



Tutoring Speech Organs with Computer-Assisted Language Learning

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ABSTRACT

The study highlights the benefits of computer-assisted language learning (CALL) for enhancing pronunciation skills among 40 ESL students enrolled in BS English Literature and Linguistics Program. In the 2-week participatory-cum-experimental study, the participants are trained how to pronounce multi-syllable words (300) through CALL. They are rendered to pronunciation pre-test before training through CALL and are found incapable to pronounce selected words with requisite expertise. However, after schooling through CALL the results of the similar test i.e. post-test show that the students of experimental group improve their pronunciation and learn the handy application of CALL. The use of technology trains the speech organs of the students according to the acceptable place and manner of articulation of the English phonemes. The study suggests that training speech organs with CALL brings forth fruitful results and it is a good agent to improve the standard of pronunciation.

Key words: pronunciation; articulation; computer-assisted language learning (CALL); phonemes; improvement

INTRODUCTION

There is urgency regarding refined pronunciation among students in the modern era. Knowing standard pronunciation among the speakers of different English varieties has become inevitable. Standard pronunciation and speaking skills are viewed as the complement to each other. Hancock (2003) states that pronunciation is essential for speaking and listening. Speaking with mispronunciation of words minimizes the stature of the speaker in the eyes of his interlocutors. Globalization demands fast inter and intra communication on daily bases. This worldly exposure and interaction demand intelligible pronunciation to get the messages across well. Not to speak of students, even teachers aspire to enhance this skill when they encounter some multi-syllable word to speak. Having realized the significance of standard pronunciation, the unbiased reader cannot help saying that incorporating lessons on pronunciation is mandatory in academia.

The results of mispronunciation in the oral communication are pathetic. Mumeneen (2011) states that pronunciation is hardly given enough importance while teaching and learning English. Many students look reluctant to speak English owing to poor pronunciation. This deficiency causes the weakening of confidence level, which constructs unshakeable hurdle in speaking. They start gasping due to nervousness if they are supposed to speak publicly. They anticipate the unknown fear looming ahead for being poor in pronunciation and secure unsatisfactory marks in class-presentations. Many candidates pursuing some good career are simply denied for being inept in pronunciation skills. It is observed that many business dealers face a serious breach in the flow of business not knowing how to articulate certain English sounds. Suffice it to say that mispronunciation is one of the fundamental causes of communication barriers.

Weak pronunciation of the students entails various reasons. Most of the course books lack exercises for the improvement of pronunciation. If exercises are well-designed, trained and motivated teachers are less available to impart them properly. Students pronounce English sounds as if they were converting them into their L1. They are not taught the place and manner of articulation with abundant practice. Diphthongal and triphthongal articulation is primarily one of the serious problems in their way to good pronunciation. Teachers

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partly use A/V aids to exhibit concrete representation of speech organs and their proper functioning. The implementation of technology in education is discussed frequently but its incorporation in academia is still in process. Listening skill is ignored altogether and interaction with native speakers is not ensured. It is imperative to uproot the deteriorating factors for the acquisition of pronunciation skills.

Expecting good pronunciation without proper training is analogous to rock climbing without hands because human speech organs need consistent practice of articulation to mouth better pronunciation. However, training speech organs with CALL is an attainable scheme and it is a good means to improve the standard of pronunciation.

RESAERCH OBJECTIVES

The prime objectives of the study are to find out:

- i. What is the proficiency of students in pronouncing the contents of study?
- ii. How does CALL assist the students to improve their pronunciation?

LITERATURE REVIEW

Human speech sounds are primarily dependent on some speech organs or articulators. The active and correct use of speech organs produces intelligible and acceptable pronunciation. They facilitate the process of oral communication. Some of them include tongue, lips, teeth, lungs, vocal cords, velum, soft and hard palate, larynx, and pharynx. Saleh and Umaru (2021) take the position that fluency and articulation are obtained through the study of organs of speech as second language (L2) learners and speakers. They state that teaching of organs of speech at any level of learning be very practical and the use of language laboratory is sine qua non. One of the operating operations in a language laboratory is CALL.

The word CALL denotes computer-assisted language learning. It is used by the teachers and the learners to see the scope of digital technology as a part of language learning (Hardsty & Windeatt, 1989). Beatty (2003) describes CALL as a methodology in which learners make use of computer and get better their language. CALL is of significance to the trainer and trainee as it supplies individual coaching of a linguistic item and provides instant response to the accuracy of a trainee's answer to computer-based activity (Nagata, 1993). In computer-aided pronunciation (CAP), scientific equipment helps improve foreign language speakers' learning assimilation and pronouncing ability by visual demonstration like spectrographic analyses of individual phonemes or amplitude waves presenting intensity of force for separate words and phrases (Anderson-Hsieh, 1992, 1994; Hardison, 2004; Molholt, 1988).

Rayman (2002) observes that correct pronunciation is critically significant since incapacity to pronounce frequently means that the speaker is utterly incapable to communicate with even a very encouraging native English speaker. Acute need for the instructing pronunciation is arisen as teaching of English has stirred to linguistic function and conversational competencies (Celce-Murcia, 1987; Morley, 1994; Gilbert, 1994).

Davis (1999) is of the view that pronunciation is of much distress and one of the main concerns of ESL learners after finishing the basic English courses. Articulation is seen as a secondary skill of speaking. Fraser (2000) points out that capacity to communicate in English contains several secondary skills of which articulation is undoubtedly the pivotal. Moreover, Pennington (1994) is of the view that pronunciation is in general viewed as an element of linguistics instead of communicative fluency, is frequently looked upon as of little magnitude in a communication-centered classroom.

According to Kenworthy (1987), the greater part of learners strives to be contentedly comprehensible. Derwing (2003) conducts a study to scrutinize adult immigrants about the awareness of their own pronunciation problems and the outcome of speaking with a foreign accent, and discovers that, when asked over if they had been distinguished because of accent, two-thirds said no, but when asked if people would admire them more if they pronounced English well, almost all agreed to it. A research proposes that there exists a basic level of English pronunciation such as if a particular non-native speaker's articulation drops beneath this level, despite adequate competency of English syntax and lexis, s/he cannot be proficient while conversing verbally with L1 speakers (Celce-Murcia & Goodwin, 1991).

Varonis and Gass (1982) inspect the features, which affect listening understanding in the natives who have been introduced to overseas or second language (L2) pronunciation. They assert that sentence structure and accent work together to effect general understanding. Thus, natives usually review foreign speakers as making no sense if their articulation is not adequately remarkable. Wong (1987) hints, even if the foreign speakers' lexis and syntax are exceptional, nevertheless their articulation is less than a positive elementary level; they are incapable to communicate efficiently. Furthermore, Wong (1993) establishes that deficiency of awareness of pronouncing affects students' reading and spelling.

Baker (1982) comments that in order to get rid of the fossilized accent, which the advanced learners recurrently come across, it is required for the instructor to begin teaching pronunciation at the start of the course. In contrast, many instructors are unwilling to accept a technology that needs consent by the language pedagogues in general (Kenning & Kenning, 1990). Nevertheless, in this milieu, various causes are allocated to this refusal by considering the limited access to computer supported training. There is need of an incorporated theoretical outline for drafting and assessing CALL systems (Chapelle, 1997; Hubbard, 1988; Ng & Olivier, 1987).

Darcy, Ewert, and Lidster (2012) state that pronunciation is tricky to teach for a number of reasons. Teachers do not have the clear procedure and are faced with conflicting purpose and performance for pronunciation coaching. In teacher education, the theme ESL common throughout the articles, reviewed by Lambacher (2001) and MacDonald (2002), is lack of teacher training or assurance as a cause that pronunciation is not instructed in classrooms. Though pronunciation is a component of the curriculum in many adult education programs, it is frequently not integrated in state language proficiency standard or concentrated on methodically in teaching (Levis, 2005). Moreover, some ESL teachers do not have training in teaching pronunciation to adult learners (Derwing & Munro, 2005; Levis, 2005).

Morley (1991) maintains that teaching articulation in the English learning classroom is essential; nonetheless, this vital part is usually ignored or overlooked at several academic institutions globally. Training in pronunciation should be provided in all EFL and ESL classes with the help of a multiple tasks (Scarcella & Oxford, 1994). Additionally, Harmer (2001) is of the viewpoint that there are teachers who maintain that students acquire fairly acceptable pronunciation during their learning without particular pronunciation training. Owing to pronunciation teaching, students not only become conscious of diverse sounds and sound features, but can also develop their speaking immensely. Consequently, focusing on sounds, showing how to articulate, and making students realize that where words should be stressed. All these things provide them further understanding about oral English and help them accomplish the objective of better command and understanding.

Another root cause of the problem is that teachers are uncomfortable owing to the shortage of teaching stratagem. Teachers are at ease in teaching the basic active and passive language skills to an extent; but

when it comes to articulation, trainers are often deficient in the fundamental understanding of articulatory phonetics and teach sounds in a dissatisfactory way (Dalton, 2002). Adult learners are capable of attaining target language fluency and they improve in a pretty less stretch of time with no severe interruption to the L2 teaching course with sufficient articulation training (Elliot, 1995). Scores of English language learners, after lapse of much time of exposure to the L2, have notable trouble with English pronunciation. This frequently results in obstacles in domain like securing good job (Fraser, 2000).

The brief description of the literature supports the conviction that pronunciation is utmost necessary to thrive among the students. Miscommunication unleashes a number of problems to create a severe hurdle on the way to formal and informal communication. In the modern era of communication, most of the students have an affordable access to the online resources to boost their academic performance. CALL is considered by many linguists, as mentioned above, an all-time-available agent to facilitate the students. It assists them to train their articulators to pronounce words as they are transcribed in the online and published dictionaries.

METHODOLOGY AND PROCEDURE

Experimental research is selected to examine cause-and-effect relationships. True experimental randomized pre-test post-test control group design is opted and a diagram is given below to perceive the whole procedure of the research:

Treatment Group	R	O	X ₁	O
Control Group	R	O	X ₂	O

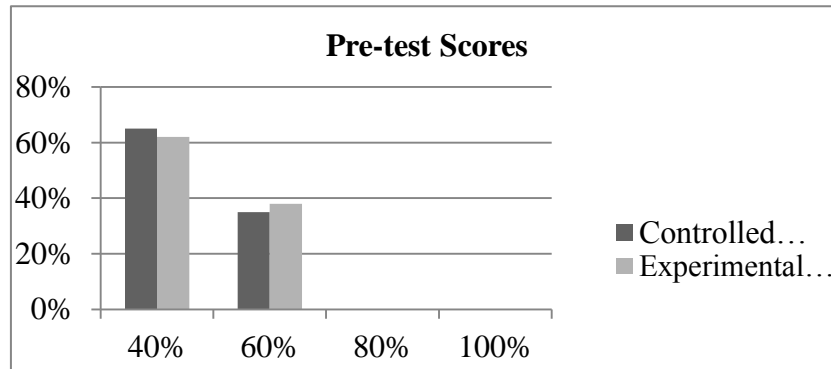
(Sana, 2010, p.358)

In the above diagram, the letter “R” represents the random assignment of individuals to groups. Both treatment and control groups are made using randomized techniques. Subjects having even roll numbers are dropped in the treatment or experimental group whereas subjects having odd roll numbers are dropped in the control group. The letter “O” stands for observations that are made before embarking upon the actual treatment to the subjects. This process is also called pre-test to evaluate the current condition of the participants. X₁ stands for treatment given to the treatment or experimental group. This treatment includes all the possible techniques for the development of effective pronunciation among the subjects. X₂ stands for per routine lessons delivery to the control group. Again, there is final observation that is called post-test. In this phase, it is evaluated which changes occur in the performance of presentations among the experimental group after receiving well-planned instructions. On the basis of post-test, the results are discussed.

The present research is 2-week participatory as well as experimental endeavor. The study is delimited to 40 ESL students of BS English Literature and Linguistics Program in a private sector university (in vicinity of Lahore, Pakistan) divided into control and treatment groups. They have Urdu or Punjabi as their first language and are exposed to English for at least twelve years in their education. Subjects having even roll numbers are dropped in the treatment or experimental group whereas subjects having odd roll numbers are dropped in the control group. Both groups are rendered to a pre-test (containing multi-syllable words (300) given in Appendix A). After providing the treatment to the experimental group, the outcome of the pre and post-tests are evaluated to confirm their progress.

DATA ANALYSIS

The participants of the study are exposed to the process of pre-test. The scores of experimental group and control group are documented. Both scores indicate that there is no significant difference among the performance of the participants of both groups. The results of pre-test is presented in the following multiple bar diagram:



According to the results, no student scores 100% in pre-test because they do not know how to pronounce skillfully the contents designed for pre-test. Some of them perform intermediate performance. Nevertheless, there is not a big difference in the results of both groups. There is lack of accuracy in their performance. In controlled group, 40% students score 65% and in experimental group, 62% students score 40%. Moreover, in controlled group, 60% students score 35% and in experimental group, 38% students score 60%. In fact, there is no significant difference in the scores of both groups.

To analyze the score of pre-test of both control and experiment groups through independent sample t-test, first there is a need to look at the descriptive statistics in the following tables:

Group Statistics

group	N	Mean	Std. Deviation	Std. Error Mean
score control	20	2.0500	.68633	.15347
exp	20	2.1500	.67082	.15000

There is no significant difference in the mean value of both groups. Now, the next output from SPSS is given below to elaborate the result:

Independent Samples Test

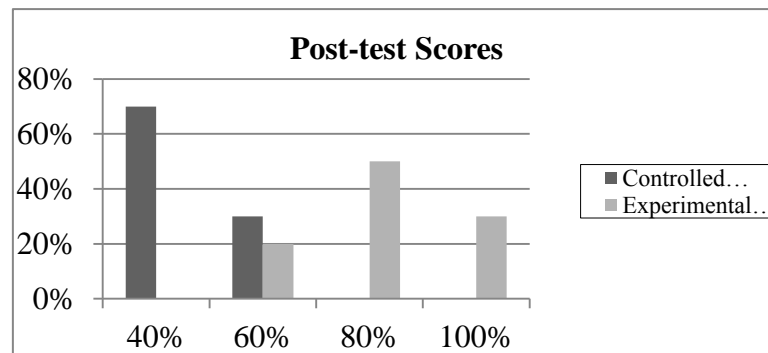
Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	f	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper	

score Equal variances assumed	.060	.808	466	8	644	-.10000	.21460	.53443	.33443
Equal variances not assumed			.466	7.980	644	-.10000	.21460	.53444	.33444

Leven’s test for equality of variance gives significant value .81 so we shall read the top line, which gives insignificant value .64, which shows that the result of control group and experiment group is not significantly different. The value less that .05 is needed to declare it significant.

After pre-test, the experimental group is provided two-week participatory training sessions to train their speech organs to pronounce multi-syllable words. Their training is conducted initially in a working computer lab fully equipped. They are introduced some online pronouncing dictionaries to click on the desired word and listen their pronunciation. The participants are also taught how to read International Phonetic Alphabet (IPA) symbols, syllable division, and stress marks. This strategy of CALL is changed into mobile-assisted language learning (MALL) due to the busy schedule of the lab. On account of the cellular internet revolution, the participants are suggested to use their cellular mobile phones to continue the training sessions.

After the continuous assessment and training sessions, the participants of both groups are given the post-test. This is meant to make comparison between two states: one with training sessions and other without imparting lessons on pronunciation. To compare the results of post-test of both groups, the results are graphed as follows:



According to the results, students of experimental group show appreciable result at large. No student from control group scores 100% whereas in experimental class, 30% students score 100%. No student in controlled group and 50% students in experimental group score 80%. 30% students in controlled group and 20% students in experimental group score 60%. Then, 70% students in controlled group and no student in experimental group score 40%.

Independent sample t-test is operated to examine the difference between the scores of control and experimental groups. This step gives the tabular representation of the data collected.

Group Statistics

group	N	Mean	Std. Deviation	Std. Error Mean
scores control	20	1.8000	.69585	.15560
experimental	20	4.4000	.50262	.11239

There is significant difference in the mean value of both control and experimental groups. The statistical evidence shows that both groups are fundamentally different so far as their performance in post-test is concerned. The mean value of control group is 1.80 whereas the mean value of experimental group is 4.40. The higher the mean difference is, the higher the performance is. The next statistical output is given below to elaborate the result:

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
scores Equal variances assumed	.779	.383	-13.546	8	.000	-2.60000	.19194	-2.98857	-2.21143	
Equal variances not assumed			-13.546	4.584	.000	-2.60000	.19194	-2.98983	-2.21017	

Leven’s test for equality of variance gives significant value .38, so the top line is read, which gives us significant value .000 and shows that the result of control group and experiment group is significantly different. We need value less than .05 to declare it significant.

FINDINGS AND CONCLUSION

It is realized that the subjects are quite unaware regarding the difference between long and short vowels. The concept of pronouncing schwa /ə/ is in literal oblivion. Pronouncing the words carrying diphthongs and triphthongs is taken as nerve-shaking challenge. It is almost certain that the influence of L1 is constantly suspending over their heads and their vocal cords seem to be untrained for the pronunciation of selected words. They need to be taught separately the English Phonology to shed off the colour of L1. The subjects are terribly hesitant to use their vocal cords for this audacious task. It is felt that they are illiterate in place and manner of articulation of English phonemes. Furthermore, the majority of the subjects pronounce the words in monotone, which is a clumsy response. The pronunciation of archaic words is a hard nut to crack. They disclose that they have never been provided CALL in their teaching-learning environment for developing good pronunciation.

Hence, it is concluded through the data collected that CALL is an effective agent to promote good pronunciation among the students. Although machine does not substitute the creativity of human beings, yet it reinforces and maximizes the desired results. The poor standard of pronunciation may be revolutionized by incorporating CALL in the academia. It is realized that CALL generates interest of the students as well as teachers. This interest and association with technology unfolds eye-catching results, which are long lasting and inspiring.

RECOMMENDATIONS AND IMPLICATIONS



It is realized that faulty pronunciation is a serious communication barrier, though the speaker is good at grammar and vocabulary. The authorities need to be sensitive to this long-standing issue in pedagogy. Standard pronunciation is the symbol of prestige and outcome of desirable education. The role of modern technology in this regard is irrefutable. The reluctance to adopt technology in language teaching must be discouraged and uprooted. CALL is a stepping-stone to grab the interest of the learners. It is recommended that both teachers and students should be welcoming to be benefited from CALL. At tertiary level, all facilities regarding technology should be at the zenith to secure outstanding results. Through funding and trained teachers, the standard of pronunciation can be equalized across the world. Ministry of Education in Pakistan ought to step forward to launch such programs including published and recorded material as may facilitate the learners and educators in the field of CALL.

It is highly recommended that CALL should also be incorporated in the primary education to strengthen the receptive and productive organs of speech. Students should also practice the articulation of English phonemes in connected speech. They may spare certain time for listening English talk shows as they demonstrate natural speech. They can undergo the supervision of some expert teacher in English Phonology who can inspire them for being a good model in pronunciation. They should be active for participating in national and international seminars, which are sensitive to standard pronunciation. They should record their own voice as a sample and should frequently match it with the previous recordings to evaluate their improvement. They can also maintain their improvement chart, which should exhibit their gradual climax or decline in progress. They must adhere to CALL and other internet resources to polish and develop standard pronunciation. If sincere teachers ensure the mentioned recommendations and exposure on the development of pronunciation, a revolution against the poor pronunciation is expected to occur in academia.

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APPENDIX-A

Selected 300 Multi-Syllable Words

1.Abscess	61.Debauch	121.Howl	181.Photography	241.Segue
2.Açai	62.Debris	122.Hustle	182.Patriarchal	242.Sesquipedalian

3.Accessory	63.Debt	123.Hymn	183.Palliative	243.Silicon
4.Advertisement	64.Debut	124.Hyperbole	184.Palpable	244.Simile
5.Aisle	65.Decrepit	125.Ignominious	185.Panacea	245.Sixth
6.Almond	66.Defibrillator	126.Illinois	186.Pandemic	246.Solemn
7.Anecdote	67.Demagogue	127.Inchoate	187.Parody	247.Specific
8. Anesthetist	68.Desire	128.Inevitable	188.Patrician	248.Squirrel
9. Antarctic	69.Deteriorate	129.Infamous	189.Peacock	249.Statutory
10. Apocryphal	70.Diaphanous	130.Ingenuity	190.Pizza	250.Subtle
11. Apostle	71.Dilate	131.Island	191.Plumber	251.Succinct
12. Applicable	72.Disguise	132.Isthmus	192.Pneumatology	252.Suite
13.Asterisk	73.Dogecoin	133.Itinerary	193.Posthumous	253.Supposedly
14.Asthma	74.Doubt	134.Jalapeño	194.Prelude	254.Surfeit
15.Baguette	75.Draught	135.Jewelry	195.Prerogative	255.Sword
16.Ballet	76.Drawer	136.Juror	196.Prevaricate	256.Synecdoche
17.Beguile	77.Dumb	137.Kaleidoscopic	197.Probably	257.Tautology
18.Beguile	78.Entrepreneur	138.Knead	198.Prostrate	258.Temperature
19.Benign	79.Ephemeral	139.Kneel	199.Prowl	259.Thorough
20.Beret	80. Epitome	140.Knob	200.Pseudo	260.Thumb
21.Bologna	81.Equanimity	141.Knuckle	201.Pseudonym	261.Timbre
22.Bomb	82.Equivocal	142.Laboratory	202.Psoriasis	262.Truculent
23.Borough	83.Erinaceous	143.Lackadaisical	203.Psychiatry	263.Tsunami
24.Bouquet	84.Espouse	144.Lamb	204.Psychotic	264.Ubiquitous
25.Bourbon	85.Espresso	145.Ledger	205.Pterodactyl	265.Valet
26.Brewery	86.Etcetera	146.Liaison	206.Puerile	266.Vegetable
27.Bristle	87.Eulogy	147.Library	207.Pulchritude	267.Vehicle
28.Bureau	88.Euthanasia	148.Licentious	208.Quack	268.Ventriloquist
29.Bustle	89.Evanesce	149.Lingerie	209.Quagmire	269.Visceral
30.Cacciatore	90.Expatiate	150.Massachusetts	210.Quagmire	270.Viscount
31.Cache	91.Exquisite	151.Medieval	211.Quarantine	271.Vocabulary
32.Caricature	92.Fasten	152.Meme	212.Quay	272.Vwardrobe
33.Castle	93.Fatuous	153.Miniature	213.Quay	273.Wednesday
34.Cavalry	94.Faux	154.miscellaneous	214.Queasy	274.Weigh
35.Champagne	95.Faux pas	155.Mischievous	215.Queue	275.Whimsical
36.Chaos	96.February	156.Moisten	216.Quiche	276.Whimsical
37.Charcuterie	97.Feign	157.mortgage	217.Quinoa	277.Whistle
38.Charisma	98.Fluorescent	158.Murderer	218.Quintessential	278.Wizardry
39.Chauvinism	99.Foliage	159.Mustache	219.Quirky	279.Womb



40.Chipotle	100.Fuchsia	160.Nauseous	220.Quixotic	280.Worcestershire
41.Choir	101.Gauge	161.Nauseous	221.Quixotic	281.Worcestershire
42.Choreograph	102.Genre	162.Neophyte	222.Quotidian	282.Wrangle
43.Chorus	103.Glisten	163.Niche	223.Raspberry	283.Wrath
44.Cinnamon	104.Gnarl	164.Nihilism	224.Receipt	284.Wreak
45.Climb	105.Gnash	165.Noisome	225.Regime	285.Wreath
46.Cologne	106.Gnocchi	166.Nuclear	226.Remuneration	286.Wreck
47.Colonel	107.Gnome	167.Numb	227.Rendezvous	287.Wrestle
48.Comb	108.Guise	168.Nuptial	228.Restaurateur	288.Wriggle
49.Comfortable	109.Gnome	169.Obdurate	229.Resuscitate	289.Wring
50.Connoisseur	110.Gourmet	170.Obscene	230.Rhino	290.Wrinkle
51.Conscience	111.Grandiloquent	171.Oligarchy	231.Rogue	291.Wrist
52.Conscientious	112.Grandson	172.Onomatopoeia	232.Salmon	292.Writ
53.Controversy	113.Guarantee	173.Ophthalmology	233.Salubrious	293.Write
54.Corps	114.Gyro	174.Ordinance	234.Sandwich	294.Written
55.Coup	115.Handful	175.Panacea	235.Sanguine	295.Wrong
56.Crumb	116.Handkerchief	176.Paradigm	236.Satirical	296.Wrought
57.Curmudgeon	117.Handsome	177.Pauciloquy	237.Schadenfreude	297.Xenophobia
58.Cyanosis	118.Hegemony	178.Pejorative	238.Scion	298.Zealot
59.Cytology	119.Heir	179.Penguin	239.Scissors	299.Zephyr
60.Debate	120.Hierarchy	180.Phlegm	240.Secede	300.Zucchini