CHAPTER I

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Today, we can find so many cases concerning mental retardation children, who are also called intellectual disordered or intellectually exceptional children. One of my far relatives suffers this "deficit". She can speak, but what she speaks is very limited and unclear. A more elaborate case of this phenomenon is described below:

> Nathan, a 14-year-old boy, was brought in by his mother because of trouble in his special classroom, including restlessness, fidgeting and being difficult to understand. He had been adopted from a Latin American country, and little was known of his early history, except that he had suffered from malnutrition. His mother provided a detailed history for the boy since the time of his adoption, noting that he sat at age 19 months, stood at age 40 months, walked at age 4 years 2 months, and said "bye, bye," his first word, at age 30 months. Nathan's teacher described him as " meaning well, but causing a lot of problems". She stated that he had very limited speech, daydreamed, became easily frustrated, and was difficult to take to stores because he liked to run up to people and touch them, often frightening them. The boy made a few sounds – "da", "ah", and "wa" – but none could be considered real words. However, he used gesture to indicate his understanding of words such as "telephone", "car", "cookie", and "spoon".
> *(Source: American Psychiatric Association, cited in Schwartz &*
>
> *Johnson, 1985)*

Being inspired of this phenomenon, I am interested in making a study on phonological alteration of Indonesian-speaking children with mental retardation.

According to Liebert and Poulos (1979), as a group, mentally retarded children are slow to walk, talk, and feed themselves. They also take unusually long periods of time before they are toilet-trained. In the more severe

cases, retardation extends to almost all areas of anatomical, motor and verbal development. Because intellectually normal children also may display one or more of these indicators, it usually is not assumed that a young child is retarded unless an extensive pattern of deficits is present.

Two general categorical schemes can be used to describe the many causes of mental retardation: biological/organic causes and psychosocial causes (Patton, 1983). It is recognized that retardation can occur from infectious disease, physical trauma, chromosomal anomalies, abnormalities of gestation, dietary deficiencies, metabolic disorders, blood-type incompatibility, poisoning, environmental influence, and many other factors including alcohol, drugs and smoking. Genetic factors play some roles in many forms of mental retardation. In fact, nearly 80 % of the causes of mental retardation have a genetic component. Genetic factors also partly responsible for the transmission of intelligence in general.

Concerning the education, there were few special classes for mentally retarded children, who were either made struggle along in the normal class or who were excluded from school entirely. Community pressure soon saw special classes established just about everywhere, but soon these were seen as discriminatory because they removed children from the normal classroom. Opinion polarized, with some advocating mainstreaming for just about every child, and others defending the need for special classes (Macmillan & Semmel, cited in Schwartz & Johnson, 1985).

Special education programs have been designed either to teach a specific skill such as reading or to improve the cognitive strategies (memory,

attention, abstract thinking) thought to underlie information-processing in general (Schwartz & Johnson, 1985).

1.2 STATEMENT OF THE PROBLEM

What phonemes are altered by children with mental retardation?

1.3 OBJECTIVE OF THE STUDY

The objective of the study is to discover the phonemes that are altered by mentally retarded children.

1.4 SIGNIFICANCE OF THE STUDY

The result of this study may enrich studies concerning psycholinguistics and phonology and provide references for other linguists who are interested in exploring this phenomenon. It may also give input to parents whose children are mentally retarded and to speech therapists or teachers to train them to speak well. In long term purposes, the result of this study can be used as one of the sources for compiling a guide book in understanding the speech of mentally retarded children.

1.5 SCOPE AND LIMITATIONS

This study is limited to the discovering of altered phonemes produced by three mentally retarded children with the maximum IQ level of approximately 85 and minimum IQ level of approximately 60 in SLB Cacat Mental Aditama Bagian C Wisma Permai Surabaya.

1.6 THEORETICAL FRAMEWORK

According to Grossman (cited in Patton, 1983), mental retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period. Subaverage intellectual functioning refers to earning a score on intelligence that is two or more standard deviations below the mean. Adaptive behavior refers to one's ability to cope with demands of daily life and is manifested in such things as sensory-motor, communication, self-help, socialization, academic and vocational skills. The developmental period consists of the years prior to the nineteenth birthday (Patton, 1983).

There are some divisions and characteristics as stated by Myers (1989) as can be seen as follow:

Table 1.6.1. Characteristics of mental retardation

No.	Level	Percent of the retarded	Typical IQ Scores	Characteristic
1.	Mild	85 %	50-70	May learn academic skills up to sixth grade level. Adults may, with assistance, achieve self-supporting social and vocational skills.
2.	Moderate	10 %	35-49	May progress to second-grade level. Adults may contribute to their own support by labor in sheltered workshops.

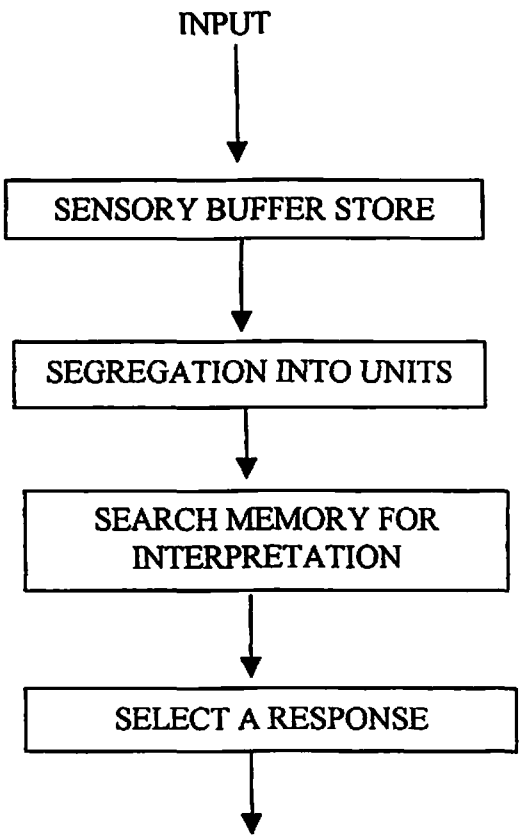
3.	Severe	4 %	20-34	May learn to talk and to perform simple work tasks under close supervision, but are generally unable to profit from vocational training.
4.	Profound	1 %	Below 20	Requires constant aid and supervision.

Source: Adapted From The American Psychiatric Association (1987).

In *Psychopathology of Childhood(1985)*, Schwartz and Johnson tried to describe the relation between cognitive psychology and mental retardation. Cognitive theory itself is concerned with the development of individual differences in the process of thinking as they affect the perceptions and behavior of individuals (Harre and Lamb,1983). It is stated that environmental information is first held in sensory specific store (visual auditory, etc). These are sometimes referred to as "buffer" stores because they have large capacities, but the information within them decays rapidly unless it is "attended" to. The result of paying attention is passed on to a limited capacity short-term memory store where it is either "rehearsed" or replaced by new information to a more-or-less permanent long-term memory store.

These information-processing stages can be further subdivided into more specific cognitive processes. As can be seen in the diagram below, stimuli pass first into a sensory buffer store. This information is then segregated into units according to the physical characteristic of the stimuli. The salient features of these

units are used to search long term memory. The search continues until an interpretation of the stimuli is found and a response is made (Schwartz & Johnson, 1985).



Clearly, if mentally retarded children differ from others in the quality of duration of stimuli in their sensory stores, the entire chain of information processing would necessary be influenced. (Schwartz & Johnson, 1985).

An important difficulty in perceptual research with mentally retarded children is the possibility that differential familiarity with the experimental stimulus materials may affect the results. For example, many studies use letters of the alphabet as stimulus materials. Because mentally retarded

children less likely to know the letters alphabet than normal children, they will be at a disadvantage and will show cognitive deficits that they may not show if the stimuli were equally familiar to both groups (Schwartz & Johnson, 1985).

Several experimenters have found that mentally retarded children are slower perceptual information processors than non-mentally retarded children. However, this difference in speed is not found when mentally retarded children are compared with non-mentally retarded children of the same mental age. This finding is an important reminder that normal children of the same chronological age as mentally retarded children have a much higher "mental age"(Schwartz & Johnson, 1985).

Language ability influences memory and thinking in several ways. One of the most important is its role in organizing information. In a series of free recall experiments in which children had to remember word lists, mentally retarded children tend to make minimal use of semantic cues to organize their recall. That is, they are unlikely to group items from a single semantic category together in recall (Herriot, Green and McConkey, cited in Scwartz & Johnson, 1985).

The International Review of Research in Mental Retardation stated that no reliable differences between the cognitive structures used by mentally retarded subjects and those used by normal subjects to accomplish cognitive tasks. In terms of information-processing theory, the structure of memory appears to be the same in the mentally retarded and in normal (Belmont, cited in Scwartz & Johnson, 1985).

Related to sound systems, there is study of the systems and patterns of speech sounds of a language, namely **phonology** as stated by Framkin and Rodman (1989). They also stated that phonology is also the kind of knowledge that speakers have about the sound patterns of their particular language.

This study will focus on phonology as one aspect of language, especially related to sound systems, and its relations to the cognitive theories of mental retardation because according to Schwartz and Johnson (1985) language ability influences memory and thinking in several ways.

Concerning phonological processes, alteration of segmental features may occur in producing speech sounds. These phonological operations are divided by Giegerich (1992) into three main categories, which are:

1. Insertion
2. Deletion
3. Metathesis

In this study, I use phonetic transcription by Marsono (1986). He classifies Indonesian vowel into ten types, diphthong into three types and consonant into eleven types.

Table 1.6.2

INDONESIAN VOWELS

1.	[i]	/i/	front, high, upper	ibu, kita, lari
2.	[I]		front, high, lower	pinggir, kelingking
3.	[e]	/e/	front, middle, upper	ekor, enak
4.	[ɛ]	/ɛ/	front, middle, lower	nenek, dendeng, leher
5.	[a]	/a/	Front, low	ada, apa, pada

6.	[ə]	/ə/	Central, middle	emas, iseng, elang
7.	[ɔ]	/o/	Back, middle, lower	otot, tokoh, roti
8.	[o]		back, middle, upper	toko, kado, prangko
9.	[U]	/u/	Back, high, lower	ukur, urus, turun
10.	[u]		Back, high, upper	udara, utara, bulan paku

Table 1.6.3

INDONESIAN DIPHTHONGS

1.	[ai]	Up, closed. forward	pakai, nilai, sampai
2.	[oi]	Back, closed, forward	amboi, sepoi-sepoi
3.	[au]	Up, closed, backward	saudara, lampau, kacau

Table 1.6.4

INDONESIAN CONSONANTS

1.	Bilabial	Moving the tongue and lips together	p, b, m
2.	Labiodental	Lower lip and upper front teeth	f, v, w
3.	Apikodental	Tip of the tongue is raised to the upper teeth	t, d
4.	Apiko Alveolar	Tip of the tongue is raised to the alveolar ridge	n, l, r
5.	Apiko palatal	Tip of the tongue is raised to the hard palate	d
6.	Lamino	Tip and blade of the tongue is raised to the	s, z

	Alveolar	alveolar ridge	
7.	Lamino palatal	Tongue blade and back of the alveolar ridge	ʃ
8.	Medio palatal	Middle of the tongue is raised to the hard palate	c, j, n, y
9.	Dorsovelar	Back of the tongue is raised to the soft palate	k, g, ŋ, x
10.	Laringal	Glottis in the open position	h
11.	Glottal	Vocal cords are held tightly together	?

1.7 METHOD OF THE STUDY

The method used in this study is qualitative descriptive since the study is aimed to give description of phonemes altered by children with mental retardation.

1.7.1 DEFINITION OF KEY TERMS

In "*Phonological Alteration of Indonesian-Speaking Children With Mental Retardation*" there are some essential terms used to clarify their meaning and context.

1. **Mental Retardation**: a condition of limited mental ability in which an individual has a low IQ, usually below 70, has difficulty in adapting to daily life that occurs during the developmental period.
2. **IQ (Intelligence Quotient)**: a number or score based on a test which expresses an individual's success in intelligence.
3. **Phoneme**: a minimal unit that functions to distinguish meaning.

4. **Phonological alteration**: the incorrect use of speech sounds which effect meaning even though the articulatory organs can function adequately.
5. **Speech Disorder**: a disorder in communication, especially in production and reception of speech.
6. **Insertion**: new phonemes may appear from formerly unoccupied positions in the word or morpheme.
7. **Deletion**: some phonemes may merge from formerly occupied positions in the word or morpheme.
8. **Metathesis**: transposition of phonemes with other phonemes which may be in form of replacement, interchanging or substitution of phonemes.
9. **Insertion-deletion alteration**: phonological alteration which involves insertion and deletion of phonemes-its naming does not show alteration order.
10. **Insertion-metathesis alteration**: phonological alteration which involves insertion and metathesis of phonemes-its naming does not show alteration order.
11. **Deletion-metathesis alteration**: phonological alteration which involves deletion and metathesis of phonemes-its naming does not show alteration order.

1.7.2 LOCATION

This study is located at SLB Cacat Mental Aditama Bagian C Wisma Permai Surabaya which is specialized for school age children with mental retardation.

1.7.3. SOURCE OF DATA

The sources of data of this study are three students who are studying at SLB Cacat Mental Aditama Bagian C Wisma Permai Surabaya. They are male and female mentally retarded children with maximum IQ level approximately 85, minimum IQ level of approximately 60 and suffer speech disorder. They are school-age children, speaking Indonesian language, have been trained for speech during their education and able to communicate with normal people.

In short, the source of data of this study is based on the following criteria :

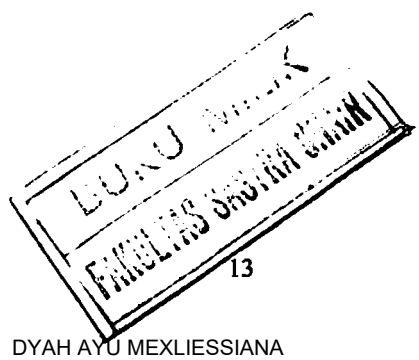
1. Male and female mentally retarded children.
2. Having maximum IQ level approximately 85 and minimum IQ level of approximately 60.
3. Suffering speech disorder.
4. At school age.
5. Speaking Indonesian language.
6. Having been trained for speech during their education.
7. Able to communicate with normal people.

In this study, there are three respondents as the source of data. First respondent, Dwi Marenza H., is a female mentally retarded student with IQ level of 86. She is eleven years old in chronological age and classified into mild mental retardation. Second respondent, Andi Sasongko Kurniawan, is a male mentally retarded student with IQ level of 65. He is nine years old in chronological age and classified into mild mental retardation. Third respondent, Achmad Ainur Rofiq, is a male mentally retarded student with IQ level of 59. He is fourteen years old in chronological age and classified into mild mental retardation.

In short, the identity of the respondents as follows:

A. Name : Dwi Marenza H.
   - Sex : Female
   - IQ level: 86
   - Age (in chronological age): 11 years old
   - Classification of mental retardation: mild

B. Name : Andi Sasongko Kurniawan
   - Sex: Male
   - IQ level: 65
   - Age (in chronological age): 9 years old
   - Classification of mental retardation: mild



C. Name : Achmad Ainur Rofiq

- Sex: Male
- IQ level: 59
- Age (in chronological age): 14 years old
- Classification of mental retardation: Mild

1.7.4. TECHNIQUE OF DATA COLLECTION

In collecting the data, the first step is reading each word in the word list that I have made previously and asking them to imitate me directly. This imitation method is more effective for the children to produce better speech than reading method, because according to Schwartz and Johnson, 1985, mentally retarded children are less likely to know the letters of the alphabet than normal children, so they will be at a disadvantage and will show cognitive deficits if they are told to read. Then, while they were imitating my speech, I recorded their speech and then transcribed it. In short, the techniques of data collection are as follows:

1. Reading each word in the word list and asking them to imitate directly.
2. Recording the speech.

1.7.5. TECHNIQUE OF DATA ANALYSIS

After collecting the data, I transcribed the data based on the Indonesian phonetics by Marsono (1986). I analyzed each phoneme produced by the three mentally retarded students based on their place of

articulation and classified those phonemes based on the types of phonological alterations by Giegerich (1992) into three main groups : insertion, deletion, and metathesis. After transcribing and classifying those phonemes, I would be able to find out which phonemes are altered by those children when they speak.

In short, the technique of data analysis as follows:

1. Transcribing the speech sounds produced by mentally retarded children.
2. Identifying the transcribed speech sounds in terms of the place of articulation.
3. Classifying phonemes based on the types of phonological alterations.
4. Finding out phonemes that are altered.
5. Drawing a conclusion.

CHAPTER II

GENERAL DESCRIPTION OF THE OBJECT OF THE STUDY