

CHAPTER II

LITERATURE REVIEW

This part discusses previous research findings based on relevant studies with the topic that is relevant to this research. Gathering information from previous studies would provide a conceptual foundation for the current study. This section presents: A) The Underlying Theories, B) The Previous Studies, C) The Conceptual framework, and D) The Operationalization of Concept.

A. The Underlying Theories

1. Computer-based testing

The role of information and communication technology has inspired many innovations in assessment or evaluation area, such as the invention of CBT (computer-based testing). As Chapelle (2001) argues that computer-based testing is the use of computers for testing such as, preparing some questions, administering test, and giving scores. Furthermore, Chalmers and Mc. Ausland (2002) claims computer-based test as a method that can be carried out without supervisor; and students can check their own progress through self-assessment. It can be utilized for testing lower-order skills (such as knowledge, understanding and application); and higher-order skills to improve the students' analysis, synthesis and evaluation skills with a more complex application software. In addition, Hambleton (2004) argues that computer-based test has more eminence than paper-based test, namely: they offer more flexibility in test scheduling; scores can be presented shortly after

the test administration; and the ability to evaluate higher level thinking skills so they should substitute paper-based test (PBT). The validity of testing using computers can be expected to enhance by means of new item types driven by the availability of computers for testing.

2. The use of computer-based testing

According to Luecht and Sireci (2011), computer-based testing (CBT) can be implemented for broad different assessment types in education, military, and other professional fields such as achievement testing, college and graduate admission testing; professional certification and licensure testing; psychological testing; intelligence testing; language testing; employment testing; adult education; and military use. Moreover, CBT can also be administered on networked PC workstations, personal computers (PCs), laptops, netbooks, smart phones and tablet computers. In line with Luecht and Sireci, Suvorov and Hegelheimer (2011) explain CBT can utilize various software applications that can be downloaded on personal computers or a mobile device.

CBT has been a trend of assessment mode in some countries by reason of having more **eminences** compared to paper-based test (PBT). "The changes brought about by the wide **availability and low cost of new technological** delivery system alternatives are moving testing from its delivery through paper and-pencil and printed booklets to delivery through online computer work-stations" (Bunderson, Inouye, and Olsen., 1989, cited in Way, W. D., & Robin, F. 2016, p. 185–207). Whilst, PBT is considered to be a conventional assessment mode that has some

paucities, such as inaccessibility, lower quality data, limited flexibility, lengthy process, high cost, non-eco-friendly, PBT needs a lot of paper (Gruber, 2013).

Several studies have denoted some advantages of CBT. As Olumorin *et al* (2013) explain that computer-based testing (CBT) is the use of the manageable systems on computers. CBT is an effective way to speed up the scoring, marking, and monitoring progress.

Furthermore, CBT has some forms related to its application. As Burnett (2019) explains that computer-based tests can come in many formats such as: 1) Online - requiring an internet connection for each question to be uploaded or downloaded, one question at a time; 2) Offline - downloaded to a local location before the exam and then uploaded once complete; 3) Formative - used for practice or learning exams with response feedback; 4) Summative - used as a final assessment for a course of learning where item security is a key.

Overall, there seems to be some evidence to indicate that CBT has more benefits than PBT. In Bandung West Java, Edubox, a kind of CBT, has been chosen as an assessment mode in public schools.

So far, however, there has been little discussion about the relationship between students' perception of CBT towards their learning motivation. The researcher believes that a study about the relationship between the application of Edubox as a kind of CBT and its impact towards learning motivation is very crucial to scrutinize.

3. What is Edubox?

Edubox is a kind of software that has been applied for CBT. As explained by Burnett (2019) one of CBT forms based on its application is an offline form-downloaded to a local location before the exam and then uploaded once complete.

In addition, during Edubox press release (April 4th 2019), it was explained that Edubox is a web-based application consisting of exam applications, assignments, and teaching materials in a local network (intranet) without depending on internet access made by PT Pinisi Teknologi Edukasi (Pinisi Edubox).

Furthermore, it was also elaborated that Edubox program is an innovation to provide solutions for schools that have limited internet capabilities. It can also be used to help with learning administration services; examinations in the network; and accessing teaching materials or content. The process is supported by intranet-based infrastructure (“Ini Penerapan Manfaat UAS Online di Bandung”, 2016).

Currently, Edubox serves as the program that supports Bandung as a smart city. 25 public schools in Bandung have implemented Edubox testing application instead of conventional paper-based test. Ridwan Kamil, the Mayor of Bandung then, launched the use of Edubox at one of the schools in Bandung on November 1st 2016. He mentioned that this application can be applied to all public schools starting from 2017. It can assist to lessen teachers' administration tasks, particularly in taking test administration after formative or summative tests. It can help cut school budget as well. (www.merdeka.com, Bandung 2016).

In this study, the researcher focused on the use of Edubox as an application for examinations in the network, especially for formative and summative test at the school where the researcher conducted the study.

4. Perception

Perception in this study is defined as a person's point of view towards the use of Edubox as a testing tool at school. Gibson (1966) argues that perception is a direct process: someone's perception based on what he sees directly from the environment. However, Gregory (1970) claims that perception is a constructive undertaking. Someone's perception based on his or her prior knowledge. Furthermore, McLeod (2018) explains that human's sensory system involving sense organs forms someone's perception through a process of sensory system receiving sensory inputs and transmits sensory information to the brain.

In line with McLeod, William (2003-2016) claims that perception is how a person acknowledges and interprets the information that she or he has gotten by means of senses and the way a person reacts to a particular condition. Mohanta (2015, p. 2) defines that "Perception is a process by which individuals organize and interpret their sensory impressions in order to give meaning to their environment"

Besides, McDonald (2012, p. 15), in her study concludes that "Perception is an individual's view making it a powerful driving force for action. Processing sensory information and relating to past experiences enables one to create lens in which to view the world through a filter of sociocultural influences".

Based on the theories of perception aforementioned, it can be concluded that perception is a result of someone's interpretation towards something involving what he or she perceives through the help of her or his five senses.

5. Motivation

Motivation is an essential part of human life. People would hold more fervor to attain what they aspire if they have motivation. According to Pintrich & Schunk (1996 p 5), motivation is “the process whereby goal-directed activity is investigated and sustained”.

Ryan and Deci (2000) proposes an intrinsic and extrinsic theory for motivation. The source of motivation can be divided into two; internal (caused by factors within the individual) and external (caused by factors outside the individual). Furthermore, they explain:

In humans, intrinsic motivation is not the only form of motivation, or even of volitional activity, but it is a pervasive and important one. From birth onward, humans, in their healthiest states, are active, inquisitive, curious, and playful creatures, displaying a ubiquitous readiness to learn and explore, and they do not require extraneous incentives to do so. (p 54-67)

Saqlain and Islam (2014. p. 71-87) state that “Motivation is often defined as the psychological quality that leads people to achieve a goal. For language learners, mastery of a language may be a goal”

Reeve (2015) explains that motivation is an encouragement that cause someone to do a change either in the self or the environment. Besides, Cherry (2017), in the incentive theory, explains someone does something because of boost coming out from the inside, however, at another time, he/she is motivated to do something because of stimulation from the outside, such as, a reward or gift.

Furthermore, Sounders (2020) defines motivation as a condition where changes of someone’s needs, cognition and emotion are represented through

behavior schemes, levels of involvement, neural and psychophysiological activity aimed at actualizing crucial life output.

Considering all of those theories above, it seems that motivation is important in terms of its role to give meaning to a person's life. It can lead someone to get what he or she wishes. Particularly, in educational field, motivation can be a trigger for students to achieve the best performance in learning.

6. Learning motivation

Learning motivation as a part of learning process needs to be scrutinized by reason of it could trigger the students to achieve their learning performance successfully. Sardiman (2001:85) argues that a student's learning motivation will determine the level of educational achievement. The learning motivation is influenced by the environment where the students exist, such as home or school. Both contexts affect each other. In line with Sardiman, Pintrich (2003) argues motivation is very crucial for all school's activities and has impact on learning and performance.

Furthermore, Ryan and Deci (2000) explain that in educational field, there are many wills and positive attitudes extremely needed to maintain the motivation. According to them there are two types of learning motivation, namely intrinsic and extrinsic motivation. Intrinsic motivation is a boost coming up inside to reach what a person desires such as interest and curiosity, while extrinsic motivation is a motivation led by some outward factors, for instance money, reward or prestige.

Besides, Keller (2008) claims that ARCS model can be applied to assign and overcome learning motivation. ARCS mean Attribute, Relevance, Confidence, dan Satisfaction. Firstly, students' attention is very important to gain and keep their involvement in learning. Secondly, students' experience and their needs should be relevant. Thirdly, confidence should be associated with students' emotion and hope. Lastly, students should feel satisfied with the learning process and the knowledge that they elicited.

In addition, Wenemark, Persson, Brage, Svensson & Kristenson (2011) claims that the increase of participants' motivation will raise their learning motivation as well. While, Gopalan et al. (2017) mentions that there is a tight connection between motivation and learning process. Motivation can assign students' success in learning. Dornyei and Ushioda (2011) explain that certain negative influences affected students' motivation in learning significantly. They might have a particular learning experience, such as poor test results.

Wlodkowski (1978) argues that teaching media or interesting materials can directly motivate the students. Those are prominent to sustain and evoke students' attention and curiosity in learning process. Khamis, Dukmak and Elhoweris argued that factors affecting students' learning motivation were student's confidence in learning; teacher-student interaction; and curriculum content.

In view of all the research findings mentioned above, it can be inferred that learning motivation has a significant role to assign the students' performance in concern with learning objective.

7. The Relationship between CBT and English learning motivation

In a quantitative research to investigate factors affecting CBT, Mahmoodi and and Esfandiari (2016) found that CBT could motivate the students to learn because of the higher accuracy of it. Moreover, immediate feedback in CBT could influence the students' learning motivation (Van Der Kleij, Eggen, Timmers, and Veldkamp (2012). The result of their study indicated that conceiving immediate feedback is more useful for student's learning success.

In addition, Sahin., Sacer., Erisen (2016) conducted the study about students' perception and motivation in learning English. The result of their study represents that positive perception has greatly impacted learning motivation. While, Brophy (1998) states that self-potency, individual's objectives, role grade, and the learning atmosphere can influence individual's motivation in learning.

Furthermore, Nikou and Economides (2016) applied three modes of assessment based on paper and pencil, computer based testing, and mobile devices-based testing respectively with quantitative method. They found that the positive perceptions towards computer-based testing and mobile devices-based testing increase the students' learning motivation.

These studies clearly indicate that there is a relationship between the use of CBT with students' learning motivation.

8. Students' perception of CBT

CBT nowadays is a worldwide method including in Indonesia.

Since 2016, The Ministry of Education and Culture has instructed the application of CBT in national examination (UNBK). Considering the fact that the students are the main component of it, therefore, their perception becomes important to be scrutinized.

There are some studies that focus on students' perception towards CBT. Karadeniz (2009) in his quantitative study reveals that the practicality of doing test with CBT causes the students to have positive perception about it. In some other countries, the studies about perception on CBT applied various research methods, namely qualitative research in Nigeria Okocha et al. (2017) a case study at the University of KwaZulu-Natal in South Africa; Faniran *et al.* (2016); and a quantitative research in some Nigerian Universities conducted by Oladimeji, et al (2017). Those studies indicate that most students prefer CBT and have positive perception towards it.

Nugroho *et al.* (2018) in their quantitative research found that the students who used CBT preferred PBT to CBT. In the contrary, those who used PBT preferred CBT to PBT. They found that it happens because there is social anxiety influence.

B. Previous Studies

1. Previous studies about CBT

Some studies concerning computer-based testing argue that this kind of method has found to be highly efficient and effective in gaining test-score result. Since, 1980s the use of computers as the means of testing has been widely utilized to achieve authentic, cost- saving, scrutinized, and controlled testing environment as opposed to traditional paper-and-pencil test. (Jeong, 2014; Linden, 2002; Parshall, Spray, Kalohn, & Davey, 2002; Wang, 2010; Ward, 2002). This research finding is supported by Folk & Smith (2002). They found that in the late 1970s or the early 1980s computer-based testing has begun to be an alternative to paper-based testing.

Concurrently, Gierl in Lingley (2017) states that CBT can give teachers and students some benefits such as students can write test faster and gain feedback on the test result immediately. Hence this will smoothen the teaching and learning process. Furthermore, Lingley (2017) reported the opinion of one of Canadian experts who mentioned that, “Computer-based testing can be an integral part of learning that enables students to seek out assistance and support whenever they need it—not just when they’re about to be tested on their knowledge for a grade” (para 1). In addition, Gierl in Lingley noted that, “A computer-based test with specific, instantaneous feedback would enable students to get support for their learning according to their self-determined needs and schedule” (para 3).

However, other research conducted by Kuzmina (2010) found that CBT had some disadvantages such as immediate feedback caused high anxiety among the

test takers; computer testing observed subjects' behavior very limitedly; CBT needed enough facilities like computer terminals for each testee. Hence, it can only serve limited number of testees. In addition, Sareen (2018) explained that some disadvantages of CBT were possible technical errors, power outage or a system failure; and an unequal distribution of internet network because the internet network in some areas can be bad.

2. Previous studies about motivation to learn English

Motivation is one of the keys to get success in learning. As Al-Hazemi (2000) said that motivated learner can master the language they learn successfully. Besides, Al-Otaibi (2004) stated that language learners who have high motivation would enjoy their learning and they consume their time for learning. In line with Al-Hazemi and Al-Otaibi, Masgoret and Gardner (2003) explained that a learner who has good motivation in learning he or she would increase his or her efforts. Besides, he or she would have clear aims and good commitment in learning second language.

Some other studies reveal that students can be motivated to learn English as foreign language because of the power, prospect, collective motivation, and their own judgement (Shaaban and Ghaith, 2008). Whilst, Moivaziri (2009) states that some researchers argue that both types of motivation (extrinsic and intrinsic) influence the learners in learning language concurrently. It also happened in learning English. Test results can cause the students to have good motivation in learning. As Trong Tuan (2011) found that low English scores could decrease the students' motivation in learning English.

Besides, a case study in Geiju China conducted by Long, Ming and Chen (2013) denoted that most students' learning motivation is to gain good result in the examination. According to their analysis the students' motivation has a very crucial role in students' learning English in junior middle school. So, students' English learning motivation is prominent to stimulate.

Furthermore, learning environment where students study can motivate them to learn language as well (Bambirra, 2017. p. 215-236; MacIntyre, 1999; Good and Brophy, 1994). Alizadeh (2016) examines that motivation is a great factor to attain high performance in learning English as a foreign or second language. According to Brown (2000) and Gardner (1985) as cited in Alizadeh, (2016) there are two basic types of motivation: integrative and instrumental. Gardner and Lambert (1959) in Alizadeh (2016) explain that integrative motivation refers to internal arguments to learn a language. Whereas the instrumental motivation represents external arguments to learn like having high score in exams or getting success in study.

3. Previous studies about factors affecting students' perception towards CBT and English learning motivation

a. Factors affecting students' perception towards CBT

Based on findings in previous studies such as Jimoh, et al. (2012) state that conducive environment and the fast feedback of the test result can affect students' positive perception towards CBT, even though the testing mode made the students feel more threatened compared to taking PBT method. Besides, Dammas (2016) argues that one of the factors that can influence students' perception towards CBT is the prior experience of computer system. Those who are used to computer will

have fewer difficulties to do CBT, though they may encounter some technical problems in the test administration, the negative impact will be insignificant.

However, Jamiludin *et al.* (2018) claim that the students in senior high school of Kendari preferred PBT than CBT in taking national examination. Their study indicates some negative side of CBT, for example, the unstable internet connection often interrupts the students while they were doing the test on the computer. Furthermore, the researchers explained that the students thought that CBT made them confused and it took longer than what they usually experienced with PBT. In line with Jamiludin *et al.*, Sumiati (2018) in her study found that the students had negative perception towards CBT while they were taking national exam using CBT. They prefer PBT to CBT. It was led by some factors, such as internet disruption, electrical obstacles, and limited internet access. The insufficient internet support caused the school to divide the national exam administration in two terms. Although the researcher did admit that CBT had some advantages, specifically it is more efficient; giving fast feedback; and is more secure.

b. Factors affecting English learning motivation in relationship with CBT

In general, there are a number of factors affecting motivation in learning English. In a survey conducted by Zazulak. S (2015) toward 6000 people in twelve countries, she concluded that there are five top motivating factors in learning English, namely;

- Learning English makes it easier to communicate while travelling abroad.
- English is the closest the world comes to having a global language.

- Learning English facilitates communication with people from different countries.
- Learning English improves career prospects.
- Learning English makes working life easier

Some studies found different factors influencing English learning motivation, such as reinforcing collaboration in learning. As Ekiz and Kulmetov (2016) stated that students were encouraged to learn English when their parents sustained and urged them. They were also boosted in learning English when their confidence and collaborating with their friends were reinforced. Moreover, students' English learning motivation was really affected by external factors such as learning environment (Fandino, F. G. E., Munoz, L. D., & Velandia, A. J. S. 2019).

Furthermore, a descriptive study conducted by Genc and Aydin (2010). The results of their study indicated that some factors, such as gender, grade, compulsory and voluntary states, types of their high school, parents' educational background, the time period of the participant's language learning process, and the experience towards computer have no significant correlation with students' motivation in EFL learning. Nonetheless, significant correlation occurred between motivation level and the level of importance of learning English.

To perceive relationship between English learning motivation with CBT, some studies indicate that motivational factors, such as low efficacy, or boredom may predispose the students to counter the test (Wise and DeMars, 2003). While the test participant motivation model shows that the testees' effort will affect an examination directly. In addition, Pintrich (1989) based on self-determination theory proposed by Wenemark, Persson, Brage, Svensson, & Kristenson (2011)

claims that the increase of test participants' motivation will raise their learning motivation as well.

c. Previous studies about the impact of students' perception of CBT towards English learning motivation

There are several empirical studies conclude that CBT can provide response whether the students' answer is correct, incorrect, or loose instantaneously as well (Alderson, 2000; Cohen, 2001; Yunxiang et al., 2010). Thus, the prompt feedback from CBT enabled them to revise it for the next test. Those can influence students' perception towards CBT.

In addition, a case study conducted in Turkey denotes that at least 70% of students felt CBT helped them figure out their learning, and the layout of items on the screen was preferable to them. Most students considered that they gained some improvements on their learning because of CBT (Ozden et al., 2004. p 77-92).

Whilst, some other studies reveal that motivation can boost the students' aptitude highly to get success in their examinations (Chua & Don, 2013; Huet, Escribe, Dupeyrat, & Sakdavong, 2011). Furthermore, the result of analysis of pre- and post- motivation tests denote the use of computers and mobile devices as main tool for CBT can enhance the students' learning motivation (Stavros et al., 2015).

So far, however, there has been little discussion specifically about the impact of students' perception towards English learning motivation. Therefore, all of the studies reviewed here lead the researcher to conduct the study to investigate whether students' perception towards CBT can affect their English learning motivation.

C. Conceptual Framework

The researcher represented the conceptual framework adapted from Duncan's Motivation Theory. Duncan in Indrawijaya, (1989) illustrates the process of motivation as follows:

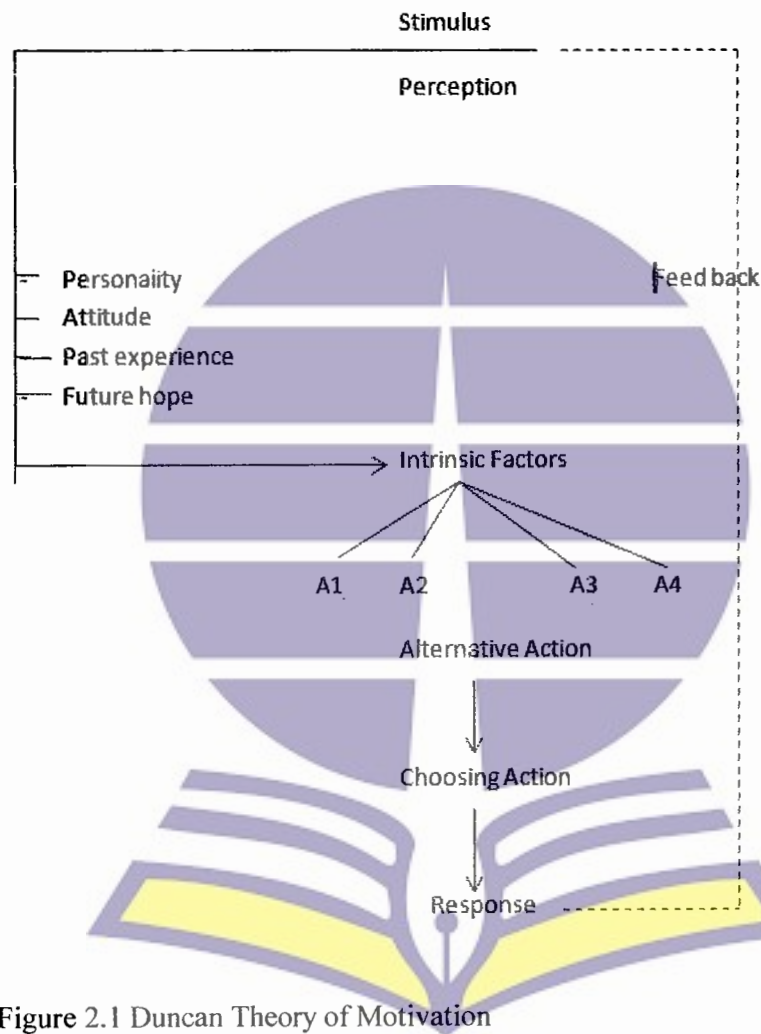


Figure 2.1 Duncan Theory of Motivation

The adapted version concerning students' perception towards CBT-Edubox- and its impact to their English learning motivation can be illustrated as follows:

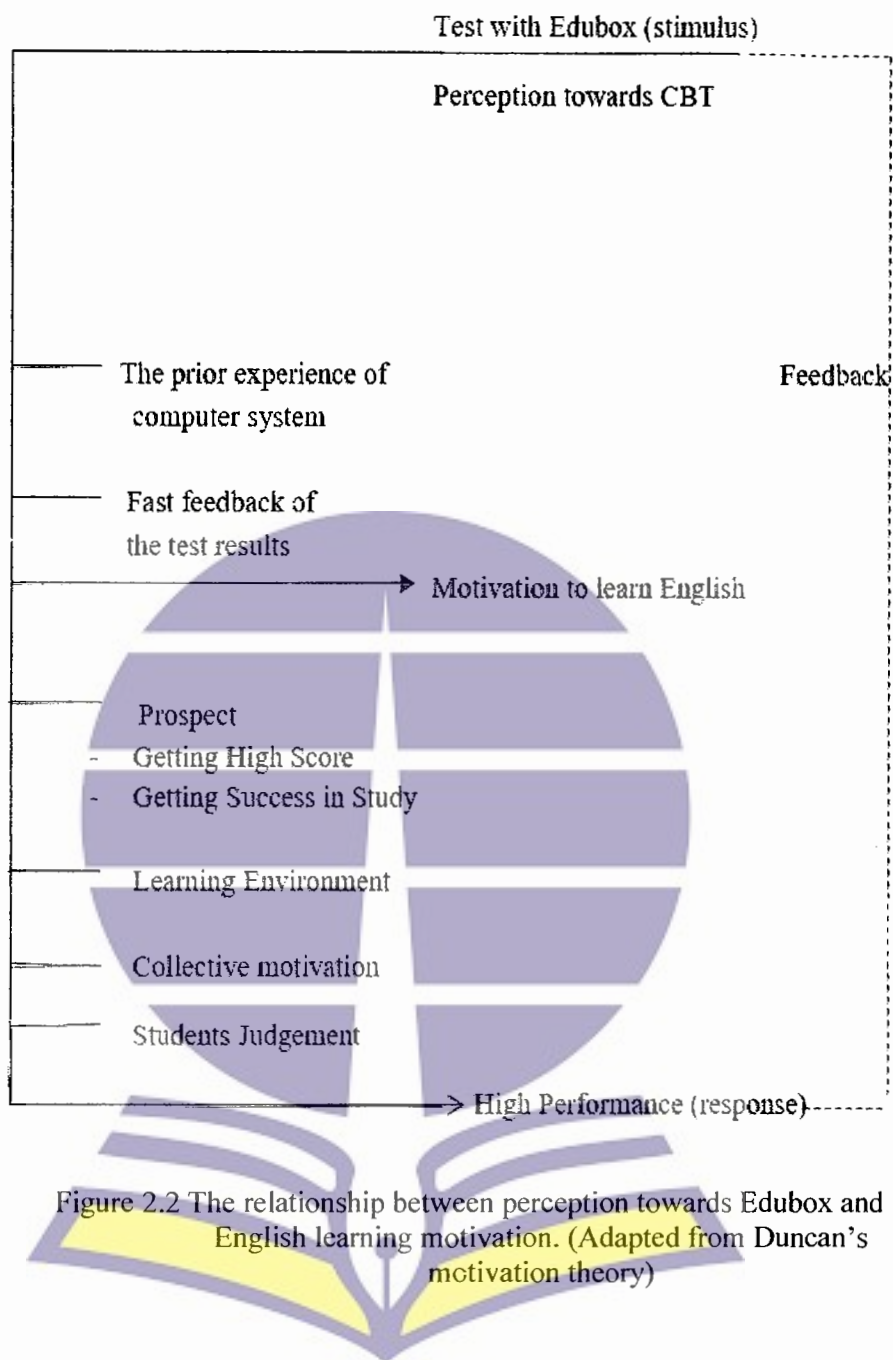


Figure 2.2 describes that the perception process towards Edubox is determined by prior experience in using computer and fast feedback of the test results. Then, this perception may affect the students' willingness in studying English. It may then impact their learning motivation to learn English. Some factors

that may cause positive improvement toward students' learning drive are high scores, success in their study, learning environment, collective motivation, and students' judgment.

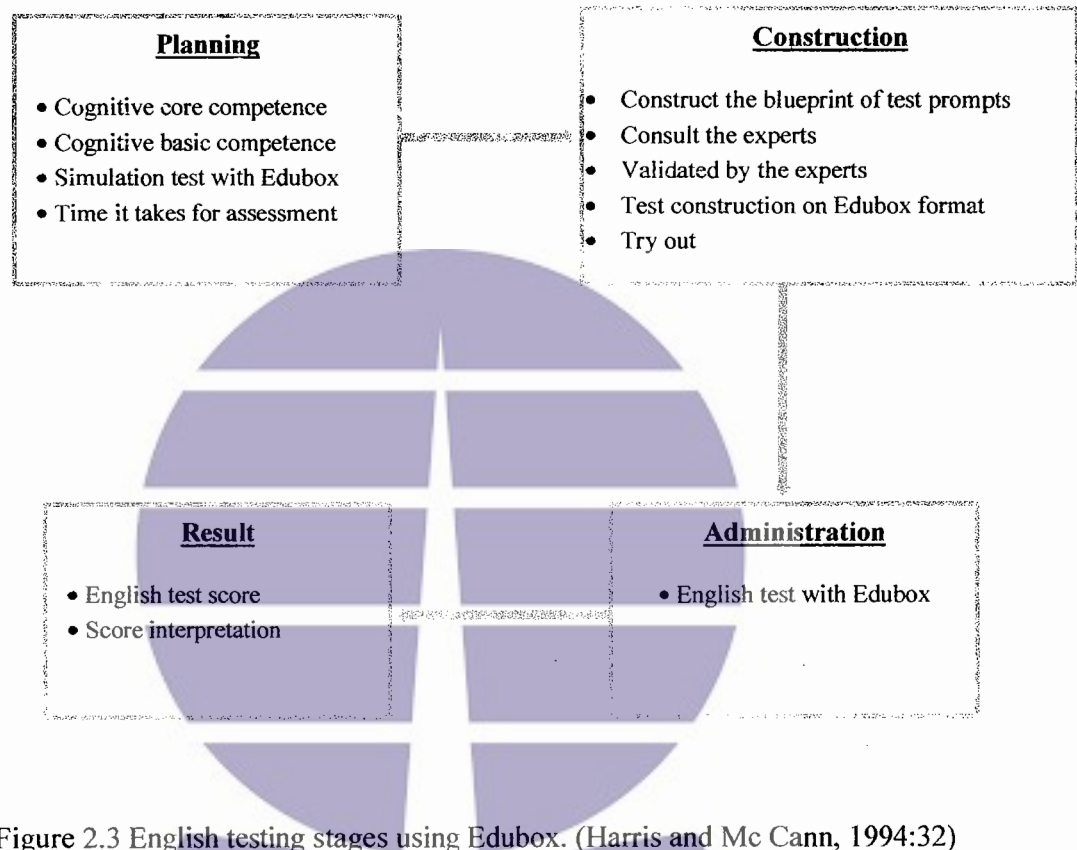


Figure 2.3 English testing stages using Edubox. (Harris and Mc Cann, 1994:32)

The stages to construct an English test using Edubox above were adopted from Harris and Mc Cann's model. In the first stage, the test was constructed based on cognitive core competence and cognitive basic competence, then it was tested by conducting a simulation to introduce the way to take the test using Edubox to the students. Each test set took 80 minutes to complete. The second stage required a construction of a blueprint for the test items which was then consulted to the experts for validation. The third stage was creating test prompts on Edubox test

format. The test was then carried out during mid semester test and final semester testing periods. Finally, the fourth stage was interpreting English test score to judge students' cognitive competence.

D. The Operationalization of Concept

Based on the conceptual framework described above, we can view the relationship among variables as follows:

The independent variable in this study is Edubox, a kind of computer-based testing (CBT) using computer or smartphone as a media. It is a type of CBT through the local network in which the test takers can do the test offline.

Students' perception and English learning motivation are dependent variables that can influence each other. Students' perception is student's point of view towards Edubox as the assessment mode for their formative or summative test. English learning motivation is the boost for learning English in which the students have a high will to get good achievement in English.

The researcher applied triangulation methods to collect data, namely questionnaires, focused- group discussion, observation, and English test. The questionnaires, focused-group discussion, and observation are the instruments to collect qualitative data. While the English test was applied to collect quantitative data to investigate students' English learning motivation, which was represented by the result of the students' English formative test. The quantitative data were aimed at supporting the qualitative one as the researcher's effort to gain more comprehensive information.