ARTICULATORY AND ACOUSTIC FEATURES OF SOUNDS

Jizzakh branch of the National University of
Uzbekistan named after Mirzo Ulugbek
The faculty of Psychology, department of Foreign languages
Phylology and foreign languages
Teshaboyeva Nafisa Zubaydulla qizi
Student of group 301-21: ***Sattorova Munisa Xolmurod qizi***

Abstract: *The study of the sounds of speech presupposes knowledge in both their articulatory and acoustic features. While the articulatory phonetics look at how speech sounds are produced by the movement of different speech organs, acoustic phonetics is concerned with the physical properties of those speech sounds while traveling in air. The present paper examines the functions of the main speech organs, such as the tongue, lips, and vocal cords, and their parts played in sound production. Furthermore, it underlines the acoustic properties of the sounds: frequency, amplitude, and resonance. Combining both perspectives, the research insists upon the complexity of human speech and its communicational role.*

Key Words: *Articulatory phonetics, acoustic phonetics, speech organs, production of speech sounds, frequency, resonance, vocal cords, articulation, acoustics.*

Introduction

Human speech is a fascinating combination of biological processes and physical phenomena. The articulation of sounds is a complex coordination of speech organs shaping airflow from the lungs into meaningful sounds. Articulatory phonetics concerns the physiological aspects of the production of speech sounds and investigates the organization of different organs producing vowels, consonants, and other types of speech sounds.

On the other hand, acoustic phonetics is interested in the waveform generated in speech production. It is these waves that possess those physical properties of speech which come through to the listener as the characteristic features of speech sounds-as variations in pitch, loudness, and duration. Articulatory and acoustic phonetics taken together provide a full description of the production and transmission of speech.

Speech Organs and Their Functions

It all starts with the respiratory system, actually-air from the lungs is pushed through the trachea and finally into the vocal tract, where a variety of organs manipulate it into different sounds.

During phonation, the vocal cords vibrate with voiced sounds such as /b/ and /z/, while their openness in the case of voiceless ones-for example, /p/ and /s-results in those particular sounds. Frequency of vibration will determine the pitch of the sound, adding to speech intonation and melody.

Among all speech organs, it is the tongue that is definitely the most versatile. The quality of vowels and consonants depends on the position and movement of the tongue inside the oral cavity: for example, elevation of the back of the tongue gives /k/-like sounds; a high-forward tongue gives /i/-like vowels, as in see.

Articulation primarily engages the lips in the formation of the sounds by varied openings: rounded, as in /o/, or a close closure, as for /p/, /b/ bilabials.

Teeth and Alveolar Ridge

Teeth and alveolar ridge are essential in the articulation of consonantal speech sounds that require the tongue to touch or almost touch the upper jaw. For instance, the consonants /t/ and /d/ are articulated along the alveolar ridge.

The soft palate or velum lowers to direct airflow into the nasal cavity. When the velum raised oral sounds are produced such as /k/ and /g/. When it is lowered, nasal sounds such as /m/ and /n/ are produced.

Acoustic Features of Sounds

Once the sounds are produced, acoustic properties produced determine the way they are transmitted and perceived. Speech sounds are basically sound waves that travel through air and are specified by several key features.

Frequency refers to the number of vibrations of a sound wave per second and is measured in Hz. High-frequency sounds-like /s/ and /f-have shorter wavelengths while low-frequency sounds-like /m/ and /b-have longer wavelengths.

Amplitude is the loudness of the sound and is measured by the height of the wave. The larger the amplitude, the louder the sound; the smaller the amplitude, the softer it is.

Resonance refers to the amplification or alteration of the sound wave as it passes through the vocal tract. The shape and size of both oral and nasal cavities determine the resonance that gives the typical tone to each vowel and each consonant.

Duration refers to the length of time the production of a sound takes. In English, such vowel length may sometimes constitute a difference in meaning as it does in beat versus bit.

Integration of Articulatory and Acoustic Features

Articulatory and acoustic features are interdependent, each influencing the other. For example, the resonance or frequency of a sound wave depends upon the position of the tongue and the lips during articulation. Voiced and voiceless sounds differ not only in the activity of their vocal cords but also in the waveform of the acoustic signal.

Knowing these features helps a language learner, a speech therapist, and a linguist. It provides indications on pronunciation, enables diagnosis and treatment of speech disorders, and is used in developing speech recognition technologies.

Conclusion

The research of articulatory and acoustic features of sounds displays the complication of human speech. Speech organs such as the tongue, lips, and vocal cords all work together in harmony to produce the wide range of sounds that form

language. Meanwhile, acoustic properties of frequency, amplitude, and resonance define how these sounds are transmitted and perceived.

By integrating the articulatory and acoustic perspectives, we further appreciate the complex processes that make communication possible. This knowledge will be of great assistance, not only in advancing our knowledge about language but also in applying it to linguistic, educational, and therapeutic domains.

REFERENCES

1.Аванесов Р.И. Фонетика современного русского языка. М., 1966.

2.Аракин В.Д. Очерки по истории английского языка. М., 1955.

3.Зиндер Л.З. Общая фонетика. Л., 1998.

4.Смирницкий А.И. История английского языка (средний и новый период) М., 1997.

5.Соколова М.А. и др. Практическая фонетика английского языка. М., 1984

6.Bolinger D. Aspects of language. New York, 1998.

7.Dikushina M.V «English phonetics»./изд. «Просвещение», Л, 1973

8.Vassilyev.V.A. «English Phonetics: A Theoretical Course» -M.,1970

9.Gimson, A. C. «Gimson's pronunciation of English» (6th ed.). London: Arnold, 2001.

10.Jakobson R., Halle M. Fundementals of Language. The Hague, 1998.

11.Ladefoged P. A Course in Phonetics. New York, 1982.

12Crystal D. The English Language. N.Y.: Penguin Books, 2001.

13.Teshaboyeva, N., & Mamayoqubova, S. (2020). Communicative Approach To Language Teaching. In Молодой Исследователь: Вызовы И Перспективы (Pp. 409-414).

14.Teshaboyeva, N. (2020). Linguistic Personality, Its Structural Characteristics In The New Perspective Directions. In Молодой Исследователь: Вызовы И П

Т

р

ѕ

h

а

17. Teshaboyeva, N. Z. (2023, November). Adjective word group and its types. In " Conference on Universal Science Research 2023" (Vol. 1, No. 11, pp. 59-61).
18. Teshaboyeva, N. Z. (2023, November). Modifications of Consonants in Connected speech. In " Conference on Universal Science Research 2023" (Vol. 1, No. 11, pp. 7-9).
19. Teshaboyeva, N., & Rayimberdiyev, S. (2023, May). THE IMPORTANCE OF USING MULTIMEDIA TECHNOLOGY IN TEACHING ENGLISH CLASSES. In Academic International Conference on Multi-Disciplinary Studies and Education (Vol. 1, No. 8, pp. 149-153).
20. Nafisa, T., & Marina, S. (2023). TEACHING AND LEARNING OF ENGLISH AND MAIN METHODOLOGIES USED IN TEACHING FOREIGN LANGUAGES. Journal of Contemporary Scientific and Technical Research, 465-469.