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text: دارد □ ندارد ■ voice: دارد □ ندارد ■ power point: دارد □ ندارد ■
تلفن همراه مدیر گروه : **ویدئو آموزشی دارد!**

This is **summary of the key topics** covered so far! Good luck and happy Nowruz in advance.

- What is PHONETICS?

Phonetics is the general study of the characteristics of speech sounds (phonemes). So, when we study how humans produce or perceive sounds of a language/languages (for example, how we produce /p/ like in *پارس* or /s/ like in *سیمان* in Persian or /θ/ in English like in *THINK*), we are doing phonetics! (**Watch Video-1**)

- Three branches of PHONETICS?

1. Articulatory phonetics: This branch of phonetics studies how we produce speech sounds (for example, consonants and vowels). So, it deals with the articulation (=production) of human speech sounds.

2. Acoustic phonetics: This branch of phonetics studies speech sounds as sound waves in the air! It studies speech sound waves and their physical acoustic characteristics in advanced laboratories.

3. Auditory phonetics: It is also called perceptual phonetics because it studies how we understand and perceive speech sounds by our ears and mental mechanisms. For example, what happens in our ears and brain capacities that we hear the sound /s/ as /s/ and not as /d/ or /z/!



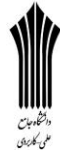
- There are TWO types of speech sounds (phonemes) in every language:
 - 1. Consonants:** Consonants are those speech sounds (phonemes) that there is an obstruction (either complete or incomplete) of air somewhere in the vocal tract (from larynx to lips; see Figure 1) when they are produced. For example, when we produce the phoneme /t/ in the word TEACHER, the air is stopped completely behind our tongue and alveolar ridge, then suddenly released. Some English consonants are: /p/, /t/, /k/, /b/, /d/, /g/, /s/, /n/, /m/, /w/, /v/ and /θ/. **(Watch Video-2)**
 - 2. Vowels:** Vowels are those speech sounds (phonemes) that there is NO obstruction of air in the vocal tract (see Figure 1) when they are produced. The air passes freely out of lungs, through the mouth and finally out of the lips. For example, when we produce the word FATHER, we produce the vowel /ɑ:/ by freely passing the air out of our lungs and mouth. Some English vowels are: /ɑ/, /e/, /i/, /l/, /u/, /ɔ/ and /ə/. **(Watch Video-2)**
- **NOTE:** ALL the vowels are VOICED. It means that when they are produced, the vocal folds (also called vocal cords) in our larynx are vibrating. But consonants can be VOICED or VOICELESS. A VOICED consonant is produced when vocal folds are vibrating, like /z/ or /b/. A VOICELESS consonant, however, is produced when vocal folds are not vibrating, like /s/ or /p/.

Consonants:

Consonants are speech sounds produced by restricting the airflow in some way. When a consonant is produced the airflow coming out of lungs is either completely restricted or stopped (like /p/, /b/, /g/) or roughly stopped creating a narrow passage (like /s/, /z/, /h/) or passing with some form of loose restriction (like /ɹ/, /j/, /w/, /l/). **See Video-2**



- We can categorize consonants based on THREE aspects:
 - 1. Voicing:** If the vocal folds vibrate while producing a consonant, we say the consonant is **voiced**; if not, we say it is voiceless. For example, /p/, /t/ and /k/ are **voiceless** but /b/, /d/ and /g/ are voiced. **See Video-3**
 - 2. Place of articulation:** Where is a consonant produced in the vocal tract? Which articulators (lips, teeth, tongue, alveolar ridge, hard palate, soft palate, glottis, nasal passage) are involved? For example, when we produce /b/, our upper lips and lower lips touch each other to stop the airflow and release it to produce this phoneme (that is why it is called bilabial = two lips!). Or when we produce /s/, the blade of your tongue touches the upper alveolar ridge to make the friction necessary to produce this phoneme (that is why it is called an alveolar phoneme!). See Figure 1 for articulatory organs involved in the production of consonant phonemes. **See Video-3 Figure 1**
 - 3. Manner of articulation:** How consonant phonemes are produced? What happens to the airflow when they are produced! Is the airflow completely stopped, is it stopped in the mouth but open in the nose, is it released with friction or very roughly restricted at all? These questions are answered based on the manner of articulation. For example, when we produce /z/, the air is pushed out with a friction creating a continuous sound (that is why it is called a fricative consonant). When we produce /d/, the airflow is completely stopped (so it is called a STOP consonant). **See Video-3**



شکل ۱. دسته بندی همخوان های زبان انگلیسی بر اساس واجگاه (محل تولید واج: Place of Articulation):

همخوان: Consonant:

واجگاه یا محل تولید همخوان: Place of articulation:

واج (که در اینجا واج های ما همخوان هستند): Phoneme:

بی واک: تارهای صوتی هنگام تولید این همخوان در حالت ارتعاش به سر نمی برند: Voiceless:

واکدار: تارهای صوتی هنگام تولید این همخوان در حالت ارتعاش به سر می برند: Voiced:

| Consonants | Place of articulation | Voiceless | Voiced |
|---------------------|--|--|--|
| Bilabials | both (= bi) lips (= labia) together | [p] <u>pat</u> | [b], [m], [w] <u>bat</u> , <u>mat</u> , <u>wet</u> |
| Labiodentals | the upper teeth with the lower lip | [f] <u>fat</u> , <u>safe</u> | [v] <u>vat</u> , <u>save</u> |
| Dentals | the tongue tip behind the upper teeth or between the teeth | [θ] <u>thin</u> , <u>bath</u> | [ð] <u>then</u> , <u>bathe</u> |
| Alveolars | the front part of the tongue on the alveolar ridge (the rough area behind and above the upper teeth) | [t], [s] <u>top</u> , <u>sit</u> | [d], [n], [z], [l], [r] <u>dog</u> , <u>nut</u> , <u>zoo</u> <u>lap</u> , <u>rap</u> |
| Palatals | the tongue and the hard palate (on the roof of the mouth) | [ʃ], [tʃ] <u>shop</u> , <u>chop</u> | [ʒ], [dʒ], [j] <u>casual</u> , <u>gem</u> , <u>yet</u> |
| Velars | the back of the tongue on the velum (soft palate) | [k] <u>cat</u> | [g], [ŋ] <u>gun</u> , <u>bang</u> |
| Glottals | using the glottis, the open space between the vocal folds | [h] <u>hat</u> , <u>who</u> | |

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