



RESEARCH ARTICLE

Vol. 6. Issue.3. 2019 (July-Sept.)

ISSN
INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA
2395-2628(Print):2349-9451(online)

PHONETICS AS SCIENCE

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doi: <https://doi.org/10.33329/ijelr.63.58>



ABSTRACT

Man's distinctive possession is his communicative skills in languages irrespective of his MT, i.e., Mother Tongue. From the times immemorial, he has been marching towards linguistic nuances by creating new terms and by borrowing expressions and vocabulary from other languages. As the days rolled by, scholarly people whose domain has been 'The Study of Languages' evolved a novel study of languages called 'Linguistics'. Linguistics is a scientific study of languages. It is better to shed light on its branches too. Broadly speaking, it can be classified into three Main Branches: 1. Theoretical Linguistics: Study of the abstract forms like grammar, number used in languages, the process of thinking while or before LSRW. 2. Descriptive Linguistics: describes how a language is used in the context of a community and its culture inclusive of its phonology and phonetics. 3. Applied Linguistics: is the domain, in which one studies the application of the principles of linguistics in other fields like forensic science, computer and Internet, documentation, psychology and neurology. Key Words: Linguistics, Phonology, Phonetics, Forensic, Documentation, Neurology.

Linguistics is a subject that studies the Form, Function, Meaning in Context and its System of Speech Sounds. Every branch deals with its relative content that delineates the applied nuances. It mainly encompasses the areas of Etymological study of its Vocabulary, Morphology, Phonetics and Semantics. Phonetics is the scientific study of speech sounds of a language. The present article is to feature the content that focuses on the scientific aspect of phonetics. In other words, it studies the pronunciation of a language in auditory, acoustic and articulatory domains. They are called Auditory Phonetics, Acoustic Phonetics and Articulatory Phonetics.

The three sciences are defined in the following terms:

Auditory phonetics focuses on the perception of sounds or the way in which sounds are heard and interpreted. Thus, we may say that while articulatory phonetics is mainly concerned with the speaker, auditory phonetics deals with the other important participant in verbal communication, the listener.¹

Articulatory phonetics is a branch of phonetics that studies the anatomy in producing the speech sounds. Production and perception of speech sounds mainly depend on biology, anatomy and physiology. Phonetics speaks about several things like audition, perception of speech sounds by human auditory organs

and at the same time it transforms the linguistic message which is grasped by the brain that submits messages. Thus, phonetics has borrowed its content from biology, anatomy, physiology, acoustics and physics:

Auditory phonetics looks at how people perceive the sounds they hear; acoustic phonetics looks at the waves involved in speech sounds and how they are interpreted by the human ear and articulatory phonetics looks at how sounds are produced by the human vocal apparatus.²

In other words, phonetics deals with the production, transmission and reception of speech sounds which are used in communication. When we analyze the roots and resources of the aforesaid three areas, it becomes clear that phonetics is a science. The first component is production of speech sounds which involves physiology and physics. Voice acoustics is the domain in physics that speaks of the frequencies of the vibrations and waves:

There are several sources of sound in speaking. The energy usually comes from air expelled from the lungs. At the larynx, this flow passes between the vocal folds. In voiced speech, the vocal folds (sometimes misleadingly called 'vocal cords') vibrate. This allows puffs of air to pass, which produces sound waves. Here is the first of a series of experiments (colour coded in the text): place your fingers on your neck near your larynx (on your 'Adam's apple') then sing or speak loudly. Can you feel the vibration? The vibrations produced in voiced speech usually contain a set of different frequencies called harmonics.³

Frequency in speaking and producing speech sounds is understood on the basis of the vibrations per second. When a speech sound is produced there is a sound wave. It is the result of the sound produced in the form of waves which have frequencies per second. The study of acoustic phonetics involves the physical properties of the speech sounds; it analyzes the sound waves which give out signals. Every speech varies in frequencies. In short, it studies human speech sounds in the form of waves.

Every sound has frequency and amplitude; frequency is pitch and amplitude is loudness. Physiological Phonetics is the study of:

the branch of phonetics that deals with the motive processes, anatomical measurements, spirometric properties, muscle and membrane tone, and kinetic aspects of the production of speech and with related aspects of the reception of speech.⁴

Phonetics has relations with other sciences like Socio-phonetics and Psycholinguistics. Socio-phonetics studies the effect of interaction with regard to pronunciation in society. Different social functions produce different phonetic structures. Thus phonetics is a study of human sound system employed in a language. Psycholinguistics is another discipline that analyzes the psychological implications that trigger linguistic pathology among children and adults. Language Ignorance may cause ambiguous constraints. There might be problems in the production of speech sounds and comprehension of pronunciation. It can be inferred that Phonetics involves many disciplines that form its integral parts.⁵

The branch of Phonetics which is concerned with the study of the acoustic aspect is called Acoustic Phonetics. It uses kymograph (records, qualitative variations of sounds), a spectrograph (shows frequencies of a given sound and its amplitudes), auscilograph (records sound vibrations) and intonograph (investigates the fundamental frequency of speech as

The component of intonation). The branch of Phonetics which studies the units serving people for communicative purposes is called Phonology.⁶

Besides we have Special Phonetics or Descriptive Phonetics, General Phonetics, Historical Phonetics, Comparative Phonetics. All the branches of Phonetics are closely connected with each other as well as with some other branches of Linguistics such as Lexicology, Grammar, and Stylistics. The connection of Phonetics with Lexicology lies in the fact that distinction of words is realized by the variety of their appearances. The phonetic course of a given language determines the sound composition of words. For example Turkish languages do not admit two or more consonants at the beginning of words while in some Slavonic languages

such a phenomenon is widely spread. Sound interchange is a very vivid manifestation of a close connection of Phonetics with Morphology. It can be observed in the category of number (man – men; goose – geese; foot – feet). Sound

Interchange also helps to distinguish basic forms of irregular verbs (sing-sang-sung), adjectives and nouns (strong-strength), verbs and nouns (to extend-extend).⁷

Phonetics is closely connected with Syntax. Any partition of a sentence is realized with the help of pauses, sentence stresses, melody. Changes in pausation can alter the meaning of an utterance.

For example: *One of the travelers / said Mr. Parker / was likeable* (direct speech). If the pause is after “said”, then we have another meaning of this sentence: *One of the travelers said / Mr. Parker was likeable*. The rising/falling nuclear tone determines the communicative type of the sentence: *You know him – statement / you know him – general question*.⁸

Phonetics is also connected with Stylistics through repetition of sounds,

Words and phrases. Repetition of this kind creates the basis of rhythm, rhyme and alliteration (repetition of sounds). Rhythm may be used as a special device not only

in poetry but in prose as well:

Round about the cauldron go

In the poison'd entrails throw?

Double, double toil and trouble

Fire burn and cauldron bubble

Investigations in historical aspects of languages and the field of Dialectology would be impossible without an understanding of phonetics. The practical aspect of Phonetics is no less important. Teaching of reading and writing is possible only when one clearly understands the difference between the sounds and written forms of the language and the connection between them.

Orthoepy is the correct pronunciation of the words of a language. Phonetics is important for eliminating dialectal features from the pronunciation of dialect speakers; in logopedics (in curing various speech defects); in surdopedagogics (in teaching normal aural speech to deaf and dumb people).⁹

Acoustic Phonetics and Phonology are of great use in technical acoustics or sound technology that is the branch of science and technology which is concerned with the study and design of techniques for the recording, transmission, reproduction, analysis and synthesis of sound by means of various devices such as microphone, loud-speaker, radio and

Television sets, speech synthesizers etc.

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