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## PEDAGOGIC IMPLICATIONS OF A CONTRASTIVE ANALYSIS OF THE PHONEME FREQUENCY IN ENGLISH AND PERSIAN

### **Definition**

The principal aims of this study are twofold:

- a-- To investigate whether the proportion of voiced sounds (vowels and voiced consonants) in one language also applies to another language.
- b-- To point out the pedagogic implications of the contrastive analysis of the study concerned.

### **Procedure**

In order to conduct this study the following steps had to be taken:

1. Preparation of a phoneme frequency chart for English and for Persian.
2. Determination of the proportion of consonants to vowels in English and in Persian.
3. Determination of the proportion of voiced consonants to voiceless ones in English and in Persian.
4. Determination of the proportion of voiced sounds (vowels

and voiced consonants) in English and in Persian.

5. Determination of the proportion of the English voiced sounds to the Persian voiced sounds.

### **Limitations**

1. In conducting this research the writer has adopted the terminology and the phonological treatment of George L. Trager and Henry L. Smith's *An Outline of English Structure*.

2. Even if a frequency correlation is discovered between the English and Persian phonemes, the generalization of this finding to other Indo-European languages necessitates researches of a similar nature.

3. The present investigation is restricted to the segmental phonemes, and makes no claim to even touch upon the suprasegmental phonemes.

Despite the fact that the consonant repertoire of any language outnumbered vowels, yet vowels in context have no meager number compared with consonants. There are, for example, twenty-three consonants in modern Persian (p, b, d, k, g, q, ʔ, č, j, f, v, x, h, s, z, š, ž, l, r, m, n, y) while the vowel inventory of this language lists only six vowels (i, e, a, u, o, a).

If these phonemes were equally distributed the proportion of consonants to vowels would be approximately three-to-one. This proportion does not exist, due to the relatively sparse use of certain consonants and the frequent incidence of most vowels

Unfortunately examples present only an impressionistic, and therefore untrustworthy picture of the facts. For instance, words like *nán* / (bread), / *tofáeng* / (rifle), / *kermanšah* /

(Kermanshah), and /faerhaengestan/ (academy) illustrate a two-to-one proportion between consonants and vowels; words like /šòxm/ (plow) /morq/ (chicken) /taelx/ (bitter) point to a three-to-one proportion; and words consisting of one single vowel, like /ú/ (he, she), /o/ (and), dispel all notions of proportion.

In order to determine the phonemes of any language recourse to examples and conjectures hardly proves satisfactory. In the present undertaking it has therefore completely been abandoned in favor of what is perhaps the most accurate data collection: A number of modern texts of different styles were selected randomly, a few sentences of each were copied and transcribed phonemically as they would appear in normal discourse contexts. Of these, two thousand phonemes were counted and properly categorized.

For the sake of comparison, it was necessary to have access to the results of a similar research conducted for English. Peter MacCarthy's consonant-vowel proportion of three-to-one, and his hunch-like arrangement of consonants in the order of frequency seemed to be far from precise. Therefore the same statistical procedure was applied to determine the frequency of English phonemes. The following tables illustrate the results of the analysis:

1. Peter MacCarthy, *A Practice Book of English Speech* (Oxford University Press, 1965), p. 20.

Phonemes	Persian			English		
	Order of priority	Incid- ence	Per- centage	Order of Priority	Inci - dence	Per- centage
p	21	6	.30	15	32	1.6
b	6	67	3.35	16	30	1.5
t	4	97	4.85	1	144	7.2
d	3	103	5.15	7	70	3.5
k	11	44	2.2	8	48	2.4
g	20	7	.35	20	13	.65
q	17	21	1.05	—	—	—
ʔ	19	9	.45	—	—	—
č	22	2	.11	21	13	.65
j	18	15	.75	22	9	.45
f	16	24	1.2	14	36	1.8
v	12	41	2.05	10	45	2.25
θ	—	—	—	23	7	.35
d	—	—	—	4	122	6.1
x	15	26	1.3	—	—	—
h	10	49	2.45	17	19	.95
s	7	61	3.05	5	95	4.35
z	8	58	2.9	9	47	2.35
š	13	41	2.05	18	17	.85
z̃	23	2	.1	24	5	.25
l	14	28	1.4	6	87	4.35
r	1	133	6.65	2	134	6.7
m	5	68	3.4	13	39	1.95
n	2	106	5.3	3	131	6.55
n	—	—	—	19	15	.75
w	—	—	—	11	42	2.1
y	57	57	2.85	12	40	2

From these figures it might be inferred that while vowels constitute 38% of the English segmental phonemes, this percentage for the Persian is no less than 49.75%. The chart below illustrates this comparison:

Segmental Phonemes				
		Vowels	Consonants	
	%	Incidence	%	Incidence
Persian	46.75	935	53.25	1965
English	38	760	62	1240

Hence there is a difference of 8.75% between the frequency of English and Persian vowels. One might account for this discrepancy by comparing the percentage of the voiced and voiceless consonants of the two languages concerned, as may be seen in the following chart:

Consonants		
	Voiceless	Voiced
Persian	19	34.25
English	20.55	41.45

This chart indicates that the percentage of voiced consonants in English is 7.20% higher than in Persian. Considering the fact that all vowels are voiced, we might present a comprehensive percentage table of all the voiced phonemes, consonants and vowels alike, in the two languages:

	Voiced Consonants	Vowels	Total
Persian	34.25	46.75	81
English	41.45	38	79.45

The cumulative high incidence of consonants, as compared with the relative paucity of vowels, could thus be viewed in a new perspective; i.e., voiced versus voicelessness. Looked at from this angle, the discrepancy between the number of consonants and vowels is balanced, not only by the abundance of individual vowels, but also by the existence of voiced consonants.

### **IMPLICATIONS:**

The results of this quantitative analysis indicate that there exists a common phonological feature in Persian and English; i.e., a close correspondence of the frequency of voiced and voiceless phonemes. Whether this result can stand as a language universal or whether it could be extended to other Indo-European languages, depends upon the availability of the results of similar researches for individual languages.

A more tangible application of this research might influence the administration of the first few sessions of language teaching.

That there are certain phonemes in one language that are lacking in another is obvious. Whether or not they need receive the heaviest emphasis at an initial stage of language learning is problematic. It certainly has created a diversity of opinions among linguists and language teachers. Those who

maintain that practicing these phonemes should be given priority over those phonemes that have only phonetic differences are sometimes supported by the relative frequency of the aforementioned phonemes. "How could the language learner feel at ease," they ask, "if he stumbles over one out of eleven consonants of the target language? How very frustrated and discouraged he feels every time he encounters one of these heinous obstacles!"

On the other hand, the theorists who believe in the gradual mastery of pronunciation are supported by the fact that a heavy concentration on the practice of altogether unfamiliar phonemes at the outset will create insurmountable boredom.

The language teacher and the textbook writer find only contradicting guidelines in this welter of dichotomous assertions. Under pressure of circumstances teachers seek relief in hitting upon a so-called "happy medium," only to postpone the remedy.

Language learning, being a difficult enough task, should not be made more difficult by artificial means. In spite of this fact, a contrary effect is often observed when the beginner is held responsible for a near-native enunciation of all the sounds he will later need for effective communication in the target language. It is not hard to see that this strict and rigid expectation creates insurmountable impediments in the way of mastering the sound system of a foreign language. One need not worry if, during the prereading stage, the proper time for acquaintance with the phonemes of the target language, the language learner fails to have an excellent pronunciation. As long as by the end of this formative period he has acquired a passive knowledge

of the phonetic properties of the same can be anticipated during the early stage of reading. In other words, even if the language learner initially acquires a distorted notion of the target language's sound system, there will later be ample time for correcting him.

This approach not only shortens the prereading stage, it diminishes as well the possibility of pupil boredom. Particularly in language learning, it is more important to have a sense of achievement, even an unrealistic one, than to succeed but fail to appreciate that achievement.

