

CHAPTER II

LITERATURE REVIEW

The chapter presents some theories related to the case and review. It describes about the theory and explanation on Students' perception on CBT for National Examination. There are some explanations about Perception, Computer Based Test, National Examination, and Computer Based Test for National Examination.

A. Perception

Based on Robert E. Slavin, perception is a person's interpretation of stimuli. Perception of stimuli is not a straightforward as reception of stimuli; rather, it is influenced by our mental state, past experiences, knowledge, motivations and many other factors.¹¹ Perception based on Meriam-Webster dictionary means "the way you think about to understand someone or something."¹² Perception is also defined as our sensory experience of the world around us and involves both the recognition of environmental stimuli and action in response to these stimuli.

Based on Walgito, perception is process organizing, and interpreting stimuli accepted by organism or individual that can be something important, and perception is an integrated activity for the human.¹³ As an integrated activity, all parts of the body have active role in this perception. Perception is

¹¹ Robert E. Slavin, *Educational Psychology: Theory and Practice 8th Edition*, (United States of America: Pearson Education, 2006), 888

¹² <http://www.merriam-webster.com/dictionary/perception>

¹³ B. Walgito, *Psikologi Sosial (Sebuah Pengantar)*, (Jogjakarta: ANDI Offset, 2003), 3

a kind of activity that started by sensation. Sensation is process-accepting stimuli by the five senses. This process happens every time when someone accepts stimuli by these five senses. Therefore, we can say that the five senses is the linker between human and their environment. The result of perception based on their knowledge about something, so that individuals will have different perception for same thing.

Through the perceptual process, we gain information about properties and elements of the environment that are critical to our survival. Perception not only creates our experiences of the world around us, it allows us to act within our environment. The perceptual process is sequences of steps that begin with the environment and leads to our perception of a stimulus and an action in response to the stimulus. This process is continual, but we do not spend a great deal of time thinking about the actual process that occurs when we perceive the stimuli that surround us at any given moment.¹⁴

Perception is affected by some factors. Sugiyo said that perception is affected by two factors; they are situational factor and individual factor. Situational factor related to verbal description, proximity and kinetic, and paralinguistic. Verbal description is related to the sequence of adjective that determine perception. Individual factor is divided into experiences, motivation, personality, intelligence, and objectivity. Individual factor related to the person who doing perception.¹⁵

¹⁴ ____, "What is Perception", <http://psychology.about.com/> accessed on March 20th 2016

¹⁵Sugiyo, *Komunikasi Antar Pribadi*, (Semarang: UNNES Press, 2005), 57

Based on this statement, we can say that perception is affected by two factors, internal factors and external factors. Internal factor is individual factor that come from the person who will give perception. It includes personal sensory, experiences, knowledge, and feeling of the person about the thing that will be got perception. External factor is the condition of the thing that will be got perception by the person who does the perception. It is about the appearance of the thing, and also the time, environment, and social condition.

B. National Examination

National examination is continuation of evaluation process that is done by the government to measure the level of success for the learning process.¹⁶ This changing is affected by the development of technology and the need of Indonesia's education to be better. Recently, the Ministry of education and Culture had launched the new evaluation system, which is Computer Based National Examination. It is a method of administering tests in which the responses are electronically recorded, assessed, or both.¹⁷

1. The development of National Examination

Indonesia has done so many kinds of evaluation. In Indonesia, National Examination started in 2003. Before National Examination, there

¹⁶ M. Fuad Nashir, "Ujian Nasional 2007: Antara Kuasa Negara dan Peningkatan Mutu Pendidikan", Skripsi tidak diterbitkan, (Surabaya:-, 2007), 37.

¹⁷ Alabi, "The Use of Computer Based, 23

has been some changed in evaluation process in Indonesia. Here is the table of the development of the evaluation process in Indonesia.¹⁸

Table 2.1
The development of evaluation process in Indonesia

No.	Education Year	Notes
1.	1971 and the previous	Nation Examination
2.	1971 – 1987	School Examination
3.	1985 / 1986	EBTANAS together with NEM, objective questions for 6 lessons
4.	1986 / 1988	EBTANAS, objective questions and essay
5.	Starting from 1988/1989	EBTANAS, passing by considering the score of report card Trimester I and II the score is P and Q
6.	1996/1997	EBTANAS, calculating graduation using scores of report card semester 1 and 2. The score is P and Q. Final Score= $P+Q+(nR)/2+n$
7.	1997/1998	EBTANAS, using Objective question again
8.	1999/2000	EBTANAS, score of report card trimester 1 & 2, and P&Q scores were deleted. Using academic and non-academic scores
9.	2001/2002	EBTANAS for Elementary School is deleted. For Junior and Senior High School, using standardized graduation. The scores are not allowed under 3,00. The average score of lesson should more than 6,00.
10.	2002/2003 – 2007	National Examination Only 3 lessons In year 2003, the graduation standard is more than 4,00 In 2004, the standard is more than 4,25 In 2005, the standard is more than 4,25 but they average score should be more than 4,50 The determination of graduation pay close attention to academic and non-academic scores

¹⁸ Nashir, "Ujian Nasional 2007, 38-39.

Since 2008 until now, National Examination is used for the pre-requirement of the students' graduation. Starting in 2013 NE is not used as standardize of students' graduation, it is used for pre-requirement to continue the next level of education. In 2014, two international schools conducted National Examination using Computer – Based Test system. The two schools were Singapore Junior High School and Kuala Lumpur Junior High School. Then, in the following year there were for about 555 schools in Indonesia, they are 42 Junior High Schools, 135 Senior High Schools and 378 Vocational Schools.¹⁹

2. Mechanism of National Examination 2015/2016

In conducting National Examination, there are some rules that had been compiled by BSNP. BSNP is *Badan Standar Nasional Pendidikan*, it is a committee in Indonesia that have a duty to conduct National Examination.²⁰ The National Examination 2016 that has purpose to measure standard competence graduation's achievement for some lesson nationally standardize is based on the law as the judicative underlayment. They are:

1. Regulation Number 20 Year 2003 about National Education System;
2. Government Regulation Number 19 Year 2005 about National Education Standard

¹⁹ <http://unbk.kemdikbud.go.id/>, accessed on April 15th 2016

²⁰ Team BSNP, *Prosedur Operasional Standar Penyelenggaraan Ujian Nasional*, (Jakarta: -, 2015), 6

3. Government Regulation Number 17 Year 2010 about Management and Organization of Education.
4. Education and Civilization Minister Regulation Number 54 Year 2013 about Competence Standard for The Elementary and High School Students
5. Education and Civilization Minister Regulation Number 024/ H / EP/ 2015

The results of the National examination are used for the consideration of:

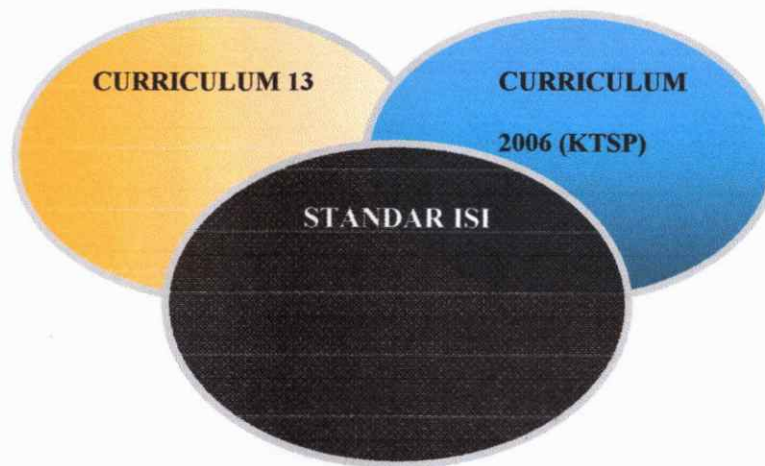
1. Mapping standard quality for program or level of education in Indonesia
2. Fundamental selection to continue the next level of education
3. Constructing and giving a help for the education world to improve the education standard of quality.²¹

For the draft of test for National Examination in 2015/2016, the government will take from two kinds of curriculum. They are curriculum 2006 or known as KTSP and curriculum 2013 or K13.²² Here is the mapping of the material for National Examination 2016.

²¹<http://www.kemdikbud.go.id/>, accessed on April 20th 2016

²² Team BSNP, *Prosedur*, 21

Diagram 2.1
Spreading Questions of National Examination



The lesson for each level is different based on the necessities. For the Junior High School, there are four materials for National Examination this year; the materials are Mathematics, Science, English, and Indonesian. Here is the distribution of the material for National Examination in Junior High School.²³

Table 2.2
Distribution Questions of National Examination in Junior High School

No.	Lessons	Total questions	Time limit
1.	Indonesian	50	120 minutes
2.	Mathematic	40	120 minutes
3.	English	50	120 minutes
4.	Science	40	120 minutes

²³ Ibid, 23

The implementation of National Examination 2016 is the same as the previous National examination. For Senior High School it will be held on the first of April 2016, while the Junior High School is on May. The Schedule of National Examination will be shown at table below:

Table 2.3
Schedule of National Examination for Junior High School

No.	Dates		Times	Lesson
	Prior NE	Addition NE		
1.	Monday, May 9 th 2016	Monday, May 16 th 2016	07.30 – 09.30	Indonesian
2.	Tuesday, May 10 th 2016	Tuesday, May 17 th 2016	07.30 – 09.30	Mathematic
3.	Wednesday, May 11 th 2016	Wednesday, May 18 th 2016	07.30 – 09.30	English
4.	Thursday, May 12 th 2016	Thursday, May 19 th 2016	07.30 – 09.30	Science

There are some regulation about National Examination, they are: National Examination is done once, that consists of Prior Examination and Additional Examination. The Additional examination is done for the students who got sick or other obstacles that should be proven by explanation letter, and it is done simultaneously.²⁴

3. Computer Based National Examination

Computer Based Test is a specific form of ICT (Information and Communication Technology) for assessment. It is usually called CBT or e-exam. It is a method of administering tests in which the responses are

²⁴Nashir, *Ujian Nasional*, 45

electronically recorded, assessed, or both. This method of testing is important because it can measure different skills or sets of knowledge in order to provide new and better information about individuals' abilities. Computer-based testing or computer-based assessment is seen as a catalyst for change, bringing about a transformation in learning, pedagogy and curricula in educational institutions.²⁵

Colleges and universities receive CBT results more quickly than those from paper-based test, and they can make their admissions decisions more quickly. Individuals can take a CBT even with minimal or no previous computer experience; since, instructions provided in a basic computer tutorial before the test will provide the experience needed to take the test using a mouse. One may spend much time on the tutorial to ensure comfort ability with the computer and with the test before the official timed examination.²⁶

Due to the inclusion of ICTs in education, it is required to re-consider and rethink, modify or change the traditional examination methods. Electronic assessment tools had reduced the burden of teachers and facilitate to conduct examinations purposefully. Computer-based examinations can be used to promote learning that is more effective by testing a range of skills, knowledge and understanding. Accessing and managing of information and

²⁵ Chua, and Don, "Effects of computer-based educational. 1895

²⁶Dr. (Mrs.) A.T. Alabi, "The Use of Computer Based Testing Method for the Conduct of Examinations at the University of Ilorin", *International Journal of Learning & Development*, Vol. 2, No. 3, (2012).

managing and developing communication skills are possible to assess online which cannot be assessed in regular essay based examinations.²⁷

Many Education Experts argue that the use of CBNE will encourage a change of students' paradigm about National Examination. Also, Anis Baswedan as Minister of Education said that by using computer, students' paradigm about National Education will be changed. They will not think that Examination is the only one key to get success. They will change their mind that study hard is not only because of National Examination, but they study hard because they need to study for their knowledge, they need something for their future.²⁸ Based on that statement the writer tries to get the data about what students are thinking about CBNE.

As CBNE began to be used for summative assessment, establishing whether computer based testing, performance was comparable to that of paper-based assessment became important. Researchers have performed large scale reviews of studies examining differences in performance of CBNE and paper-based version of tests and have generally found that when CBNE is similar in format to pencil and paper tests, it has little if any effect on test performance. From students' perspective of the CBNE, there have been a number of mixed reactions.

²⁷ Dr Mubashrah Jamil, Dr R. H. Tariq, Dr P. A. Shami, "Computer-Based Vs Paper-Based Examinations: Perceptions Of University Teachers", *TOJET: The Turkish Online Journal of Educational Technology*, volume 11 Issue 4, (2012), 371.

²⁸Hasto Suprayogo, "Ujian Nasional Berbasis Komputer, Mayoritas Netizen Pelajar Nyatakan Siap", <http://eveline.co.id/berita-utama/ujian-nasional-berbasis-komputer-mayoritas-netizen-pelajar-nyatakan-siap/>, accessed on April 2nd 2016

Previous research showed that more people anticipated problems with the computer assisted assessment than actually they had. Their research also showed that despite fewer students being confident about CBT before completing the assessment more students stated a preference for CBT afterwards. Previous study conducted indicated a preference for CBT over Power point. Some studies reported the main disadvantage as being increased anxiety amongst those unfamiliar with use of computer and as such, students agreed that they are "technophobic".²⁹ A recent study has reported that the computer-based testing mode was more reliable in terms of internal and external validity, and no testing effect on test performance score was found in the computer-based testing mode. In addition, the testing mode reduced testing time and increased the motivation of the participants.

In Indonesia, CBT used as a media of assessment started in 2013. It is firstly used in two International schools in Indonesia. In 2014, this kind of assessment followed by some schools from Junior High Schools and Senior High Schools. So, this year is the second year for Indonesia in conducting CBNE. It is based on the Education and Civilization Minister Regulation Number 024/ H / EP/ 2015.³⁰

The preparation in conducting CBT has a long process. It started with the formatting its committee from central until local committee. The schools that want to conduct CBNE should register to the committee and they will be

²⁹Jimoh, *Students' Perception.*, 126

³⁰Keputusan Kepala Badan Penelitian dan Pengembangan Kementerian Pendidikan dan Kebudayaan, 1

verified for the appropriateness in conducting CBNE. The media or computer used for CB also has some classification as below:³¹

1. The school should provide a technician to managing the server
2. The computer for server with the specification:
 - a. Personal Computer / Tower / Desktop (Laptop is not appropriate)
 - b. 4 core processor with minimal clock rate 400MHz
 - c. RAM 8 GB and DDR 3
 - d. Hard-disk 250GB
 - e. Operating System (64 bit): Windows Server/ Windows 8/ Windows 7/ Linux U-buntu 14.04
 - f. Two units of LAN Card
 - g. UPS that stand by 15 minutes
 - h. The ratio of server is 1:40 (1 server is used for 40 clients)
 - i. 1 unit Spare Server

For the Clients, the computer should be:³²

1. Personal Computer or laptop with minimal monitor is 12 inches
2. Dual core processor
3. RAM 512MB
4. Operating System: Windows Xp/ Windows 7/ Windows 8/ LINUX
5. Web Browser: Mozilla/ Chrome/ Xambro
6. Hard disk with the free space 10 GB

³¹ Team BSNP, *Prosedur*, 44

³² *ibid*, 45

7. LAN Card
8. Ratio client is 1:3 (1 Client is used for 3 participants / students)
9. Headset / Earphone for listening (Senior High School)

With that rule, of course it will be an obstacle for some school to conduct this kind of assessment. So that, government agreed to conduct 2 kinds of examination for this year, they are CBNE and PBNE. The schedule for the CBNE is also different with PBNE. In CBNE, the times will be divided into 3 sections. Each section is done for 2 hours. The table below shows the schedule of CBNE.

Table 2.4
Schedule of CBT for National Examination for Junior High School

No.	Date	Time	Material	Section
1.	Monday, May 9 th 2016	07.30 – 09.30	Indonesian	Section 1
		10.30 – 12.30	Indonesian	Section 2
		14.00 – 16.00	Indonesian	Section 3
2.	Tuesday, May 10 th 2016	07.30 – 09.30	Mathematic	Section 1
		10.30 – 12.30	Mathematic	Section 2
		14.00 – 16.00	Mathematic	Section 3
3.	Wednesday, May 11 th 2016	07.30 – 09.30	English	Section 1
		10.30 – 12.30	English	Section 2
		14.00 – 16.00	English	Section 3
4.	Thursday, May 12 th 2016	07.30 – 09.30	Science	Section 1
		10.30 – 12.30	Science	Section 2
		14.00 – 16.00	Science	Section 3

Table 2.4
Schedule of Additional CBNE for Junior High School

No.	Date	Time	Material	Section
1.	Monday, May 9 th 2016	07.30 – 09.30	Indonesian	Section 1
		10.30 – 12.30	Mathematic	Section 2
2.	Tuesday, May 10 th 2016	07.30 – 09.30	English	Section 1
		10.30 – 12.30	Science	Section 2