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PROBLEMS INVOLVED IN THE PRODUCTION OF ENGLISH
CONSONANT CLUSTERS BY EGYPTIAN LEARNERS OF ENGLISH

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Introduction:

The problems of teaching pronunciation, and the importance of training in phonetics, become especially evident if we consider teaching the pronunciation of English consonant clusters to Egyptian learners.

Egyptian learners tend to substitute familiar patterns from their native language for an unfamiliar pattern in English, thus distorting the structure of the language.

Their mispronunciation of English consonant clusters results in phonetic problems: namely a foreign accent (Egyptian English), and even in phonemic problems, in cases where the mispronunciation of words causes ambiguity of meaning. Thus, the area of consonant clusters may be regarded as one of the most important, as well as the most difficult, areas of teaching English pronunciation.

In this paper, we will attempt to draw a brief comparison between English and Arabic consonant clusters, and consider the implications of such a comparison for the teaching of English consonant clusters to Egyptian learners, thus translating certain theoretical and abstract issues into actual implementation and practice.

Arabic and English make use of different types of syllable structure.

In Arabic there are five syllable patterns. In their representation C stands for any consonant, V for any short vowel and V: for any long vowel. The five patterns are as follows:

1. CV
2. CVC
3. CV:
4. CV:C
5. CVCC

On the other hand, English has a larger variety of syllable patterns. The formula for English syllable structure in a simple form is:

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$$C_{0-3}V \qquad\qquad -C_{0-4}$$

The figures here indicate possibilities, in terms of number of elements, for a particular place in the syllable structure. Thus, C_{0-3} means that there can be anything from no to three C elements in place 1 of the syllable.

As the formula indicates, the main difference between Arabic and English lies in the size of the consonant sequences and in the structural place where they are permitted. If we take C to stand for any consonant we can present the permissible sequence in the two languages as follows:

	Initial	Medial	Final
Arabic:	C	C	C
		CC	CC
English:	C	C	C
	CC	CC	CC
	CCC	CCC	CCC
		CCCCCCC	CCCC

Initial here means at the beginning of a word. Medial means between vowels and without any open transition. Final means at the end of a word. For English it means before open transition, for Arabic it means only before pause since before open transition Arabic cannot have more than one consonant.

A comparison between the possible sequences of consonants in English and Arabic reveals the following facts:

1- English has as many as four consonants in close transition and as many as six or seven (C.F. Hocket, **Manual of Phonology** Baltimore. 1955, p. 63) with intervening juncture.

2- Arabic has no sequences of more than two consonants whether in close transition or with intervening juncture.

Consonant Sequences In Arabic:

From the table above, we see that in Arabic only single consonants occur initially e.g. / Katab / "he wrote".

Medially, both single or two consonants occur:

e.g. / ḥaqib / "a hook"
/ maktab / "a desk"

Finally, single or two consonants occur:

e.g. / balad / "a country"
/ burg / "a tower"

Junctural Sequences:

These are usually a combination of single final and single initial consonants. Clusters of more than two consonants do not occur in close transition.

e.g. / ʔana ʃ if / "I dry" / wi ʃ i / "my face".
/ ʔana ʃ ifwi ʃ i// "I dry my face"

1. When a consonant suffix is added to a segment ending in two consonants, a short vowel is inserted between the final compound consonant and the consonant of the suffix. e.g. "ʃ ams/ sun", /na/suffix meaning "our". ʃ amsina, "our sun".

2. When a final compound consonant cluster occurs before an initial consonant across juncture without pause an epenthetic vowel occurs and separates the final compound consonant from the initial one, thus, not permitting a sequence of three consonants to occur.

e.g. /na ʃ ift/"I dried", /wi ʃ ʃi/"my face" becomes/na ʃ ʃifte-wi ʃ ʃi/

Consonant Sequences In English:

English has from one to three consonants initially:

sin   spot   splash

It has from one to four consonants medially and finally:

Medial	Final
family	pin
seldom	band
boulster	bands
constraint	texts

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It has as may as seven consonants with juncture e.g./ glimpst stri:mz/"glimpsed streams".

From the description above it is clear that the Arabic-speaking student will have difficulties with:

1- English initial consonants of more than two members.
2- Medial sequences of more than two consonants in close transition or with intervening juncture.
3- Final sequences of more than two consonants.

The Arabic-speaking tends to transfer his native sound syllable structure to English, thus using a cluster breaker or an intrusive vowel whenever he meets a consonant sequence that is not permitted in his mother tongue.

Comparison Between The Sound Sequences Of English And Arabic

The following comparison will be divided into four parts. In each part the various sequences of English that can play the designated role in the syllable will be compared with the various sound sequences of Arabic that can play the same role. In cases where English sound sequences may play a role in the syllable that Arabic sequences may not, the pronunciation errors that the Arabic-speaking student of English has been observed to make are discussed.

1- Initial Clusters:

(A) Clusters Of Two Members:

They consist either of:
i) a consonant + / l / , / r / , / j / or / w /.
or ii) / s / + a consonant.

i) a. Consonant + /l/

/pl/	play
/kl/	climb
/bl/	black
/gl/	glow
/fl/	glow
/fl/	flow
/sl/	slow

b. Consonant + /r/

/pr/	prove
/tr/	tree
/kr/	crime
/br/	bread
/dr/	drive
/gr/	grew
/fr/	fry
/Θr/	three
/ʃr/	shred

c. Consonant + /j/

/pj/	pure	/nj/	news
/tj/	tune	/sj/	sue
/kj/	cure	/vj/	view
/bj/	beauty	/lj/	lewd
/dj/	due	/hj/	hue
/mj/	music	/fj/	few

d. + w

/tw/	twin
/kw/	queen
/dw/	dwell
/Θw/	thwart
/sw/	sweet

ii) /s/ + Consonant

/sp/	spot
/st/	star
/sk/	school
/sm/	smell
/sn/	snare
/sf/	sphere

Although the speaker of Arabic does not have initial CC in Arabic, in practice he has very little difficulty with English CC. This may be attributed to the fact that Egyptian colloquial Arabic occasionally shows in-

itial clusters of two consonants in loan words, e.g./grinit $\int$⁄"Greenwich", /bra:vo:/"well done" and/trank/"a trunk call".

He will have troubles with the clusters containing /p/ , θ /and/s/.

e.g. 1. "prove"": he will substitute his native/b/for the /p/ in the English cluster/pr/.

2. "three": he will substitute his native/s/for the /Θ/ in the English cluster/Θr/.

In both cases he will not break the cluster with any intervening vowel. As for clusters containing/s/ + consonant, he will add/ ʔi/ before the initial cluster. "sport", for instance, will be pronounced/ʔisp ɔ :rt/. This is a common pattern in Arabic in the words/ʔistanna/ "wait" and /ʔisʔal/"ask" which the learner transfers to English.

Implications For Teaching:

Only consonant clusters containing/s/ + consonant should be specifically drilled since all the other initial clusters do not constitute any difficulty. As for the clusters containing/p/ , /θ/ where substitution oc curs, they will be drilled when the individual consonants/p/ and /Θ/ are being dealt with.

(B) Clusters Of Three Members:

These clusters consist of /s/ + one of the voiceless plosives + /l/ , /r/ , /j/ or /w/.

/spl/	split
/spr/	spread
/str/	street
/skr/	screw
/stj/	stew
/skw/	square

All these three-element consonant clusters present problems to the learner who will break up the cluster by inserting /ʔ/ + a short vowel i.e. /i/ after it at the beginning of the initial cluster.

Implications:

All initial consonant clusters of three members should be drilled.

II- Final Clusters:

(A) Clusters Of Two Consonants:

The majority of these clusters in English end in /d/ , /t/ , /z/ or /s/ and often result from the addition of the suffixes spelled "d" or "ed" and "s" or "es" to words ending in a single final consonant.

The suffix spelled d/ed forms the regular past and past participle of verbs. There are two suffixes usually spelled s/es: the suffix that forms the regular third-person singular present tense of verb, and the suffix that forms the regular plural of nouns.

Apart from the clusters that may result from the addition of the suffix d/ed or s/es, there are a number of clusters formed by the addition of "th" to words ending in a final consonant and still other clusters that cannot be grammatically analysed. These unanlysable clusters all begin with /s/, a nasal consonant or /l/. The common English final two-consonant are illustrated below:

1) Voiced Consonant + /d/

Cluster	Example	Cluster	Example
/bd/	grabbed	/ŋd/	hanged
/gd/	begged	/vd/	lived
/md/	seemed	/ðd/	breathed
/nd/	leaned	/zd/	buzzed
/ld/	cooled		

Of these clusters only the following occur in Arabic:

Cluster	Example	Meaning
/bd/	/ʕabd/	slave
/md/	/ħamd/	thankfulness
/gd/	/magd/	glory
/nd/	/ʕand/	at
/ld/	/gild/	skin

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The following clusters do not occur in Arabic:

2) Voiceless Consonant + /t/

Cluster	Example
/pt/	stopped
/ft/	laughed
/st/	kissed
/ʃt/	dashed

Of these consonant clusters only the following occur in Arabic.

Cluster	Example	Meaning
/kt/	/hilikt/	I got tired
/ft/	/ʃuft/	I saw
/st/	/bust/	I kissed
/ʃ t/	/ʕiʃt/	I lived

/pt/ does not occur in Arabic.

3) Voiced Consonant + /z/

Cluster	Example	Cluster	Example
/bz/	ribs	/ŋz/	things
/dz/	seeds	/vz/	groves
/gz/	bugs	/ʒz/	loathes
/mz/	arms	/lz/	steals
/nz/	pins		

Of these clusters only the following occur in Arabic:

Cluster	Example	Meaning
/bz/	/xabz/	baking
/gz/	/ħagz/	booking
/mz/	/ramz/	symbol
/nz/	/kinz/	treasure-trove

The following do not occur: /dz/ , /ŋz/ , /ʒz/ , /lz/ and /vz/

4) Voiceless Consonant + /s/

Cluster	Example
/ps/	leaps
/ts/	seats
/ks/	backs
/fs/	laughs

Of these the following occur in Arabic:

Cluster	Example	Meaning
/ks/	/ʕaks/	opposite
/ts/	/ʕats/	lentil
/fs/	/nafs/	soul

5) Consonant + θ

Cluster	Example		Cluster	Example
/tθ/	eighth		/ŋθ/	length
/dθ/	width		/fθ/	fifth
/mθ/	warmth		/lθ/	health
/nθ/	month		/pθ/	depth

All these cluster do not exist in Arabic.

6) /s/ + Consonant

Cluster	Example
/sp/	grasp
/sk/	ask

/sk/ occurs in Arabic e.g. /mask/ "holding". /sp/ does not exist in Arabic.

7) Nasal + Consonant

Cluster	Example
/mp/	camp
/mf/	triumph
/nt/	tent
/ns/	dance
/ŋk/	think

All these clusters occur in Arabic except /mp/ and /ŋk/

Cluster	Example	Meaning
/nt/	/bint/	a girl
/ns/	/kans/	sweeping
/mf/	/samf/	kind

8) 1 + Consonant

Cluster	Example	Cluster	Example
/lb/	bulb	/lf/	self
/lk/	milk	/ls/	pulse
/lp/	help	/lv/	delve
/lt/	belt	/lm/	realm

The Following Occur In Arabic:

Cluster	Example	Meaning
/lb/	ʔalb	turning over
/lk/	silk	wire
/lt/	ʔult	I said
/lm/	ʕilm	knowledge
/lf/	ʔalf	a thousand
/ls/	/hals/	depravity

/lp/ and /lv/ do not occur in Arabic.

In general, Egyptian learners deal with two consonant final clusters either by introducing a cluster breaker, or by substitution, for example, substituting /b/ for /p/ in clusters of which one of the elements is the phoneme /p/, or similarly substituting /s/ for /θ/. This is due to the fact that such phonemes do not exist in Arabic, and so the clusters that include them present problems for Egyptian learners.

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A specific difficulty for Egyptian learners is the movement from /θ/ to /s/ and from /ʒ/ to /z/ in such sequences as /θ s/ and /z/ respectively. Here, Egyptian learners tend to substitute /s/ for /θ/ and /z/ for /ʒ/, and separate the two elements of the cluster by inserting a short vowel as a cluster breaker. Thus, they will mispronounce such words as; "months"/mʌnθs/ → /mʌnsiz/ and "bathes" /beiʒz/ → /beiziz/.

Apart from these clusters, the major difficulty from the Egyptian learner is pronouncing any two element cluster preceded by "r". As the learner tends to pronounce the "r" wherever its position in Arabic and he transfers this to English, thus any final cluster of two members preceded by "r" in English will, for him, constitute a cluster of three consonants and he will break it by using a short vowel e.g. r + md as in "formed" is rendered [fɔ: rmid]. The following are amongst the most mispronounced words: "parked", "first", "world", "words", "terms", "girls", "concerned", "formed", "worked", "birds", "firms", "burns", "curves", "turns", "hurts".

D) Clusters Of Three Consonants:

All the three consonant clusters occurring word-finally present a great difficulty to the learner. He will tend to insert a short vowel between the last two consonants: CCC will be rendered - CCVC so "tests" becomes /tests-is/.

English final clusters of three consonants end in /d/, /t/, /z/, /s/ or /θ/. As these clusters are the most difficult ones for Arabic speaking students, the class time devoted to them is well spent. All the following should be drilled:

Cluster	Example
i) Clusters Ending In /d/	
/nzd/	cleansed
/lmd/	filmed
/lvd/	delved
/dʒd/	urged

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Cluster	Example

2) Clusters Ending in /t/

Cluster	Example
/pst/	lapsed
/kst/	next
/dst/	midst
/mpt/	jumped
/mft/	triumphed
/tʃt/	watched
/nst/	sensed
/ŋkt/	thanked
/ŋst/	amongst
/lpt/	helped
/lkt/	milked
/lst/	pulsed
/spt/	grasped

Cluster	Example

3) Clusters Ending in /z/

Cluster	Example
/ndz/	hands
/ldz/	builds
/lmz/	elms
/lvz/	shelves

example	Cluster

4) Clusters Ending in /s/

Cluster	Example
/pst/	scripts
/kts/	acts
/mps/	lamps
/mfs/	triumphs
/ŋks/	banks

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/fts/	lifts
/sps/	lisps
/sts/	lists
/sks/	risks
/lps/	helps
/lts/	halts
/lks/	milks

. . . .

C) Clusters Of Four Consonants:

These clusters occur only rarely as a result of the suffixation to CCC of /t/ or /s/ morphemes. In the pronunciation of these clusters the learner tends to insert a short vowel between the last two consonants. "tempts" will be pronounced /tembtis/ or between the second and the third, "texts" /teksts/ will be pronounced · teksits.

CCCC	CCCVC
CCCC	CCVCC

Examples of clusters of four consonants:

/ksts/	tests
/mpts/	tempts
/mpst/	glimpsed
/nt∫t/	drenched
/ndʒd/	changed

III- Medial Sequences (within a word):

English medial sequences of three of four consonants present a difficulty to the learner. He will insert a vowel between the second and the third consonant:

- CCC - will be rendered · CCVC ·
- CCCC - will be rendered · CCVCC -

e.g. "transport" will be pronounced [trænsipɔ : rt]
   "landscape" will be pronounced [landiskeip]

Medial Combinations (in connected speech):

They are made of final and initial-clusters coming together in connected

speech. Medial combinations occur in great numbers in English and constitute a major problem for the Arab learner. These combinations can be classified in different ways:

English

1-	C-C	/t-m/	"get me"
2-	C-CC	/t-θr/	"get through"
	CC-C	/ts-l/	"it's low"
3-	C-CCC	/n-str/	"been struggling"
	CC-CC	/st-sk/	"vast scale"
	CCC-C	/kst-s/	"next Sunday"
4-	CCC-CC	/lks-fr/	"milks free"
	CC-CCC	/ts-spl/	"that's splendid"
5-	CCC-CCC	/kst-spr/	"next spring"

Of all the English patterns above, one pattern occurs in Arabic "C-C". The learner will have difficulty with all the other patterns and will tend to break the combination by inserting a vowel, thus destroying the syllable structure of the whole phrase or sentence.

Summary:

1- The speaker of Arabic has difficulties in pronouncing consonant sequences since English permits much longer sequences of consonants initially, medially and finally, than Arabic.

2- The Egyptian learner finds no great difficulty with most of the initial two-element clusters.

3- The main difficulty for the Egyptian learner lies in the area of three consonant clusters both initially and finally.

4- Medial sequences of consonants within a word and combinations of consonants in connected speech pose a great difficulty to the Egyptian learner.

4- The Egyptian learner transfers his native habit of inserting a short vowel or a short vowel and a glottal stop in dealing with consonant sequences that do not exist in Arabic. As a result of this, the English

syllable structure will be affected, which will lead to mistakes in stress and rhythm.

Implications For The Teaching Material On Consonant Clusters And Sequences:

The teaching material on consonant clusters and sequences is based on the conclusions drawn from the comparison above with the following points in mind:

1- Phoneme sequences have different values according to their frequency of occurrence in normal discourse. Thus, clusters of low frequency of occurrence are not included.

2- Clusters which include individual phonemes that do not occur in Arabic, namely those which the learner replaces by his native ones such as /p/ and /θ/ are not included. Such clusters are meant to be practised when dealing with the individual consonants. Attention is mainly paid to the sequences which the learner breaks by an intrusive vowel. Mistakes in the pronunciation of those sequences are of a more serious nature: they affect syllable structure in English.

3- The words chosen for practising the clusters and sequences in the exercises provided are those which are common and which the students have been observed to find difficult.

4- Final clusters that contain syllabic /l/, /m/, or /n/ such as those in the pronunciation of some RP speakers e.g. "special" /-ʃl/, "mutton" /-tn/, "rhythm"/ -ðm/ are not included. They will be analysed as / ə +C/ in teaching as this will make them easy for the students to pronounce.

5- Attention is paid to medial combinations of consonants within words and phrases, a feature which is completely neglected in most of the teaching materials available to the Egyptian learner.

6- In the exercises dealing with difficult clusters it is suggested that they should be practised by starting with the shorter clusters then building up.

7- Special attention is paid to the two basic troubles for the Arab learner in pronouncing consonant clusters finally:

a) Consonant clusters which occur in the past tense:

In English the past form "-ed" represents a full syllable only after /t/ and /d/. But in Arabic any combination of three or four consonants has to be broken by a "cluster breaker" - a weak vowel that separates the consonants - so if two consonants end the simple form of the verb, as in /a:sk/, the Egyptian speaker's normal pattern is to add a vowel before the next consonant of the past tense ending. Instead of saying /a:skt/ he says /a:skid/. Thus, the past tense of the regular verbs ending in consonant other than /t/ or /d/, especially those which are common such as "thank", "watch", "arrange" are included in the drills.

b) The noun plurals and verb forms ending in -s:

Also cause trouble when added to a basic form with two final consonants. "Desks" will be pronounced /deskis/. Common words which the Egyptian learner is observed to have trouble with, such as "hands", "drinks", "tests" and others are included.

BIBLIOGRAPHY

Abdallah, A.G. and Ghali, M. English Phonetics. The Anglo-Egyptian Bookshop, Cairo, 1961.

Allen, H.B. An Introduction To English Sound Structure. The Amalgamated Publishing House, Cairo, 1959.

- Gaber, A. Sounds Of Arabic. New Offset Printing Shop, Giza: 1986.

- Hanna, H.M. etal. The Phonology Of Modern Spoken English. Dar El Fikr El-Araby, Cairo, 1963.

- Harrell, R.S. The Phonology Of Colloquial Egyptian Arabic. American Council of Learned Societies, New York. 1957.

- Helmi, S. and Abu-Seif, L. The Linguistics Of English: Phonology, Morphology And Syntax. Cairo, 1974.

Hill, L.A. "Initial Clusters". ELT. Vol. XIV (1960).

"Final Clusters In English". ELT. Vol. XVII (1963).

- Hocket, CF. A Manual Of Phonology. Baltimore, 1955.

Mitchell, T.F. Colloquial Arabic: Teach Yourself Arabic. The English Universities Press Ltd., London, 1962.

- Osman, Ali Ezzat. "Some Phonological Problems Involved In Teaching English To Speakers Of Egyptian Arabic" (Cairene Dialect).

In Workpapers In Teaching English As A Second Language. Vol. XI June 1977. University of California. Los Angeles.