Chapter 5: Conclusions

The current study examines and discusses the acoustic aspects of the Kokborok language. It is organized into five chapters and each chapter has several sections. The thesis begins with the introduction. It discusses the methodology, objectives and hypotheses of the research. An account of the acoustic phonetics and acoustic analytic technique of speech sounds are part of discussion in the chapter. In subsequent chapters, the study provides a phonemic inventory of the Kokborok phonemes. Further, it shows that the language has eight phonetically distinctive vowel phonemes, four phonologically distinctive diphthongs, a triphthong and nineteen consonant phonemes. Kokborok consonants are articulated from five different places of articulation: bilabial, alveolar, palatal, velar and glottal and from four different manners of articulation: stop, fricative, nasal and approximant.

The study presents spectrographic sketches of all the Kokborok phonemes and describes each one of them on the basis of the acoustic cues. It also provides the classification, description, distribution and contrast between the phonemes. The acoustic analysis is done within the parameters of duration, formant frequency and formant transition. The duration measurements of all the Kokborok phonemes are done in milliseconds. The formant frequencies and formant transitions are measured in hertz.

Further, the thesis studies the acoustic properties of the Kokborok speech sounds in isolation, in words and in connected speech articulated by men, women and children. The speech sounds that are studied in different word positions as spoken by different speakers lead to variations in durations and formant frequencies. The variations are based on individuals and genders for which evidence is provided from the spectrographic analysis.
Chapter 5: Conclusions

The findings reported in this thesis indicate that the sounds whether produced in isolation, in words or in connected speech either by men, women or children are varied from one another in their duration, formant frequency and formant transition range. It is inferred that the variations in speech sounds are attributed to individual speaker differences as well as gender differences. Further, it is also inferred that the variations in articulation of individual speech sounds of Kokborok speaker are attributable to different positions in a word as well as in connected speech.

5.1 Significance and contributions of the study

The present study is an attempt to draw the attention of Kokborok speakers towards the importance of scientific investigation in determining the exact quality of Kokborok speech sounds. This study is conducted mainly to examine and discuss the acoustic aspects of the Kokborok speech sounds, as it is felt that there exists no such description of the language.

Kokborok is one of the official languages in the state of Tripura along with Bengali. It has been declared as medium of instruction and the Kokborok speaking students are studying it up to secondary level. It has been introduced as a subject in the foundation course at college level. Tripura University has been providing diploma and advance diploma courses in Kokborok language and literature. The language also is being used on mass-media networks and also in the field of music and drama. Further, many creative works are being published in Kokborok. Despite these merits of the language not significant attention has been paid to study the language linguistically. Except for a few works on phonetics, grammar, lexicography and script, not much is available on other aspects of linguistics. This work as is evident, deals with acoustic study of the Kokborok speech sounds. Thus, it is a significant contribution in the area of Kokborok linguistics.
5.2 Suggestions for further research

The end of this study is the beginning of new avenues for future research. This study deals with only the acoustic aspect of the Kokborok language but many other aspects are of course remain to be done. These untouched aspects of the language are important. Therefore, we have in our mind the following areas. May be studies on these lines will be useful for Kokborok.

- The present research is only limited to study the segmental aspects of speech. Nothing is available on supra-segmental features, especially its tonal features. Therefore, a comprehensive study on the supra-segmental aspects of the language will be useful.

- The present study dealt with the formant frequency measurement of the Kokborok speech sounds. Many aspects of fundamental frequency ($f_0$) such as creaky voice and shouting has not been investigated in this study. Therefore, further research especially on those aspects is encouraged.

- The acoustic analysis is done with the help of computer and language analysis tools to probe and measure the Kokborok speech sounds. The computer and language analysis tools might be used to visualize the function of vocal apparatus. These also might be used to undertake further research on clinical phonetics as well as speech recognition in different forensic and interrogation cases.

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