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ENGLISH CONSONANTS AND LEARNING PROBLEMS FOR CANTONESE SPEAKERS: A CONTRASTIVE SKETCH

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ABSTRACT

Based on the Contrastive Analysis Hypothesis suggested by Lado and others, the English and Cantonese consonants were analysed and compared. Attempts were made to predict the pronunciation errors Cantonese speakers would make in the process of learning English. Seven Cantonese speaking immigrants from Hong Kong who had been in Canada ranging from three months to eight months were chosen to read the Diagnostic Passage of the Manual of American English Pronunciation written by Prator and Robinett (1972). Their readings were transcribed and analysed. Allophonic errors made by the subjects were also considered. The results showed that most of the pronunciation errors that made by the subjects were those that were predicted. Finally, a hierarchy of difficulty of the English consonants was set up to serve as a guideline for those who teach English to Cantonese students, and for those who are engaged in the preparation of testing materials for Cantonese speakers of ESL.

1.0. Introduction*

It is commonly understood that in the Cantonese dialect of Chinese, there is only the single liquid /l/. This fact has been the basis for many dialect jokes, in which, for example, 'fried rice' is pronounced as 'flied lice'. Besides this, however, there are many other linguistic differences in pronunciation between English and Cantonese that are rather distinctive, but that are not perceived as such by the Cantonese speakers learning English as a second language. It is quite certain that a Cantonese speaker will have difficulties

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which are different from those encountered by, say, a French speaker, or even a Mandarin Chinese speaker. Lado (1957; 1964) and others (Politzer and Staubach, 1961; Strevens, 1965; and Ferguson, 1965) have hypothesized that by comparing systemically the target language with that of the language to be studied, we could predict the major difficulties encountered by the learner. This contrastive analysis of the two languages would also offer an excellent basis for the preparation of teaching and testing materials, the planning of courses, and the development of actual classroom techniques. Within the framework of contrastive analysis, this paper attempts to investigate consonantal contrasts between English and Cantonese, to predict the pronunciation errors Cantonese would make in the process of learning English, and to classify the actual errors according to their types.

2.0. Consonant Phonemes

The English and Cantonese consonant phonemes can be summarized in the following manner: [1]

Plosives	English		Cantonese		
1. Plain[2]	vl	vd	vl	vd	
	p	b	p′	—	Bilabial
			p		Bilabial
	t	d	t′	—	Alveolar
			t		Alveolar
	k	g	k′	—	Velar
			k		Velar
2. Complex	tʃ	dʒ	—	—	Alveopalatal
			ts′		Alveolar
			ts		Alveolar
Fricatives					
1. Plain	f	v	f	—	Labiodental
	θ	ð	—	—	Interdental
	h		h		Glottal
2. Complex	s	z	s	—	Alveolar
	ʃ	ʒ	—	—	Alveopalatal

1. The description of Cantonese consonants presented in this paper is mainly based on *An Introduction to the Pronunciation of Chinese* by Francis D. M. Dow (1972) and my own observation.

2. The plain/complex opposition in plosives and fricatives in this paper follows Harold Whitehall, Professor Emeritus of Indiana University. Acoustic justification underlies this division. Complex consonants are much louder than plain ones.

Sonorants			
1. Nasals	m	m	Bilabial
	n	n	Alveolar
	ŋ	ŋ	Velar
2. Lateral	l	l	Alveolar
3. Turbulent	r	—	Alveolar (Retroflex)
4. Semivowels	w	w	Bilabial
	y	y	Alveolar

Besides the differences in the qualities of the sounds, distribution is another difference between English and Cantonese. In English, except /ʒ/ and /ŋ/, all consonants occur initially, and except /h/ and semi-vowels /w/ and /j/, all consonants occur finally. Certain English consonants occur in sequences to form clusters which may be either syllable initial or syllable final, and which may be a sequence of two, three, or even four consonants.

In Cantonese, all consonants occur initially, except for the subset consisting of the nasals /m, n, ŋ/ and of the plosives /p, t, k/ which also occur finally. Moreover, Cantonese consonants rarely occur in a sequence.

3.1. The Plosives

3.1.1. The Plain Plosives

	Plain
English Plosives	/p-bt-dk-g/
Cantonese Plosives	/p′p-t′t-k′k-/

a) In English [p′] and [p] are the allophones of the phonemes /p/, [t′] and [t] are the allophones of the phonemes /t/, and [k′] and [k] are the allophones of the phoneme /k/. While in Cantonese, /p, p′ t, t′ k, k′/ are all different phonemes. They are distinctive.

b) In Cantonese, there are no voiced stops. While in English, the voiced stops are /b, d, g/. Chang (1974) has suggested that the Cantonese voiceless, unaspirated stops, viz. /p, t, k/, which occur only initially in Cantonese, strike an English ear as rather similar to English /b, d, g/. Thus, it will be predicted that Cantonese speakers tend to substitute these Cantonese stops for the English /b, d, g/ respectively in the initial position.

c) In Cantonese, /t′/ and /t/ have dental-alveolar articulation. In English, /t/ and /d/ have alveolar articulation.

d) Wise (1963) has found that Cantonese final stops, viz. /p, t, k/ are unaspirated and unreleased when pronounced. That is, final /p, t, k/, which typically are plosive in other languages, are not exploded in Cantonese. The lips remain closed at the end of /p/, the tongue clings to the alveolar ridge at the end of /t/, and the back of the tongue clings to the soft palate at the end of /k/. On the other hand, the English final stops, may or may not have audible release depending on the context. In connected speech, they are usually unreleased, wheras in citation form, they are usually released.

From this comparsion, the following errors can be expected for a Cantonese speaker who is learning English:

a) Substitution of Cantonese voiceless, unaspirated /p, t, k/ for English /b, d, g/ respectively in the initial position.

b) Reinterpretation of alveolar plain stops as dental-alveolar.

c) Pronouncing the English /p, t, k/ without plosion when used as final consonants in the citation form, i.e., one tends to replace the English stops /p, t, k/ by the Cantonese non-plosive unaspirated /p, t, k/ respectively.

3.1.2. The Complex Plosives/Affricates

	Complex
English Plosivs	/ts, tʃ, dz, dʒ, tr, dr/
Cantonese Plosives	/ts′, –, ts, –, –, –/

a) In English, some phoneticians consider there to be six complex plosives, namely: /ts, tʃ, dz, dʒ, tr/ and /dr/. However, some have argued on the basis of distribution that there are only two, namely: /tʃ/ and /dʒ/. They have considered /tr/ and /dr/ to be initial clusters, instead of complex plosives or affricates. Also, /ts/ and /dz/ do not occur initially except in some rare borrowed words, such as 'tsetse" and "Dzangaria'. They should not be regarded as true affricates either. Thus for the purpose of comparsion, I will consider only two English complex plosives in this paper, i.e. /tʃ/ and /dʒ/.

b) Cantonese has only two complex plosives, namely: /ts′/ and /ts/. They occur only initially and never in other positions. For example:

〔ts′ɐ〕 'car"

〔tsɛ〕 "older sister'

Wong (1938) has stated that Cantonese /ts′/ and /ts/ bear certain resem-

blances to the English /tʃ/ and /dʒ/. He has also suggested that Cantonese speakers tend to substitute the Cantonese /ts'/ and /ts/ for the respective English /tʃ/ and /dʒ/ when they are learning English.

The following error can be predicted for a Cantonese speaker who is learning English:

Substitution of Gantonese /ts'/ and /ts/ for English /tʃ/ and /dʒ/.

3.2. The Fricatives

	Plain	Complex
English Fricatives	/f, v, θ, ð,	h/s, z, ʃ, ʒ/
Cantonese Fricatives	/f, - - -	h/s. - - -/

a) Cantonese has only three fricatives as follows: /f, h, s/. They are all voiceless and occur only initially. For examples:

/f/ 〔fei〕 'fly (as a verb)'
/h/ 〔hei〕 'happiness'
/s/ 〔sei〕 'dead'

b) English has nine fricatives. /f, θ, s, ʃ/ have the voiced varieties /v, ð, z, ʒ/. /h/ occurs initially and between vowels. /ʒ/ occurs finally and in the intervocalic position. All the others occur in all three positions.

The following errors can be predicted:

a) Substitution of Cantonese /f/ for English /θ/
Thus 'thin' will sound to the English native speaker like 'fin'.

b) Substitution of Cantonese /f/ for English /v/
Thus 'view' will sound like 'few', and 'van' like 'fan' to the native speaker of English.

c) Substitution of Cantonese /t/ for English /ð/
Thus 'they' 〔ðej〕 will sound like 〔tej〕, and 'though' 〔ðɔ〕 will sound like 〔tɔ〕.

d) Substitution of Cantonese /s/ for English /z/
Thus 'rise' will sound like 'rice'

e) Substitution of Cantonese /s/ for English /ʃ/
Thus 'what a big shock' will sound like 'what a big sock'

f) Substitution of Cantonese /s/ for /ʒ/
Thus 'usual' 〔juʒuwəl〕 will sound like 〔jusuwəl〕

3.3 The Sonorants

3.3.1. The Nasal Consonants

English Nasal Consonants /m, n, ŋ/
Cantonese Nasal Consonants /m, n, ŋ/

As far as the Cantonese nasals are concerned, it is found that the final /m, n, ŋ/ in Cantonese are shorter than those in English respectively. For example: compare the /m/ in the English word 'some' [sʌm] and that in Cantonese [sɐm] 'heart'; the /n/ in English 'sun' [sʌn] and that in Cantonese [sɐn] 'born'; and the /ŋ/ in the English word 'sung' [sʌŋ] and that in Cantonese [sɐŋ] 'new'.

Thus the following errowing error can be predicted:

Substitution of the comparative shorter Cantonese final nasals /m, n, ŋ/ for the English nasals /m, n, ŋ/ respectively.

3.3.2. The Lateral and Turbulent Consonants

	Lateral	Turbulent
English	/ l /	/ r /
Cantonese	/ l /	/ - /

a) In Cantonese, the lateral consonant /l/ occurs only initially. Thus it is always a clear /l/. For examples:

[lan] 'broken'
[lip] 'hunt'

In English, the lateral consonant /l/ has two allophones: clear /l/ and dark /l/.

b) There is no /r/ in Cantonese.

Thus, the following errors can be predicted:

a) Substitution of a clear /l/ to replace the dark /l/ of English words like 'girl' or 'tall', or, since there is no word that ends with /l/ in Cantonese, the final /l/ in English word will probably be omitted.

b) Substitution of Cantonese /l/ for English /r/
Since there is no /r/ in Cantonese, a Cantonese speaker tends to substitute the Cantonese /l/ for the English /r/. Thus 'fried' rice' will sound like 'flied lice' by the native speaker of English.

3.3.3. The Semivowels

English Semivowels /w, j/
Cantonese Semivowels /w, j/

The semivowels /w/ and /j/ in both English and Cantonese are the same. For example: 'young' [jʌŋ] in English and [jɔŋ] 'brave' in Cantonese; and 'why' [hwaj] in English and [waj] 'dignified' in Cantonese. Therefore, we predict that Cantonese speakers will not have any problems with these two sounds.

4.0. Consonant Clusters

In Cantonese, there are only single consonants, but no clusters. In English the clusters may be syllable initial or syllable final. The syllable structurs can be represented as (C) (C) (C) V (C) (C) (C) (C) phonemically. This means that English permits up to three clusters of consonants initially and four finally.

Since there is no consonant cluster in Cantonese, it is predictable that all English clusters will appear strange to the Cantonese speaker and cause pronunciation problems. Thus, 'please' [plijz] will be pronounced as [pijs].

5.0. A preliminary survey on the pronunciation errors of the Cantonese speakers in learning English consonants

In order to find out if the above predictions are correct, I did a preliminary survey on the pronunciation errors of Seven Cantonese speakers in English consonants.

The procedure was as follows:

a) Seven Cantonese speaking immigrants from Hong Kong[3] who have been in Canada ranging from three months to eight months were chosen to read the Diagnostic Passage of the *Manual of American English Pronunciation* written by Prator and Robinett (1972) (see Appendix I). The Diagnostic Passage was chosen, because it includes the complete set of English phonemes, including those with Low Function Load, a term that suggested by Stockwell and Bowen (1965). Typical examples are /dʒ/ and /ʒ/ in

3. Their ages, sexes, years of studying English, and types of high schools they went to in Hong Kong are listed in Table I.

English. Also, the Passage is specially designed to find out the English pronunciation errors of the nonnative speakers of English.

b) All of their readings were taped. In order to make the subjects not be nervous, before the taping, they were told to read a short Chinese passage in Cantonese, and then read the Diagnostic Passage. They were also told that the purpose of the survey was to find out if Cantonese and English are both tonal languages. (Of course, English is not!)

c) All their readings were transcribed in I.P.A.

d) A native speaker of English was asked to read the Diagnostic Passage as well. His reading was transcribed. The transcription was the basis to compare with other transcriptions by the subjects.

e) Attention was focussed on the consonants of the words they pronounced.

The computation of the results was also based on the following criteria:

a) If a subject has made two or more than two errors in a consonant phoneme whether it is due to wrong substitution or/and omission, it is considered that he had problem with that phoneme. For Phoneme, such as /ʒ/ or /dʒ/ that has a low frequency of occurrence, any one error that made by a subject was considered to be an error in the results.

b) Since the passage was read in the form of connected speech, the following fact was realized:

Shockey (1973), in her dissertation, has found some rules of phonetic and phonological alternations in connected speech spoken by native speakers of English. Some of the common ones are as follows:

1) t → ϕ/—# e.g. isn't 〔Izn〕
2) t → ?/—# e.g. it 〔I?〕
3) d → ϕ/—# e.g. wind 〔uIn〕
4) ŋ → n/—# e.g. going 〔gouIn〕
5) v → ϕ/—# e.g. have 〔hæ〕

Thus in interpretating the errors, the above rules were taken into consideration. Any alternations by the subjects that fitted into the above rules were singled out.

6.0. Results

Moulton (1962) has suggested that consonantal errors should be divided into phonemes and phonetic errors. In this paper, a phonemic error is defined as the substitution of one distinctive phoneme for another phoneme, e.g. the

substitution of /t/ for /k/. The omission of a phoneme, such as the dropping of /l/ in final position, is also included under the category of phonemic error. A phonetic error, on the other hand, is the substitution of a phone for another phone. For example, the substitution of a dental /t/ for an alveolar /t/.

The results of the phonemic errors of the subjects are tabulated as follows:

Phonemic Errors

Total Number of Respondents: 7

Number of Respondent	English Phoneme	Wrong Substitution	Examples
2	initial/b/	/p/	better [pɛtə], be [pi]
1	initial/d/	/t/	dress [trɛs]
2	initial/g/	/k/	begins [bikɪns]
6	/tʃ/	/ts'/	which [wɪts'], speech [spijts]
5	/dʒ/	/ts/	language [læŋgwɪts]
2	/θ/	/f/	think [fɪnk]
2	/ð/	/t/or/f/	clothing [klofɪŋ] or [klotɪŋ]
5	/v/	/f/	live [lɪf], activities [æktifitis]
2	/v/	/w/	advantage [ædwændɪdʒ] activities [æktɪwɪtɪs]
5	/z/	/s/	begins [bigɪns] classes [klesəs]
6	/ʒ/	/s/	causal [kæsjuəl] usually [jusuwəli]
6	/ʃ/	/s/	should [suld] social [sousəl]
7	/r/	/l/or	practice [plæktis] or [pæktɪs]
		omission	problem [plabləm] or [pabləm]
5	/l/	/n/or v.v.	live [nɪv], not [lɔt]

Number of Respondent	Omission of	Examples
5	final fricatives	questions [kwɛstʃən]
6	/l/in the final position	informal [ɪ nformə] little [lɪdɔ]
6	consonant clusters	problem [pabləm] clothing [kofɪŋ]

As far as the phonetic errors are concerned, I found it very difficult to perceive clearly the distinction between two different phones in a connected speech, e.g. a clear/l/ and a dark/l/. Hence the subjects were asked once again to read the following words in the citation form. Of the original seven subjects for the first survey, six participated in this second survey, one being absent. It was hoped that in conducting this second survey, I would be able to pick out their phonetic errors more precisely. The subjects were required to read each word twice. Any error that was made once was marked as an error in the results.

			Purpose
a) /t/	ten	treat, art eat	---- intended to find out if they substitute a dental /t/ for an alveolar /t/ in both initial and final positions.
b) /m/	come	some	---- intended to find out if they substitute the Cantonese shorter /m, n, ŋ/ for the English /m, n, ŋ/ in the final positions.
/n/	sun	sin	
/ŋ/	sing	going	
c) /l/	ball	girl	--- intended to find out if they substitute the clear /l/ for the dark /l/ in the final position.
d) /p/	stop	up	--- intended to find out in the citation form, if they substitute the Cantonese unexploded /p, t, k/ for the English exploded /p, t, k/ in the final position.
/t/	boat	cat	
/k/	pack	bark	

The results of the phonetic errors of the subjects are tabulated as follows:

Phonetic Errors

Total Number of Respondents: 6

Diacritic Marks used:	Velarization	e.g. [ɫ] a dark /l/
	Dental articulation	e.g. [t̪] a dental /t/
	Unreleasiveness	e.g. [p°] an unreleased /
	Shortness	e.g. [m⁻] shorter /m/ in Cantonese as oppose to a longer /m/ in English.

Number of Respondents	English Phone	Wrong Substitution	Examples
5 (initial position)	alveolar/t/	dental/t/	ten [t̪ɛn], treat [t̪ijt]
3 (final position)	alveolar/t/	dental/t/	art [a: t̪], eat [ij t̪]
2	/m/	shorter/m/	come [kʌm⁻], some [sʌm⁻]
2	/n/	shorter/n/	sun [sʌn⁻], sin [sɪn⁻]
1	/ŋ/	shorter/ŋ/	sing [siŋ⁻], going [gouɪŋ⁻]
6	dark/l/	clear/l/	ball [bɔl], girl [gərl]
3	exploded/p/	unexploded/p/	stop [stɔp°], up [ʌp°]
3	exploded/t/	unexploded/t/	boat [bout°], cat [kæt°]
2	exploded/k/	unexploded/k/	pack [pæk°], bark [ba: k°]

6.1. Discussion

In general, the results showed that a comparsion between the English and Cantonese consonants could predict most of the actual problems that the Cantonese speakers have in learning English. However, there are some that cannot be accounted in terms of a contrastive analysis. For examples:

1) As far as the English /θ/ and /ð/ are concerned, these are phonemes that are not present in Cantonese. Thus my first prediction was that most of the subjects would have problems with these sounds. However, the results indicated that only two out of seven had wrong substitutions; the others were correct. I think it may be the fact that since /θ/ and /ð/ are dental fricatives, they can be seen easily by the Cantonese speakers, i.e. the tongue is visible between the teeth. Thus they have less problems with these sounds.

2) Five subjects interchanged the nasal /n/ and the clear /l/. Since both of these phonemes occor in Cantonese, how could we account for their interchange? It might be the following reason: According to Chao's investigation (1974), as reported by Chang (1974), "there is a minority type of Cantonese speakers for whom [l] and [n] are free variant allophones of one phoneme. You can't say that their Cantonese pronunciation is wrong. They simply speak a sub-dialect of the Cantonese dialect. But it is inconvenient for them to learn English." (p. 217) Chang has further commented "the Cantonese as spoken in Hong Kong may well be a mixture of many dialects

and subdialects of the Kwongtung province, including Cantonese. As a result, native speakers of Cantonese 'may' or 'may not' distinguish initial /l/ and /n/ in their own speech. Those who make the distinction will find the English phonemic distinction of /l/ and /n/ easy to learn, but those who do not will have serious difficulties both in reception and in production. (p. 217)

3) Two subjects substituted the semivowel /w/ for /v/ which is not present in Cantonese. It may be due to the fact that /w/ and /v/ are partially labial, one being labio-velar, the other being labio-dental.

7.0. Hierarchy of Difficulty

A hierarchy of difficulty is a pedagogical analytical sequence presenting the different degrees of difficulty in learning a foreign language. It scales from the most difficult to the least difficult. Lado (1957) has suggested that those elements that exist in the target language but not in the native language will be the most difficult things to learn and they should be taught first. Stockwell and Bowen (1965) have also proposed that phonemes with High Functional Load should be taught first, and then those with Low Functional Load. An example of the first is /r/; and an example of the latter is /dʒ/ or /ʒ/ in English.

With consonants, Moulton (1962) has suggested that phonemic error should be corrected first, phonetic errors, second in foreign language teaching. Moreover, Stockwell and Bowen (1965) have introduced the term 'Pattern Congruity'. They have suggested that phonemic pairs, such as /p/ and /b/, /t/ and /d/, /k/ and /g/ that differ only in one feature, i.e. voicing, should be taught together in pairs.

8.0. Classification of Errrors

In regard to the ideas suggested by Lado (1957), Moulton (1962), and Stockwell and Bowen (1965), in particular the results of the first and second surveys, I have classified the errors above into the following orders: (In doing so, I hope this hierarchy of difficulty can serve as a guideline for those who teach English to Cantonese students, and for those who are engaged in the preparation of teaching and testing materials for Cantonese speakers of ESL. Also notice that in the table, each item is numbered according to the pedagogical sequence. multiple numbers indicate where my data does not differentiat degree of difficulty.)

A) **Phonemic Errors**

a) Substitution

Hierarchy	English Phonemes	Wrong Substitution
1	/r/	/l/
2	/l/	/n/ or v.v.
3	/ʃ/	/s/
4	/ʒ/	/s/
5	/z/	/s/
6	/t/	/ts'/
7	/d/	/ts/
8	/v/	/f/
8	/v/	/w/
9	/θ/	/f/
9	/ð/	/f/ or /t/
10	/b/	/p/
10	/d/	/t/
10	/g/	/k/

b) Omission

Hierarchy	Omission of
1	/l/ in the final position
1	consonant cluster
2	final fricative

B) **Phonetic Errors**

Hierarchy	English Phones	Wrong Substitution
1	dark /l/	clear /l/
2	alveolar /t/	dental /t/
3	exploded /p, t, k/ in the final position	unexploded /p, t, k/ in the final position
4	/m, n, ŋ/ in the final position	shorter /m, n, ŋ/ in the final position

9.0. Conclusion

For the past ten years, the position of the contrastive analysis hypothesis has been challenged. Wardbough (1970) has differentiated two versions of the contrastive analysis hypothesis, namely: the strong and weak versions. The strong version arises from evidence from the availability of some kind of metatheory of contrastive analysis and the weak from evidence from language interference. He has concluded that the strong version has not proved to be workable. The weak version, however, has proved to be helpful in second and foreign language teaching even though its influence is no longer as great as it used to be. Oller (1971), while arguing that the importance of contrastive analysis hypothesis should not be overestimated, has agreed that 'contrastive analysis does have validity as a device for predicting *some* of the errors a second language learner will make. "(p.95) This paper does not intend to discuss or argue for or against the contrastive analysis hypothesis. But one point I would like to make is the results of the two surveys show that most of the pronunciation errors involving English consonants that made by the seven subjects were indeed those that were predicted.

Appendix I

Diagnostic Passage of the *Manual of American English Pronunciation* written by Clifford H. Prator and Betty Wallace Robinett

(1) When a student from another country comes to study in the United States, he has to find the answers to many questions, and he has many problems to think about. (2) Where should he live? (3) Would it be better if he looked for a private room off campus or if he stayed in a dormitory? (4) Should he spend all of his time just studying? (5) Shouldn't he try to take advantage of the many social and cultural activities which are offered? (6) At first it is not easy for him to be casual in dress, informal in manner, and confident in speech. (7) Little by little he learns what kind of clothing is usually worn here to be causually dressed for classes. (8) He also learns to choose the language and customs which are appropriate for informal situations. (9) Finally he begins to feel sure of himself. (10) But let me tell you, my friend, this long-awaited feeling doesn't develop suddenly--does it? (11) All of this takes practice.

Table I: English Backgrounds of the Subjects

Subjects	Sex	Age	Years of English instruction before coming to Canada	Length of time in Canada	Types of schools* that entered in Hong Kong
1	F	12	5	3 mos.	English
2	F	14	6	3 mos.	English
3	M	21	12	6 mos.	English
4	M	24	6	6 mos.	English
5	M	26	12	7 mos.	English
6	F	30	6	8 mos.	Chinese
7	M	35	7	8 mos.	Chinese

* The types of schools that students going in Hong Kong often affect their English. As a whole, students who go to English schools usually know more English. (The instruction of language is mainly English except in some Chinese subjects). Students who go to Chinese schools usually know less English (The instruction of language is Chinese except in some English courses-usually 6 to 8 hours a week).

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