CHAPTER FIVE

DISCUSSION AND CONCLUSION

This chapter discusses the findings of the study in view of general observations about the vowels across the dialects and concludes the study.

5. 1 Discussion

Analysis of variance between the different dialects investigated showed a considerable similarity between their vowel sounds. However, the investigation revealed that the vowel realizations in the dialectal areas differ substantially as far as the front vowels are concerned. From the comparison of the vowel positions in the five varieties of Ewe, it is clear for example, that [i] produced by Aŋlɔ and Kpando speakers is higher than that of the other dialects, and that [i] of Tɔŋu is more front as compared to the other four dialects.

The study reveals much differences between the vowels [e], [ɛ], [ə] and their nasalized counterparts as produced in the various dialects. These vowels were measured in the contexts /bè/, /bɛ/ and /èvə/, /dzẽ/, /ɛhɛ̃/ and /hə̃/. A look at their formant plots shows a clear overlap in the production of these sounds among the Ewes. [ɛ] as produced by Aŋlɔ and Avenor speakers for example are significantly higher than [e] contrary to its ascribed location in Ewe literature. Disner (1978) says that, “the phonetic quality of a vowel is most insightfully expressed in terms of points along a continuum…defined according to a presumably universal set of phonetic features”. And that continuum with tongue at its highest point for [i] drops to [e] before [ɛ]. It is clear according to this present study that the Aŋlɔ and the Avenor speakers are not using the vowel sound represented by the IPA symbol [ɛ]. It might that these speakers are misreading reading the orthography or there has been a sound change. This needs to be further investigated. Ho and kpando speakers on the other hand do not distinguish between [e], [ɛ] and [ə]. Kpando speakers have [ə] located at the same place as [ɛ] and Ho has it at the same place as [e]. There is clear evidence however that the Tɔŋu speakers make e/ɛ/ə distinction in their vowel production. The test of significant effect of variations in the realization of these vowels showed no significant differences and this means that for these dialects, even though they consider these vowels in orthography as different vowels, in production, there is no variation in them.

Aŋlɔ and Avenor have [ɛ] located between [i] and [e]. This appears to shift [e] a little lower in the acoustic space and giving it a more open quality as compared to the other dialects. Bradley (1989) and Cox and Palethorpe (2003) reported a

similar lowering of [e] as a result of mergers between /e/ and /æ/ in Australian English. In this case the /e/ is lowered to /æ/ to form the merger. In the results reported by Taehong et al. (2000) cited earlier in this work, the analysis of the vowel system of Cheju also indicates mergers of o/ʌ by urban speakers. These are evidences for possibilities of vowels merging in languages as time passes by. The question however is, by what means are these dialects combining two phonemes to form another? Labov (1994, p. 321-323) cited by Taehong et al. suggests three models that have been observed in sound changes. The first type is " merger by approximation". This situation is where the " phonetic target of two distinctive sounds are approximated until they become non-distinctive". In this form, two sounds of different phonetic qualities are merged into one phonetic quality. This means that the two sounds now take the phonetic space of one. The second type of merger is "merger by transfer". This, as explained by Taehong et al., is "a unidirectional change in which one phonemic category becomes another…when one form becomes a social prestige, being predominantly used in an established standard language". The third process is "mergers by expansion" where the new phonetic space is expanded to range over phonetic spaces of two phonemes that are merged. In this form, none of the sounds takes the phonetic space of the other. It is not however clear as to which methods of combining the existing phonemes into another the dialects investigated are using as far as this present data is concerned. There is some form of alternation between [e] [ɛ], [ə] and their nasals within the Ho and Kpando dialects. In the case of Kpando, it agrees with Stahlke's (1971) impressionistic view that [e] has merged with [ɛ] in Kpando and there is alternation between [e] and [ɛ] such that they can be considered as variants of the same underlying segment [e].

The presence of a central vowel is generally considered as a feature of the vowel inventory of Ewe. The defining characteristic of a central vowel is that the tongue is positioned halfway between a front and a back vowel. Even if they use it, they do not realize it as a central vowel. Aŋlɔ has it located almost at the same place as [e]. Whiles Ho has it produced clustering with [e], Kpando has it with [ɛ]. Generally, the phonemic status of the schwa as a phoneme in Ewe is not clear. Granser and Moosmüller (2002) observed that the variability of the schwa ranges from extreme back to extreme front articulation, largely irrespective of the phonetic environment. Considering the status of the schwa as an unstressed vowel, it is possible to have it located in front or back depending on the vowel, which is not being stressed. Schwartz et al (1997)'s evaluation of the UPSID phoneme inventory cited by Granser and Moosmüller concludes that phonemic schwa is a "parallel" vowel, which exists because of intrinsic principles (may be based on vowel reduction) different from those of other vowels. As posited by van Bergen (1994) and Bates (1995), the variability of the schwa is mainly described along F2. In the case of this study the vowel [ə] as produced by Ho and Kpando speakers has a relatively high F2. Stevens (1998: 276) describes

how a fronted quality tongue body can be realized in vowels, which are not naturally front vowels. He says:

> As the tongue body is displaced forward while maintaining a narrowing in the lower pharynx, the frequency of the second formant will increase to maximum value when the configuration is such that the natural frequency of the short section consisting of the larynx tube and the lower pharynx becomes roughly equal to the second natural frequency of the remainder of the vocal tract anterior to the constricted pharyngeal region.

In accordance with the statement above, there seems to be a tendency to shift the central vowel forward or backward by these dialects.

It is noted in this study that [a] is not quite central in Ewe as noted in Ewe literature. It is more shifted from the center toward the back (see fig. 4.11). [ã] is however more central compared to [a]. All the dialects investigated had it located with $F2^1$ (backness) falling between 550 and 700 Hz. [ã] however, has a low F1 as compared to [a] indicating a higher vowel quality. Stevens (2000, p.316) generally observed that, nasal vowels have almost a flat spectrum at low frequencies as a result of widening of the bandwidth of F1 for front vowels and for F2, an introduction of an additional resonance that prevents any one low frequency resonance from being dominant. As explained by Kent and Read (1992,p.166), nasalization can result in an increase in formant bandwidth, so that formant energy appears broader, resulting in a decrease in the overall energy of a vowel compared to oral vowels. It is observed, especially for the vowels [a] that there is some amount of decrease in F1, placing [a] lower and more open than [ã] across all the dialects.

There were less differences in the production of the back vowels across dialects. A general observation is that there is less variation of the back vowels and maximal variation in the front vowels across the dialects. This is perhaps because as Most, Amir & Tobin (2000) says:

> The small differences…in F1 and F2 values of the back of vowels might be explained by the mobility limitations of the tongue in the back of the oral cavity. The front of the oral cavity allows better and easier mobility of the articulators, resulting in greater variability among speaker groups.

The vowel space for [u] and [o] are greatly overlapping for all the dialects investigated. For the formant plot of the individual speakers, only a small portion of the vowel space for [u] does not overlap with [o]. In fact, the results of the

paired samples test indicate that these two vowels are not very different (P< 0.05), suggesting that there are potential difficulties in distinction between these vowels among the Ewes.

The research revealed a possibility of gender being a determinant of vowel quality in Ewe. It was mostly noted that the female speakers have higher formant values placing their vowels more front and lower as compared to those of the male speakers. Ladefoged (2001,p.43) explains the reason for this that:

> The men's vowels have lower formant frequencies, resulting in their vowel chart being more compressed with all the points being moved upward and to the right. This is because men have larger vocal tracts, containing bigger bodies of air. These larger bodies of air vibrate more slowly, so that the formants have lower frequencies.

The lower formant frequencies place the vowels of male speakers in a smaller acoustic space as compared to that of the female speakers. This means that the male speakers have higher and less front qualities than the female speakers.

5.2 Conclusion

The scattering of the points for each vowel shows that vowel categorization into, which dialect produces, which vowel is not a straightforward problem. The acoustic spaces of different vowels overlap, meaning that different vowels fall within a space intended for another vowel. The scattering of points for a given vowel reflects variations between speakers, and the extent of overlapping of some of the vowels indicates the seriousness of the issue of vowel constancy. Rosner and Pickering (1994, p.14-15) when discussing this phenomenon says:
For a particular vowel in a given word, changes in momentary speaker characteristics will produce a small scattering of points around some average F2/F1 positions for that vowel.

This means that trying to categorize vowels into one single phoneme is not a straightforward thing because there is normally a great variation in the production of one "single" vowel by the same person just within a few seconds. Rosner and Pickering explains that factors such as the speaking rate and the intrinsic variation in the positions of the speaker's articulators from occasion to occasion will cause small changes in F1 and F2. They further say that dialectal, social, or generational differences within a language community may substantially alter the positions of particular vowels such that certain vowels may appear in one dialect or social group but absent in another. It is therefore clear that the different dialects studied, even though they share some characteristics do not use the same qualities of vowels nor do they use the same number of vowels. Some of the vowels are therefore grouped in this study and from these groups the various

dialects select their vowel inventory. This study suggests that the vowels [e], [ɛ], [ə] and their nasalized counterparts, as constitute one group. Their choice and use depends on the dialects. [a] and [ɔ] stand separately as low-back and mid-back vowels and their nasals as low close to back and mid-back vowels respectively. [u] and [o] also stand as independent back vowels. However their nasalized versions are a little shifted from the back toward the center. It must be mentioned that the back vowels [u] and [o] by Ewe speakers have less difference in quality and this indicates that Ewes have difficulty in differentiating between the perceptions of these vowels. For all the dialects investigated, only Tɔŋu dialects speakers distinguish between eight vowel qualities in Ewe.
Although the vowels in these dialects showed unique qualities, the close relationship between some of them allows us to group them together. There are differences existing between the dialects, which are not clear-cut and therefore cannot be described based on impressionistic observations. Scientific Knowledge of the language/dialects themselves is needed to account for these differences.

5.3 Summary

This work is a systematic analysis of dialectal variation in the production of the vowels of five dialects of Ewe, a Kwa language in West Africa. The study is primarily descriptive in nature, providing results of formant frequencies of vowels. For this purpose the formant values of the vowel realizations of 44 speakers comprising of 24 male and 20 female were measured. Various forms of statistical analysis were carried out to ascertain acoustic differences that might exist between the productions of the dialects studied. There are no significant statistical differences between the vowel productions of individual speakers within the dialects. However there were differences between the dialects. The differences mostly occurred with the mid-front vowels and the supposed central vowel. It is obvious from the study that these vowels are not used by all the dialects of Ewe. Some of the vowels are grouped and from the groups each dialect selects vowels to use.

5.4 Contribution to the Ewe language

Even though there are phonological comparative works on the Ewe language, there is no known study on the acoustic correlates of the vowels. This thesis, having established the fact that there are phonetic differences in the qualities of the vowels as produced in the five dialects of Ewe investigated, will serve as a basis for further descriptive work on the speech sounds of the language.