

CHAPTER IV
PRESENTATION AND ANALYSIS OF THE DATA

4.1. Segmental substitution done by the kindergarten students of TK Mojo Indah, Surabaya

In this part, the writer presents tables of segmental substitution done by the students, in general. The phenomenon occurs when certain sounds are difficult to pronounce and, then, they are substituted by the students by the other sounds. The segmental substitution here occurs in all position: initial, middle, and final.

4.1.1. Table of the initial segmental substitution

Sounds	Able	Unable	Substituting sounds
[p]	17:100%	--:0%	-
[b]	17:100%	--:0%	-
[m]	17:100%	--:0%	-
[f]	17:100%	--:0%	-
[v]	13:76.47%	4:23.53%	[f]
[θ]	--:0%	17:100%	[s]:9 = 52.94%
			[t]:6 = 35.29%
			[f]:2 = 11.77%
[ð]	12:70.59%	5:29.41%	[d]
[t]	17:100%	--:0%	-
[s]	17:100%	--:0%	-

Sounds	Able	Unable	Substituting sounds
[d]	17:100%	--:0%	-
[z]	10:58.82%	7:41.18%	[s]:4 = 23.53%
			[j]:2 = 11.77%
			[dʒ]:1 = 5.88%
[n]	17:100%	--:0%	-
[ʃ]	9:52.94%	8:47.06%	[s]
[k]	17:100%	--:0%	-
[g]	17:100%	--:0%	-
[w]	17:100%	--:0%	-
[j]	17:100%	--:0%	-
[h]	17:100%	--:0%	-
[l]	17:100%	--:0%	-
[r]	17:100%	--:0%	-
[tʃ]	17:100%	--:0%	-
[dʒ]	17:100%	--:0%	-

* Able and unable refers to the ability of the students.

From the table above, we can see that initial consonants which are difficult to pronounce are as follows (in order : from the most to the least difficult sound classes) :

1. Interdentals :

-voiceless [θ] is substituted by [s]:52.94%

[t]:35.29%

[f]:11.77%

-voiced [ð] is substituted by [d]:29.41%

2. Alveopalatals :

-voiceless [ʃ] is substituted by [s]:47.06%

3. Labiodental :

-voiced [v] is substituted by [f]:23.53%

4. Alveolar :

-voiced fricative [z] is substituted by [s]:23.53%

[ʃ]:11.77%

[dʒ]:5.88%

From the percentages above, we can conclude that the most difficult initial sound to pronounce is voiceless interdental fricative [θ]; no student can pronounce it even they have been drilled. The second sound is the voiceless alveopalatal fricative [ʃ]; this sound can be pronounced by more than 50% students of the class. The third is voiced interdental fricative [ð] which can be produced by more than 70% of the students. The fourth are voiced labiodental fricative [v] and voiced alveolar fricative [z] each of which can be produced by more than 75% of the students.

The rest of the initial consonant sounds can be pronounced by all the students.

4.3.2. Table of the middle segmental substitution

Sounds	Able	Unable	Substituting sounds
[p]	17:100%	--:0%	-
[b]	17:100%	--:0%	-
[m]	17:100%	--:0%	-
[f]	17:100%	--:0%	-
[v]	16:94.12%	1:5.88%	[f]
[θ]	--:0%	17:100%	[t]:9 = 52.94%
			[s]:8 = 47.06%
[ð]	10:58.82%	7:41.18%	[d]
[t]	17:100%	--:0%	-
[s]	17:100%	--:0%	-
[d]	17:100%	--:0%	-
[z]	14:82.35%	3:17.65%	[d]
[n]	17:100%	--:0%	-
[ʃ]	10:58.82%	7:41.18%	[s]
[ʒ]	15:88.24%	2:11.77%	[dʒ]:1 = 5.88%
			[j]:1 = 5.88%
[k]	17:100%	--:0%	-
[g]	17:100%	--:0%	-
[ŋ]	17:100%	--:0%	-
[w]	17:100%	--:0%	-
[j]	17:100%	--:0%	-
[h]	17:100%	--:0%	-
[l]	17:100%	--:0%	-
[r]	17:100%	--:0%	-
[tʃ]	17:100%	--:0%	-
[dʒ]	17:100%	--:0%	-

From the table above, we can see that the middle consonant sounds which are difficult to pronounce are as follows (from the most to the least difficult sound classes) :

1. Interdentals :

-voiceless [θ] is substituted by [t] : 52.94%

[s] : 47.06%

-voiced [ð] is substituted by [d] : 41.18%

2. Alveopalatals :

-voiceless [ʃ] is substituted by [s] : 41.18%

-voiced [ʒ] is substituted by [dʒ] : 5.88%

3. Alveolars :

-voiced fricative [z] is substituted by [dʒ] : 17.65%

4. Labiodentals :

-voiced [v] is substituted by [f] : 5.88%

From the percentage above, we can conclude that the most difficult consonant sound in the middle position is interdental; voiceless [θ] cannot be produced by all the students. while the voiced [ð] can be produced by more than 50% of the students. The second is alveopalatals; the voiceless [ʃ] can be produced by more than 50%, while the voiced [ʒ] can be produced by more than 90% of the students. The third is voiced alveolar fricative [z] which can be produced by more than 80% students. The least difficult sound is voiced labiodental fricative [v] which can be produced by more than 90% students.

The rest consonant sounds, in the middle position, can be pronounced by all the students.

4.3.3. Table of the final segmental substitution

Sounds	Able	Unable	Substituting sounds
[p]	17:100%	-:0%	-
[b]	-:0%	17:100%	[p]
[m]	17:100%	-:0%	-
[f]	17:100%	-:0%	-
[v]	12:70.59%	5:35.29%	[f]
[θ]	-:0%	17:100%	[t]:10 = 58.82%
			[s]:4 = 23.53%
			[f]:3 = 17.65%
[ð]	-:0%	17:100%	[t]
[t]	17:100%	-:0%	-
[s]	17:100%	-:0%	-
[d]	2:11.77%	15:88.24%	[t]
[z]	6:35.29%	11:64.71%	[s]
[n]	17:100%	-:0%	-
[ʃ]	11:64.71%	6:35.29%	[s]
[k]	17:100%	-:0%	-
[g]	-:0%	17:100%	[k]
[ŋ]	17:100%	-:0%	-
[w]	11:64.71%	6:35.29%	deleted
[l]	17:100%	-:0%	-
[tʃ]	-:0%	17:100%	[s]:13 = 76.47%
			[t]:3 = 17.65%
			added with [i]:1 = 5.88%
[dʒ]	10:58.82%	7:41.18%	[s]:4 = 23.53%
			[t]:3 = 17.65%

From the table above, the sounds which are difficult to pronounce are as follows (in order) :

1. Interdentals :

-voiceless [θ] is substituted by [s]:58.82%, [t]:23.53%, [f]:17.65%.

- voiced/ [ð] is substituted by [t]:100%.
2. Bilabial :
- voiced stop [b] is substituted by [p]:100%.
3. Velar :
- voiced stop [g] is substituted by [k]:100%.
4. Affricate :
- voiceless [tʃ] is substituted by [s]:76.47%, [t]:17.65%
and added with [i:]:5.88%.
- voiced [dʒ] is substituted by [s]:23.53% and
[t]:17.65%.
5. Alveolars :
- voiced stop [d] is substituted by [t]:88.24%.
- voiced fricative [z] is substituted by [s]:64.71%.
6. Labiodental :
- voiced [v] is substituted by [f]:35.29%
7. Alveopalatal :
- voiceless [ʃ] is substituted by [s]:35.29%
8. Glide :
- labiovelar [w] is deleted :35.29%

From the percentage above, we can conclude that the most difficult sound to pronounce is interdental; the voiceless [θ] and the voiced [ð] cannot be produced

correctly by all the students. The second is voiced bilabial which cannot be produced by all the students; they substitute it with the voiceless one, [p]. The third is voiced alveolar [d] which can be produced by less than 20% of the students, while the voiced [z] is less than 40%. The fourth is voiceless affricate [tʃ] which cannot be produced by all the students. The fifth are the voiced labiodental [v] and the voiceless alveopalatal [ç] each of which can be produced by less than 40% of the students. The sixth is labiovelar glide [w] which is deleted by less than 40% of the students. The rest of consonant sounds can be produced correctly by all the students.

4.4. Phonological processes of the segmental substitutions

These segmental substitutions can be considered as phonological disorders, since the sounds in the phonological system is modified by the students in their process of phonological development, as stated by Komshian, Kavanagh, and Ferguson (1980:182) :

"when we compared the developing phonological system of a child with the adult norm, we observed that many of

the differences in the child's system could be described by appealing to a set of natural phonological processes. Processes such as the stopping of fricatives, the gliding of liquids, and the reduction of consonant clusters reflected natural tendencies toward language modification... Many general patterns in phonological disorders can also be captured by appealing to processes. We cannot be certain that all of the processes which emerge from the comparison of normal and disordered phonological systems can be called natural, but many of these processes do operate."

Based on the statement above, the writer tries to find the phonological processes of the students' segmental substitution in each position. The processes are based on the segmental features and completed with the example of the modified words used by the students.

4.4.1. Phonological processes of the initial segmental substitution

1. Stopping

- thumb [θʌm] is modified into [tʌm]; alveolar fricative becomes alveolar stop ([+ continuant] → [- continuant]).
- that [ðæt] is modified into [dæt]; interdental fricative becomes alveolar stop ([+ continuant] → [- continuant]).
- measure [meʒə] is modified into [medʒə]; alveopaltal fricative becomes affricate ([+continuant] → [- continuant]).
- zebra [zi:brə] is modified into [dʒi:brə];

alveolar fricative becomes affricate.

2. Devoicing ([+ voiced] --> [- voiced])

- vegetable [vedʒitəbəl] is modified in [fedʒitəbəl];

voiced labiodental becomes the voiceless one.

- rebra [zi:brə] is modified into [si:brə]; voiced

alveolar fricative becomes the voiceless one.

3. Labializing

- thumb [θʌm] is modified into [fʌm]; interdental becomes labiodental ([- labial] --> [+ labial]).

4. Fronting

- shoe [ʃu:] is modified into [su:]; alveopalatal becomes alveolar ([- anterior] --> [+ anterior]).

5. Striding

- thumb [θʌm] is modified into [sʌm]; interdental becomes alveolar ([-strident] --> [+strident]).

All the processes above is based on the main distinctive phonetic feature between the two segment sounds.

4.2.2. Phonological processes of the middle segmental substitution

1. Stopping ([+ continuant] --> [- continuant])

- nothing [nʌθiŋ] is modified into [nʌtiŋ];

interdental fricative becomes alveolar stop.

- measure [mɛʒə] is modified into [mɛdʒə] ;
alveopalatal fricative becomes affricate .
- razor [reɪzə] is modified into [reɪdʒə] ;
alveolar fricative becomes affricate.
- father [fa:ðə] is modified into [fa:də] ;
interdental fricative becomes alveolar stop.

2. Striding

- nothing [nʌθɪŋ] is modified into [nʌsɪŋ] ;
interdental fricative becomes alveolar fricative
([- strident] --> [+ strident]).

3. Fronting

- washing [wəʃɪŋ] is modified into [wɔsɪŋ] ;
alveopalatal becomes alveolar fricative
([- anterior, - back] --> [+ anterior]).

4. Devoicing

- envelope [ɛnveləp] is modified into [ɛnfeləp];
voiced labiodental becomes voiceless labiodental
([+ voiced] --> [- voiced]).

4.2.3. Phonological processes of the final segmental substitution

1. Devoicing ([+ voiced] --> [- voiced])

- cab [kæb] is modified into [kæp]; voiced bilabial becomes voiceless bilabial .
- bed [bed] is modified into [bet]; voiced alveolar stop becomes voiceless alveolar stop.
- glove [glʌv] is modified into [glʌf]; voiced labiodental becomes voiceless labiodental.

2. Stopping ([+ continuant] --> [- continuant])

- mouth [mauθ] is modified into [maut]; interdental fricative becomes alveolar stop.
- bathe [beɪθ] is modified into [beit]; interdental fricative becomes alveolar stop.

3. Alveolarizing

- caught [kautʃ] is modified into [kaut]; affricate becomes alveolar stop.
- caught [kautʃ] is modified into [kaus]; affricate becomes alveolar fricative.
- bridge [brɪdʒ] is modified into [bris]; affricate becomes alveolar fricative.
- bridge [brɪdʒ] is modified into [brit]; affricate becomes alveolar stop.

5. Striding

- mouth [mauθ] is modified into [maus]; interdental fricative becomes alveolar fricative ([- strident] --> [+ strident]).

6. Fronting

- fish [fiʃ] is modified into [fis]; alveopalatal becomes alveolar ([- anterior, - back] --> [+ anterior]).

7. Deletion

- window [wɪndəʊ] is modified into [wɪndo]; labiovelar [w] is deleted.

8. Addition

- catch [kɑtʃ] is modified into [kɑtʃi:]; voiceless affricate [tʃ] is added with [i:].

From the description of the phonological processes above, we can see that the modification done by the student are stopping, devoicing, fronting, alveolarizing, labializing, deletion, and addition.

It can also explain why the segmental substitutions occurs. It indicates that there are different phonological systems which cause the segmental substitutions of some English consonant sounds.

