.
9.	Word Elaboration	Relating new information to prior knowledge gained from experience in the world.
10.	Between Parts Elaboration	Relating parts of the task to each other.
11.	Contextualisation	Placing a word or phrase in a meaningful language sequence.
12.	Summarisation	Making a mental or written summary of language and information presented in a task.
13.	Translation- To English	Using L1 as a base for understanding L2.
14.	Translation – From English	Using L1 as a base for producing L2.
15.	Inferencing	Using available information to guess the meanings or usage of unfamiliar language items associated with a language task.
16.	Transfer	Using previously acquired linguistic knowledge to facilitate a language task.
17.	Rehearsal	Rehearsing the language needed, with attention meaning, for an oral or written task.

*White (1993)*

**Table 3.3 Social Strategy Description**

No.	Social Strategy	Description
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1.	Questioning	Questioning for clarification, or eliciting from a teacher or peer additional explanation, rephrasing, or examples.
2.	Co-operation	Working together with peers to solve a problem, pool information, check a learning task, model a language activity, or get feedback on oral written performance.

*White (1993)*

**Table 3.4 Affective Strategy Description**

No.	Affective Strategy	Description
1.	Self-talk	Reducing anxiety by using mental technologies that make one feel competent to do learning task.
2.	Self-reinforcement	Providing personal motivation by arranging rewards for oneself when a language learning activity has been successfully completed.
3.	Self-encouragement	Saying or writing positive statements to oneself in order to feel more confident in learning the new language.

*White (1993)*

Since the original questionnaire was constructed in English, it was required to be translated into Bahasa Indonesia to adapt with the participants' context. Two lecturers were chosen as the reviewers for the translated questionnaire. One lecture from English department and one from Bahasa Indonesia department. Both reviewers were required to revise any ineffective translated items. After the questionnaire had been reviewed and revised by the reviewers, a pilot study conducted to get further review and revision and to have the questionnaire validated.

Also, the second questionnaire which was intended to measure the use of smartphone in English learning was established based on the explanation of five

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properties of mobile devices which provide the unique educational affordance conveyed by Klopfer and Squire (2008) cited in Rahimi and Miri (2014). There were twenty four statements contained in the questionnaire as the representative items to measure students' use of smartphone in learning English. The questionnaire of smartphone use was also validated through a pre-research along with the questionnaire of autonomous learning strategies. Below are the descriptions of five properties referred for the questionnaire establishment.

**Table 3.5 Educational Affordance of Mobile Devices**

No.	Properties	Description
1.	Portability	They can easily be carried and use in different location as they do not require a static desktop and are lightweight.
2.	Social interactivity	There are opportunities for people to collaborate face to face and exchange data.
3.	Context sensitivity	The smartphone can collect and respond to real or simulated data unique to the current location and time.
4.	Connectivity	Connecting to other peripheral devices such as sensor or storage cards, connecting smartphone to each other to create a group shared network, and linking devices to a wider use common network.
5.	Individuality	The flexibility of smartphone to be customized or personalized for individual need and use.

*Klopfer (2008)*

### 1.3.2 The Interview

Along with the questionnaires, there was interview held for the chosen participants in order to confirm and explore further on how they applied the metacognitive, cognitive, and social/affective strategy during the use of smartphone in learning English. The items of interview were constructed reflected

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on the items of questionnaire to get further explanation and to explore other possible information that was not covered in the questionnaires (see appendix 8).

#### **1.4 Validity and Reliability**

Prior to the data collection for this research, measuring validity and reliability of the instrument is an important phase to conduct in order to have a well-structured instrument. Validation analysis was conducted to find out whether the items or instruments measure what it is supposed to measure or describe, while the reliability analysis was conducted to find out whether the instruments produce similar results under constant conditions on all occasions (Bell, 2005). The validity and reliability process in this research were initially conducted by having the instruments analyzed by two lecturers. Afterwards, the instruments were deployed to the participants in a pilot study which later analyzed through a computer analysis. The items contained in the instrument which did not meet the standard coefficient of validity and reliability further changed and improved in order to meet the standard (see appendix 6).

#### **1.5 Site and Participants**

The participants of this research were the students of Islamic Economy Department in a university in Bandung. The Islamic Economy Department was chosen since it was a relatively new department, and one of the fundamental principles was a strong mastery of foreign languages by the students. Hence, the students of the department obliged to enroll in a basic English class at the particular semester. This year, the students enrolled in the English class were those who were in the third semester. In line with this research purposes, the population chosen in this research was the students enrolled in the English class. There were two English classes for this semester with 65 students of all. Looking on the number of students, the sample was then decided to be saturated sampling. It means that all of the population taken as the sample (N=65).

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The participants were restrained on those who own smartphones and used it on a daily basis. In order to have a supportive atmosphere in terms of place and time, the requirement letter were sent formally to the institution to get permission and support for conducting the research. The Head of the institution and the lecturers got the explanation of how the research would be conducted. Prior to the questionnaires and interview instructions, the students who were the participants of this research got to know the purpose of this research and the proper step of fulfilling the questionnaires and contributing in the interview.

### 1.5.1 Characteristics of Participants

Ahead of the analysis to answer the main research problems investigated in this research, it is necessary to get a general description of the participants. The description will provide some basic data about the participants and main information to get insight on the subject's profile related to this research. The characteristics of participants defined below are gender, first language (mother tongue), previous English learning, smartphone ownership, and the length of smartphone ownership.

#### 1. Gender

The gender composition of the participants investigated in this research is presented through the table below:

**Table 3. 6** Participants' characteristic based on gender

<b>Gender</b>	<b>Frequency (person)</b>	<b>Percentage (%)</b>
Male	21	32.31
Female	44	67.69
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 7*

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Table 3.6 displays the dominant percentage of female participants that reaches 67.69%. On the other hand, the male percentage is 32.31%. The data percentage describes that the number of female participants is two times higher than the male participants. Besides giving a description of the participants involved in this research, the gender composition findings also show a general portrait of the male and the female students' number in the Islamic Economy Department.

## 2. First language (Mother tongue)

Identifying the participants' first language (mother tongue) is also substantial in order to ensure that none of the participants is an English native speaker since this research aimed to investigate the participants of non-native speakers.

**Table 3. 7**  
Participants' characteristic based on mother tongue

<b>Language</b>	<b>Frequency (person)</b>	<b>Percentage (%)</b>
Bahasa Indonesia	53	81.54
Sunda	11	16.92
Jawa	1	1.54
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 7*

Most of the participants' first language is Bahasa Indonesia, which is known as the national language. It is indicated by the highest percentage of 81.54%. There are two other regional languages listed as the participants' first language, which are Sundanese 16.92%, and Javanese 1.54%. The emergence of Sundanese in the data basically represents the region of the research site which was in West Java, as the Sundanese indigenous land. Referring to the data, it was certain that

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100% of the participants are non-native speakers of English and they were learning English as a foreign language.

### 3. Previous English Learning

To get a brief description of the participants' familiarity with English learning, the data below presents previous English learning that the participants already had before.

**Table 3. 8**  
Participants' characteristic based on previous English learning

<b>Length of Time</b>	<b>Frequency (person)</b>	<b>Percentage (%)</b>
< 1 year	7	10.77
1 – 5 years	9	13.85
> 5 years	49	75.38
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 7*

The majority of the participants have the experience of learning English more than five years. It is represented by the percentage of 75.38%. It means that most of the participants had learned English in the school for years before they got into the university. Therefore, it can be expected that the participants are familiar with the concept of English material and English learning.

### 4. Smartphone ownership

As the main variable investigated in this research, the smartphone distribution among participants is essential to be defined.

**Table 3. 9**  
Participants' characteristic based on smartphone brand

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<b>Smartphone type</b>	<b>Frequency (person)</b>	<b>Percentage (%)</b>
Android	51	78.46
iPhone	5	7.69
Blackberry	2	3.08
Windows Mobile	1	1.54
Not mentioned	6	9.23
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 7*

Based on the data above, it shows that the Android smartphone is the most popular type used by the participants. It is indicated by the percentage of 78.46%. The other types share the rest of the percentage of 7.69% (iPhone), 3.08% (Blackberry), 1.54 (Windows Mobile), and 9.23% (not mentioned).

### **5. Length of smartphone ownership**

Identifying the length of smartphone ownership is important to indicate how well the gadget is recognized and used by the participants.

**Table 3. 10**

Participants' characteristic based on the length of smartphone ownership

<b>Length of time</b>	<b>Frequency (person)</b>	<b>Percentage (%)</b>
< 1 year	9	13.85
1 – 2 years	27	41.54
> 2 year	29	44.61
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 7*

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Table 3.10 explains that most of the participants are no strangers to the technology of smartphones. The percentages of participants that have already owned the smartphone more than two years is 44.61% and 44.54% of the participants have owned the smartphone for 1-2 years. Based on the data, it can be indicated that most of the participants are already familiar with the use of smartphone since they have been exposed to smartphone for a quite long time.

### **1.6 Data Collection Procedure**

There are two types of instruments will be distributed in this research. The first instrument was questionnaires, which aimed to collect data of the relationship of autonomous learning strategies and the use of smartphone in learning English. The second instrument was interview sheet which composed before and during the research tentatively based on the needed data. The data collected through the questionnaire were analyzed to find out the extent of autonomous learning relationship with the smartphone use among students and which of the metacognitive, cognitive, or social/affective strategy of autonomous learning strategies that has the strongest relationship with the use of smartphone in learning English. The interview held for the participants in order to explore further and deeper on the strategies of autonomous learning that applied during the use of smartphone in learning English.

### **1.7 Data Analysis**

The gathered data were analyzed based on the instruments that had been applied during the research. At first, the questionnaire data analysis conducted through the use of SPSS as the quantitative approach to find out the influence of the use of smartphone in learning English to the autonomous learning strategies. On the other hand, the interview data as the outcome of qualitative approach were coded and classified to get clear points which refer to answer the research problem. As the first step, the code and classification were based on the autonomous

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learning theory of previous related research findings. Afterwards, the rest of data which were not included in any of the categorization were classified as a new insight which related to the investigated topics.

## 1.8 Description of Research Variables

Prior to analyzing the relationship and influence of the variables, it is important to get the general description of each variable investigated in this research. The descriptions included the use of smartphone in language learning, autonomous learning strategies, cognitive strategies, metacognitive strategies, and social/affective strategies.

### 1. The Use of Smartphone in Language Learning

As the relation to the purpose of this research which is investigating the smartphone use in language learning, it is compulsory to get a general description of the smartphone use in language learning by the participants. The description helps to provide a fundamental insight on the smartphone general use in language learning before analyzing it further with other chosen variables.

**Table 3. 11** Smartphone use in language learning

Category	Frequency (person)	Percentage (%)
High	14	21.54
Medium	49	75.38
Low	2	3.08
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 1*

The data displays that 75.38% of the participants are medium users of smartphone when it is related to the language learning use, while 21.54% of the participants belong to high category of smartphone users for language learning. The fact indicates that most of the participants are aware of the language learning

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support that they can get from their smartphones. Furthermore, it reveals that utilizing smartphone for learning purposes has become one of the activities implemented by the participants in using their smartphones autonomously. Hence, it is possible to analyze further on students use of smartphone in language learning related to other learning aspects.

## 2. Learning Strategies

Learning strategies are the main variables measured in this research. Hence, getting the overview of the topic is beneficial, particularly related to the participants' characteristics. By obtaining the information on the participants' learning strategies, there will be a previous assumption on the general strategy deployment among the participants that can be applied later as a comparison to the other data.

**Table 3. 12** Autonomous learning strategies

Category	Frequency (person)	Percentage (%)
High	16	24.62
Medium	49	75.38
Low	-	-
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 1*

Most of the participants are identified to be medium in applying learning strategies for their English learning. It is represented by the percentage of 75.62%, which shows a significant difference from the other categories. The participants who get in the high level have the percentage 26.62%. On the other hand, none of the participants are indicated in the low category. This fact exposes that the participants involved in this research applied some learning strategies when they learn English autonomously. Furthermore, as a group, the participants are in the

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average scale of applying learning strategies in their English learning since none of them listed in the low category.

### 3. Cognitive Strategies

Cognitive strategies are part of the strategies investigated in this research. The cognitive strategies mainly include direct ways applied in dealing with a task or material since it is the basic mental process of an individual. Below is the category of cognitive strategies implemented by the participants involved in this research.

**Table 3. 13** Cognitive strategies

Category	Frequency (person)	Percentage (%)
High	14	21.54
Medium	50	76.92
Low	1	1.54
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 1*

Based on the data, the participants are mostly included in the medium category, represented by 76,92%. The highest category is 21.54% and low category shows the smallest percentage which is 1.54%. The data defines that the participants in this research mostly implement the cognitive learning strategies in the average rate since the percentage is more than two times of the high category percentage, while the low percentage has a very small number. Looking on the data, it can be inferred that cognitive strategies are widely used by the participants in learning English autonomously to deal with a task or material.

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#### 4. Metacognitive Strategies

Metacognitive strategies are the strategies that cover a huge range of learning activities which started from pre-learning, the learning activity, and post-learning. These strategies are also part of the investigated strategies in this research as one of the autonomous learning strategies. The description of participants' metacognitive strategies is presented below.

**Table 3. 14** Metacognitive strategies

Category	Frequency (person)	Percentage (%)
High	20	30.77
Medium	45	69.23
Low	-	-
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix 1*

Similar to the cognitive strategies, the metacognitive strategies of the participants are also mostly listed in the medium category. The medium category of the metacognitive strategy is slightly lower than the medium category in the cognitive strategies, which is 69.23%. Yet, none of the participants identified in the low category, while the participants in the high category is 30,77%. Therefore, it can be concluded that all of the participants apply the metacognitive strategies in their English learning even though it is not during the formal classroom learning.

#### 5. Social/Affective Strategies

Social/Affective strategies are the combination of both social strategies and affective strategies. The social strategies relate the students to the outside interaction, such friends and other communities, and the affective strategies deal

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with the inside aspect of the students. The portrait of the participants' social/affective strategies is described below.

**Table 3. 15** Social/affective strategies

Category	Frequency (person)	Percentage (%)
High	7	10.77
Medium	54	83.08
Low	4	6.15
<b>Total</b>	<b>65</b>	<b>100</b>

*Source: appendix I*

Following the previous two strategies, cognitive and metacognitive, the social/affective strategies are also dominated by the participants in the medium category. The percentage of the medium category is significantly high, which is 83,08%. It leaves the high category with 10.77% and the low category with 6.15%. Yet, compared to the three categories, the highest category of social/affective strategies implementation is the lowest among all of the categories investigated in this research.

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