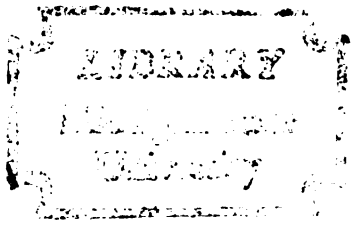
ESOPHAGEAL SPEECH: RELATIONSHIP OF WORD, SENTENCE AND GLOBAL PROFICIENCY

Thesis for the Degree of M. A.
MICHIGAN STATE UNIVERSITY
SUZANNE MARY DE VLIEGER CLAYTON
1976



ABSTRACT

ESOPHAGEAL SPEECH: RELATIONSHIP OF WORD, SENTENCE AND GLOBAL PROFICIENCY

By

Suzanne Mary De Vlieger Clayton

Esophageal speech is one of several techniques a laryngectomized individual has at his disposal for the purpose of regaining verbal communication. It is important that the individual make positive efforts to resume employment and social interaction. To do this, he will have to find a new means of communication. The present study investigated the relationship of word, sentence, and global proficiency ratings of 24 esophageal speakers. Thirty-three naive judges rated the speakers on all three tasks. Results indicated that the three measures of intelligibility are significantly correlated at the .01 level of confidence. The results also indicated that an individual's ability to do well at the sentence level has stronger bearing on whether his speech is acceptable than does his ability to do well at the single word level.

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By

Suzanne Mary De Vlieger Clayton

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Audiology and Speech Sciences

1976

Accepted by the faculty of the Department of Audiology and Speech Sciences, College of Communication Arts and Sciences, Michigan State University, in partial fulfillment of the requirements for the Master of Arts degree.

Thesis Committee: Director

DEDICATION

To Frank, my husband

for his love, understanding, assistance
and good humor throughout this project

ACKNOWLEDGMENTS

I would especially like to thank my committee members: Dr. Leo Deal, Dr. Linda Gillum, Dr. Daniel Martin, and Dr. Y. P. Kapur for their collective interest in this study, as well as for their individual guidance and support.

I am also grateful for the cooperation of all those individuals who participated as subjects and judges.

Kenneth Stonebrook, David Ruppert, and Janis Bisset were of great assistance in technical matters.

Last, but not least, I would like to acknowledge the constant love and support of my parents, parents-in-law, brothers, sisters, and friends.

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CHAPTER I

INTRODUCTION

Cancer of the larynx affects the lives of approximately 9,000 individuals in the United States each year. One out of every eight are females. The first and most critical factor which must be considered when cancer of the larynx develops is surgery. This entails removal of the larynx and of growths on adjacent neck muscles. The trachea is then sewn to a hole in the neck in order to provide a permanent stoma for respiratory purposes. Following this operation the individual is unable to produce sound in the usual way because of the missing vocal folds. Even if a person learns to produce voice in substitute ways, there will be alterations in inflection, intensity, pitch, and the emotional expressions of crying and laughing. It is easy to understand the radical effect these physiological changes cause both emotionally and socially. Therefore, the second most critical factor in regard to cancer of the larynx is speech re-education.

Ideally, rehabilitation begins prior to the removal of the larynx. The prospective laryngectomized patient may meet with his surgeon, with a speech

pathologist, and with others who have already undergone the operation. This provides the individual with a more realistic understanding of his post-operative condition. Post-operative therapy begins as soon as possible. It is important that the individual make positive efforts to resume employment and social interaction. To do this, he will have to find a new means of communication. It is also important to family members that some form of oral communication be restored.

There are several compensatory methods available for speaking, namely: a reed larynx, an electro-larynx, buccal speech, and esophageal speech. Generally, it is agreed that esophageal speech is the preferred method, if it can be acquired. The reasoning behind this view is that the reed and electro-larynx devices fall short of esophageal speech in regard to naturalness.

To acquire esophageal speech, a patient learns to bring air into his esophagus and expel the air for phonatory purposes. This can be accomplished in one of four ways: (a) the inhalation method, (b) the injection method, (c) the plosive injection method, (d) the swallowing method. Many esophageal speakers employ a combination of air intake methods.

An individual should be able to learn esophageal speech if (a) he has a strong desire to speak again; (b) he is physically strong enough in regard to his

respiratory function; (c) he has not suffered extensive anatomical damage by operation or X-ray treatment, resulting in the formation of dense scar tissue.

Esophageal speakers will have a frequency level one octave below the normal adult speaker. Female laryngectomized patients react with more disheartenment to this reality, admitting embarrassment at the lower pitch of esophageal speech.

Several weeks of speech therapy are usually necessary to master the elements of esophageal speech. Then, several months of practical experience with this method are necessary before conversational speech proficiency is gained. The degree of speech proficiency that patients are able to attain and the factors that relate to this skill will be looked at more closely in this paper.

Purpose of Study

Creech (1962) evaluated two methods available for the quantification of speech intelligibility among esophageal speakers. One method was a scale judgment of how intelligibly a person speaks (overall speaking intelligibility). The other method was of actual speaking efficiency whereby a count is made of the number of words understood by observers as compared to the total number of words spoken. Since the two methods proved to be significantly correlated, Creech supported the use of

these scores as meaningful and good professional measures of esophageal speakers.

Hoops and Curtis (1970) studied the intelligibility of esophageal speakers in relation to sentence intelligibility scores and overall ratings of speech proficiency. The effects of speech background noise on esophageal speech production was investigated by Clarke and Hoops (1970). Martin, Hoops, and Shanks (1974) investigated the relationship between selected measures of auditory function and esophageal speech proficiency. Hoops and Noll (1971) evaluated listener sophistication in relation to esophageal speech. Shames, Font, and Matthews (1963) analyzed 59 variables for their relation to speech proficiency of the laryngectomized. The relative intelligibility of esophageal speech and artificial-larynx speech was studied by McCroskey and Mulligen (1971). Tikofsky (1965) compared esophageal speaker's intelligibility and normal speaker's intelligibility.

It is the purpose of this study to investigate the relationship of word intelligibility and sentence intelligibility to global ratings of esophageal speech proficiency. No study to date has correlated these three areas of intelligibility within the framework of a single study.

Experimental Questions

Question 1:

Is there a significant correlation between mean ratings of global speech proficiency and mean scores of word intelligibility, at the .01 level of confidence, among esophageal speakers?

Question 2:

Is there a significant correlation between mean ratings of global speech proficiency and mean scores of sentence intelligibility, at the .01 level of confidence, among esophageal speakers?

Question 3:

Is there a significant correlation between mean scores of word intelligibility and mean scores of sentence intelligibility, at the .01 level of confidence, among esophageal speakers?

CHAPTER II

REVIEW OF THE LITERATURE

Hoops and Curtis' study in 1970 attempted to answer the question: Is esophageal speech intelligibility related to listener judgments of global esophageal speech proficiency? The Beranek sentence lists, which contain 20 sentences each with five key words italicized, were used by Hoops and Curtis to derive a speech intelligibility score for each of their laryngectomized subjects. Listeners supplied the key words in each sentence as it was read to them. The scores obtained for the 28 subjects ranged from 21.6 to 96.0 with a mean of 75.13, indicating that Beranek's sentence lists provide a broad range of intelligibility scores. Listeners' judgments of global esophageal proficiency were obtained by having the judges rate each speaker's reading of the first paragraph of Fairbank's "Rainbow Passage" on a 1-7 point equal-appearing interval scale. The resulting correlation between speech proficiency in sentences and global ratings of speech proficiency was .376, as correlated by a Pearson product-moment correlation procedure.

Hoops and Curtis state that this correlation is significant at the .05 level of confidence; but if it is considered on an absolute basis, the correlation is not high.

Clark and Hoops (1970) did a similar study but incorporated speech background noise to determine its effect on ratings of sentence intelligibility and general speech proficiency. Again, Beranek's sentence lists and Fairbank's "Rainbow Passage" were the testing materials used. The findings indicated that the judges rated the speakers the same under the conditions of 0 dB and 40 dB sound pressure level of noise, but they gave each speaker a significantly lower score under 75 dB SPL of noise. The Pearson r correlation coefficient for sentence intelligibility and speech proficiency ratings was found to be $r = .528$, which was not significant at the .05 level of confidence.

Shames, Font, and Matthews (1963) analyzed 59 variables for their relation with each of five measures of speech proficiency. Of interest to the present study are the ratings of sentence intelligibility and word intelligibility. Shames et al. were comparing esophageal speakers to those individuals using an artificial larynx. The Harvard PB word intelligibility lists (Egan, 1945) and the Harvard sentence intelligibility lists (Abrams et al., 1944) were the materials used to collect data.

There were 20 word lists each containing 50 monosyllabic words. Each of the sentence lists used contained 20 sentences with five key words in each sentence. For both groups of subjects the resulting correlations among word intelligibility and sentence intelligibility ranged from .80 to .86 and were statistically significant.

Tikofsky (1965) compared the intelligibility of nine esophageal speakers and 10 normal speakers. All subjects read three lists of words: 50 consonant-nucleus-consonant words (CNC), 60 monosyllabic cluster words, and 50 spondee words. Intelligibility was measured in terms of the number of words correctly identified by the listeners. Although there was one more speaker in the normal group than in the esophageal group, the differences between the two groups are still great. The mean scores received by the esophageal population were 24.86 on CNC words, 32.91 on clusters, and 40.79 on spondee words; the normal speaking population scores were 44.54 on CNC words, 54.92 on clusters, and 48.98 on spondee words. The results also indicated that the intelligibility scores for esophageal speakers were significantly different from each other on all measures studied. Scores for normal speakers were not significantly different.

Martin, Hoops, and Shanks (1974) did a study to determine whether the ability to understand esophageal

speech is related to success in learning esophageal speech. Twenty-one esophageal speakers, representing various degrees of proficiency, were selected for the study. Each was asked to record a multiple choice discrimination test. Judges were asked to rate each speaker on a 7-point global scale of speaking proficiency. In addition, each of the 21 esophageal speakers listened to a normal speaker and three esophageal speakers (one good, one average, and one poor) read Schultz and Schuberts' multiple-choice discrimination tests and drew a line beside each word he believed to be the stimulus word on his response form. Findings supported the original observation that the ability to understand esophageal speech is related to success in esophageal speech learning. The data also support the contention that esophageal speech skills are significantly related to auditory sensitivity.

Hoops and Noll (1971) studied the effects of listener sophistication on judgments of esophageal speech. The judges were divided into two groups, one comprising 30 sophisticated listeners and one comprising 30 naive listeners. Twenty-two laryngectomized speakers with a broad range of esophageal proficiency were recorded reading the first paragraph of the "Rainbow Passage" on color motion picture film with sound track. All judges were asked to rate speakers under three conditions: hearing each reader but not seeing him, seeing each

reader but not hearing him, and both hearing and seeing each speaker. Results indicated that sophisticated judges gave poorer ratings than did naive judges. The authors also concluded that judges evaluate esophageal speakers differently on the basis of seeing and hearing them than when just seeing or hearing them.

McCroskey and Mulligen (1963) observed the relative intelligibility of esophageal speech and artificial-larynx speech using three panels of listeners: (a) experienced speech pathologists, (b) graduate students in speech with some exposure to laryngectomized individuals, and (c) naive listeners. The Black (1957) multiple-choice intelligibility word lists were used as the stimulus material. Results indicated that listeners in panels one and two found esophageal speakers to be significantly more intelligible than speakers using artificial devices, whereas the third panel of listeners rated esophageal speakers slightly lower than those using an artificial larynx. McCroskey and Mulligen suggest that professional bias, in favor of esophageal speech, may have influenced the scores obtained.

CHAPTER III

PROCEDURES

Subjects

The present study utilized 24 laryngectomized speakers, one female and 23 males. The criteria for inclusion in the study was that the individuals use esophageal speech for daily communication and that they have adequate hearing for their age. To insure that hearing was adequate, a Beltone model 10C audiometer was used to measure each subject's hearing in the range of 500 Hz, 1000 Hz, and 2000 Hz. All subjects responded to these frequencies within normal limits for their age and sex, as determined by the National Health Survey 1935-1936 (Hearing Study Series Bulletins 1-7).

It was the desire of the investigator that the 24 subjects represent a wide range of speaking ability, from poor to superior, at the sentence level. Therefore, subjects were included who underwent surgery from four months to 18 years prior to the recording date of this study. Six individuals underwent surgery in 1975, nine had surgery between 1970-1974, six had surgery between 1965-1969, and three individuals underwent surgery

between 1958-1959. Ten subjects were enrolled in speech therapy at the time of this study. Four individuals reported having never enrolled in speech therapy, whereas others had 15 months of speech therapy. Seven months was the average length of esophageal speech training.

Speech Samples

For the purpose of obtaining word intelligibility measurements, each subject was asked to read one of Black and Haagen's (1960) multiple-choice intelligibility tests, Form A, speaker lists one thru eight (see Appendix A). Each speaker list requires the subject to read three words in succession, for example: swarm, canvas, quart. Each group of words is read as a unit or phrase. Each list consists of eight groups of words. After specific instructions were given for the reading of the test (see Appendix B), each subject was given a trial reading practice on an alternate test form. This precaution assured the investigator that the subject understood the task at hand before recording was begun. It was also during the trial reading for each subject that the investigator adjusted the recording level with the VU-meter on the tape recorder to insure maximum recording level without distortion and to insure equal loudness levels.

One of the eight Beranek sentence lists (1949) was read by each subject to permit assessment of sentence

intelligibility (see Appendix C). Each list consists of 20 sentences containing a total of 100 key words. The only instructions given each subject were to state their name and to pause for five seconds between sentences. All subjects were given sufficient time to look over the reading material and to clarify with the investigator any words which were not clear.

For the judgment of overall ratings of speech proficiency, each subject read the first paragraph of Fairbank's (1960) "Rainbow Passage" (see Appendix D). Sufficient time was given to each speaker to review the paragraph and ask questions. The instructions given were to state your name and to read the paragraph.

Recording Procedures

Recordings of each subject's production of stimulus materials were made in six different rooms. The Bruel and Kjaer impulse precision Sound Level Meter (type 2204) measured the sound level of each room on the "A" scale to fall between 30 dB and 40 dB. A Uher 400 Report-L tape recorder and Uher-M516 microphone with tripod stand were the recording instruments used. Subjects were recorded in a sitting position with the microphone positioned 12" from the speaker at the level of the upper lip to minimize the effects of stomal blast.

Judges

Thirty-three naive listeners enrolled in a Voice and Articulation course at Michigan State University served as judges for each of the three tasks recorded by the 24 laryngectomized subjects. Naive listeners were chosen because the investigator felt that it is the naive listener who is communicating with laryngectomized individuals in their daily encounters within the community. The criteria for inclusion as a judge were two-fold: (a) the individual report having never heard esophageal speech, (b) the individual report having normal hearing. To insure that hearing was adequate, a Beltone model 100 audiometer was used to measure each judge's hearing in the range of 500 Hz, 1000 Hz, and 2000 Hz. All judges responded to these frequencies at 20 dB or better in both ears.

Judgment Procedures

Three listening sessions were held in room 109 of the Audiology and Speech Clinic building at Michigan State University. This is a carpeted room with acoustical tile on each of the four walls. Using the Bruel and Kjaer impulse precision Sound Level Meter (type 2204), the measured sound level of this room was 40 dB on the "A" scale.

The recordings obtained from each subject were randomized, using a table of random numbers, so that the

judges would hear a variety of speech proficiencies. The tapes were then spliced onto master 5" reels. Each listening group heard eight subjects read the word intelligibility lists, eight different subjects read the sentence intelligibility lists, and eight different subjects read the "Rainbow Passage." Each group of judges heard the three tasks read in the same order, and no subject was heard more than once by any judge.

The tapes were played free-field, at an approximate level of 60 dB, on the Uher 4000 Report-L tape recorder. All judges' seats were situated in the listening room so that the sound level received from the loud speaker was the same at each seat.

The first task required of the judges was to listen to eight subjects read eight sets of three words each. As the subjects read each of the three words, the judges crossed out the appropriate three words on their answer sheets (see Appendix E). Each test word appeared on the response form with three foils. Eight appropriate forms were provided for each judge. Three seconds were provided between groups of words to allow sufficient time for judges to record their responses.

The second task required the judges to listen to eight subjects read a list of 20 sentences. An appropriate answer sheet was provided for each group of sentences heard (see Appendix F). The judges filled in the five

key words missing from each sentence on his answer sheet. They were told to write in what they thought they heard the subjects say. They were also told that their responses would be considered correct if not ortographically correct but phonemically correct.

The third task required the judges to listen to eight subjects read the 97 word "Rainbow Passage." They were instructed to rate each subject's overall speech proficiency on an equal appearing 5-point scale, with 1 being very poor and 5 being very good (see Appendix G). Answer sheets were provided for each judge to mark his ratings.

CHAPTER IV

RESULTS

Word Intelligibility Results

The mean word intelligibility scores for the 24 subjects ranged from 10 to 23 with the mean of the means being 16.6. The highest possible score on the word test was 24. Table 1 shows the distribution of scores among the subjects.

Table 1

Distribution of Word Intelligibility Scores

Scores Received	N = 24
23	1
20	4
19	2
18	5
17	2
16	1
15	2
14	2
13	3
11	1
10	1

Sentence Intelligibility Results

The highest possible score that could be attained on the sentence intelligibility test was 100. This would

indicate that the judges were able to identify correctly the five key words in each of the 20 sentences they heard a speaker read. The mean scores obtained for the 24 subjects ranged from 6 to 85, with the mean of the means being 54. Table 2 represents the distribution of scores received.

Table 2

Distribution of Sentence Intelligibility Scores

Scores Received	N = 24
85	1
81	2
73	2
71	1
65	3
62	1
61	1
60	1
58	1
55	1
53	1
47	1
45	1
44	1
42	1
37	1
32	1
29	1
12	1
6	1

Result of Global Proficiency Ratings

Judges subjectively rated the overall speaking proficiency of the 24 subjects on a five-point equal-appearing interval scale where: 1 = very poor, 2 = poor,

3 = average, 4 = good, 5 = very good. Table 3 shows the distribution of these ratings among the 24 subjects.

Table 3

Distribution of Global Proficiency Scores

Scores Received	N = 24
5	3
4	8
3	7
2	4
1	2

This table indicates that a wide range of esophageal speech proficiencies were obtained within the population selected by the investigator.

Correlation of Word Intelligibility Scores and Ratings of Over-all Speaking Proficiency

A Pearson r correlation coefficient was computed to determine whether word intelligibility scores and ratings of overall speech proficiency were significantly correlated at the .01 level of confidence. The variables used were the means scores received by each subject on the two tests, as determined by the 33 judges. The resulting correlation was 0.623 which is significantly different from a zero order correlation at the .01 level, with N = 24. This finding indicates that there is a positive correlation between the two measures of intelligibility.

Figure 1 shows the coordinates of each subject's mean word score plotted against his rating on the overall speech proficiency task.

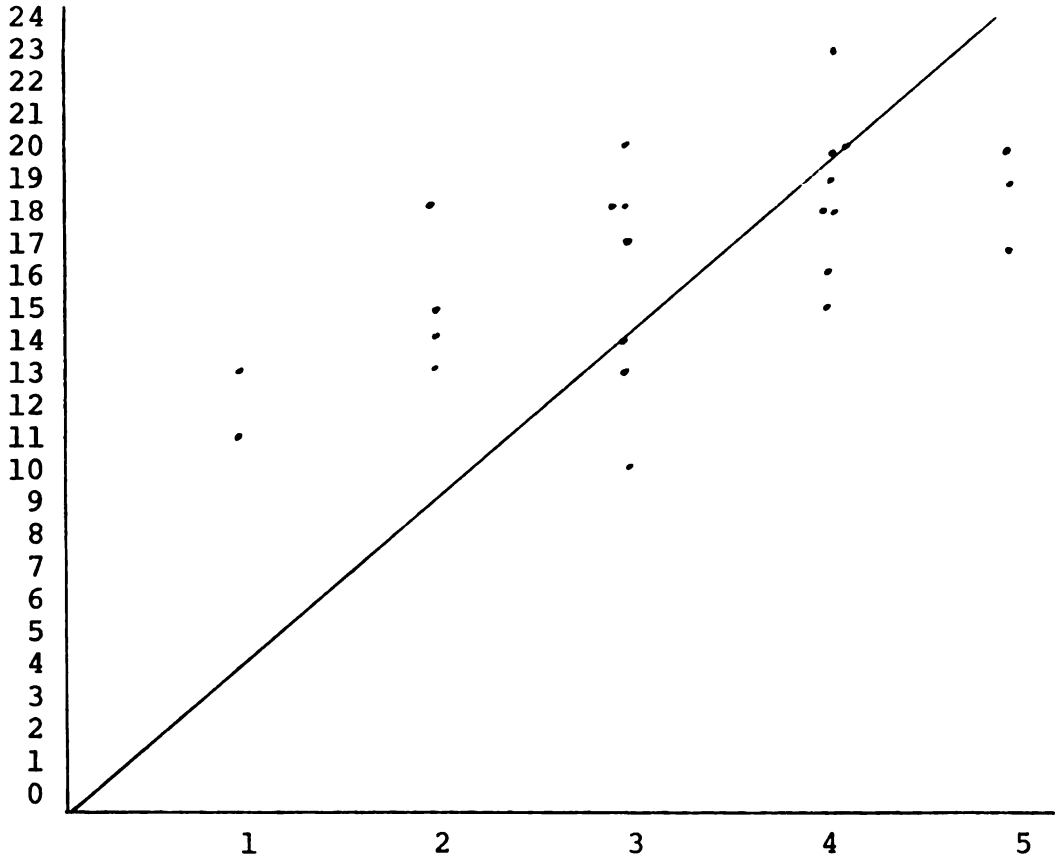

Figure 1. Graph of word and paragraph scores.

Correlation of Sentence Intelligibility Scores and Ratings of Overall Speaking Proficiency

A Pearson r correlation coefficient was computed to determine whether sentence intelligibility scores and ratings of overall speech proficiency were significantly correlated at the .01 level of confidence. The variables used were the mean scores received by each subject on the two tests. Computation of these values yielded a

Pearson r correlation coefficient of 0.830 which is significantly different from a zero order correlation at the .01 level, with N = 24. This finding indicates a high positive correlation between sentence intelligibility scores and overall ratings of speaking proficiency, since 0.830 is significantly greater than the cut-off value of .471 that the two measures of intelligibility were compared against.

Figure 2 shows the coordinates of each subject's mean sentence score plotted against his rating on the overall speech proficiency task. It can be seen on this graph that only four subjects received overall speech proficiency ratings lower than their obtained mean score on the sentence intelligibility test.

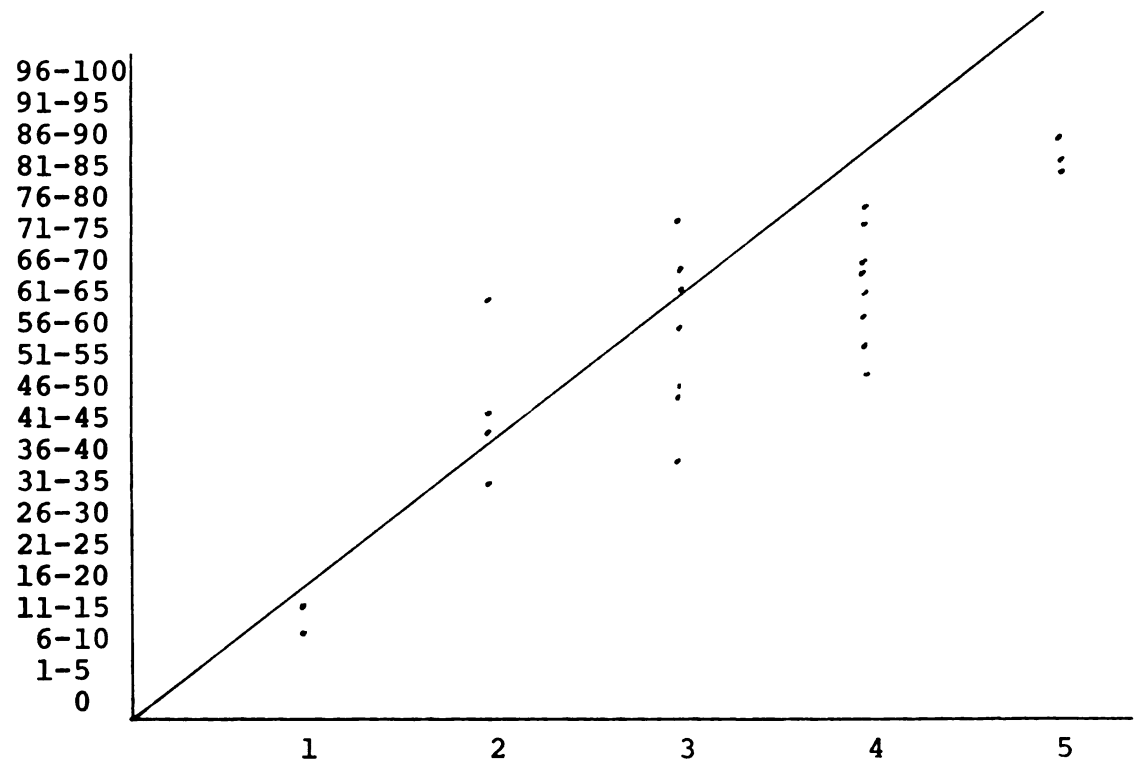

Figure 2. Graph of sentence and paragraph scores.

Correlation of Word Intelligibility Scores and Sentence Intelligibility Scores

A Pearson r correlation coefficient was computed to determine whether word intelligibility scores were significantly correlated with sentence intelligibility scores at the .01 level of confidence. The variables used were the mean scores received by each subject on the two tests, as determined by the 33 judges. The resulting correlation was 0.713 which is significantly different from a zero order correlation at the .01 level, with N = 24. This finding indicates that there is a positive correlation between the two measures of intelligibility.

Figure 3 shows the coordinates of each subject's mean sentence score plotted against his mean word score.

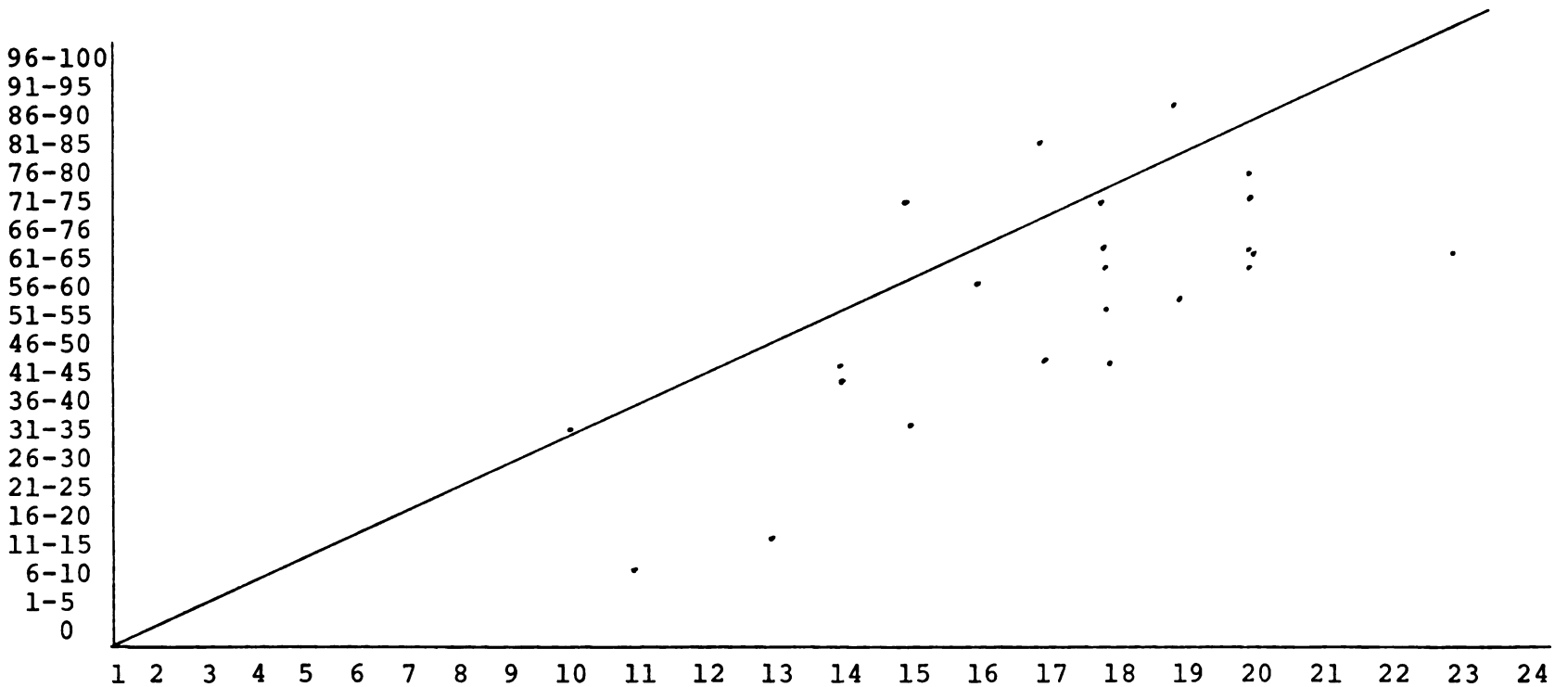

Figure 3. Graph of sentence and word scores.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The findings of this study indicate that:

1. There is a significant correlation between mean ratings of global speech proficiency and mean scores of word intelligibility, at the .01 level of confidence, among esophageal speakers.

2. There is a significant correlation between mean ratings of global speech proficiency and mean scores of sentence intelligibility, at the .01 level of confidence, among esophageal speakers.

3. There is a significant correlation between mean scores of word intelligibility and mean scores of sentence intelligibility, at the .01 level of confidence, among esophageal speakers.

4. Esophageal speakers who do well on single words do not necessarily receive high global proficiency ratings.

5. Esophageal speakers who do well on sentence tasks will receive high global proficiency ratings.

6. Esophageal speakers tend to receive higher scores on single word tasks than on sentence tasks. However, as word scores increased, sentence scores increased proportionately.

Hoops and Curtis' (1970) study on intelligibility of the esophageal speaker indicated significantly different results from those reported in the present study, in reference to sentence intelligibility vs. global proficiency. They found a positive, but low, correlation (.376) between sentence intelligibility scores and ratings of global speech proficiency. Hoops and Curtis utilized Beranek's sentence lists for the sentence intelligibility task and the "Rainbow Passage" for the global proficiency task, as did the present study. The size of the experimental populations were similar: their study used 28 esophageal speakers and the present study used 24 esophageal speakers. Both studies varied the range of proficiencies accepted in the study. Hoops and Curtis did, however, utilize 21 speech pathologists as the judges of the sentence intelligibility test and 75 naive individuals as judges of the global proficiency test. The present study utilized only naive judges. Caution must be taken in interpreting this difference. Although this difference may have some bearing on the results obtained in the two studies, we cannot be sure that it was the sole contributing factor.

The investigator emphasizes the importance of training esophageal speakers to speak in phrases and sentence structures as soon as possible and with as much proficiency as possible. It is sentence proficiency and not individual word proficiency which appears to have significant bearing on whether or not an esophageal speaker is considered a good speaker by the naive population, and most people in the outside community fall in the category of naive listeners.

It was beyond the scope of this paper to investigate all variables which affect esophageal speech proficiency. However, it is important to keep in mind that there are many variables which do indeed affect one's ability to master esophageal speech. Several of the variables that the investigator was able to obtain are charted in Table 4. Date of operation was the only variable among the six variables looked at which appeared to have a consistent effect on the scores received. All but one individual who received a global proficiency rating of 1 or 2 had undergone surgery in 1974-75. Age, sex, months of therapy, hearing, and degree of surgery were not consistently favorable or unfavorable factors for the subjects in this study.

Implications for Further Research

In respect to sentence intelligibility skills and their correlation to global ratings of speech proficiency,

Table 4

Subject's Mean Scores and Statistics

Speakers	#6	#17	#13	#4	#8	#18	#15	#3
Mean Scores								
Words	17	18	16	13	18	11	18	20
Sentences	81	73	58	60	55	6	61	73
Paragraph	5	4	4	3	3	1	2	3
Variables								
Age	68	69	69	63	72	55	67	60
Sex	m	m	m	m	m	m	m	m
Yr. of operation	'70	'73	'75	'70	'65	'75	'75	'67
Mos. therapy	6	36	4	0	3	4	3	3
Hearing (dB)								
Avg. rght.	17	32	15	7	18	35	3	17
Avg. lft.	13	28	22	7	13	42	18	22
Degree of surgery	T	T	T	T	T	T	T	T

Speakers	#11	#7	#14	#16	#2	#21	#12	#9
Mean Scores								
Words	17	20	10	14	20	15	13	13
Sentences	44	62	32	42	81	71	12	29
Paragraph	3	4	3	2	5	4	1	2
Variables								
Age	68	67	70	54	75	61	75	70
Sex	m	m	m	f	m	m	m	m
Yr. of operation	'67	'59	'72	'75	'58	'69	'75	'74
Mos. therapy	6	6	36	4	6	0	4	16
Hearing (dB)								
Avg. rght.	38	13	10	10	23	10	23	23
Avg. lft.	37	15	13	13	18	10	23	33
Degree of surgery	T	T	T	T/R	T/RL	T	T	T/L

Speakers	#22	#5	#23	#24	#10	#1	#19	#20
Mean Scores								
Words	14	18	20	15	18	19	19	23
Sentence	45	47	65	37	65	85	53	65
Paragraph	3	4	4	2	3	5	4	4
Variables								
Age	55	59	56	63	44	60	53	52
Sex	m	m	m	m	m	m	m	m
Yr. of operation	'58	'67	'71	'68	'75	'71	'71	'73
Mos. therapy	0	2	1	0	2	15	6	3
Hearing (dB)								
Avg. rght.	40	12	18	25	10	10	15	20
Avg. lft.	40	8	20	43	10	2	10	22
Degree of surgery	T	T	T/R	T/R	T	T	T	T

Key: Degree of surgery
T - total laryngectomy
T/R - total laryngectomy, plus right radical neck dissection
T/L - total laryngectomy, plus left radical neck dissection
T/RL - total laryngectomy, plus right and left radical neck dissection

it is important to clarify why there was a difference in the results obtained in this study vs. the study done by Hoops and Curtis (1970). Points which would be interesting to research are (a) experimental design (amount of time the judges were given to record what they heard, etc.), (b) the sample of esophageal speakers employed, (c) the time of year recordings were made, (d) the judges employed (naive vs. sophisticated).

It is also recommended that investigation be made to determine why sentences are more difficult to master. That is, why do some individuals do well at the single word level but not at the sentence level? What factors come into play which make sentence skill more difficult to obtain than single word skills? What factors, if any, are good prognostic signs that an individual will be able to obtain adequate skill with esophageal speech at the sentence level?

APPENDICES

APPENDIX A

MULTIPLE-CHOICE INTELLIGIBILITY TESTS

APPENDIX A

MULTIPLE-CHOICE INTELLIGIBILITY TESTS

Speaker test 1, 9, 17

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say again I am Speaker _____. My name is (last name and initials).

Number 1: swarm canvas quart

Number 2: airport bark tassel

Number 3: group flicker beef

Number 4: legion wonder horn

Number 5: threat deer garden

Number 6: curtain export final

Number 7: rage city all

Number 8: knuckle dress screech

Speaker Test 2, 10, 18

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I saw again I am Speaker _____. My name is (last name and initials).

Number 1: skid mood twist

Number 2: profane thin receive

Number 3: hard fasten anger

Number 4: joke shaft knitting

Number 5: course balance rank

Number 6: lanky horror unfold

Number 7: pipe beast spray

Number 8: drift concern first

Speaker Test 3, 11, 19

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say again I am Speaker _____.
My name is (last name and initials).

Number 1: feed conclude train

Number 2: virtue hire patch

Number 3: dinner envy rumor

Number 4: spear goal mettle

Number 5: fault birch praise

Number 6: slack kernel drab

Number 7: go lady break

Number 8: chain ten heart

Speaker Test 4, 12, 20

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say again I am Speaker _____.
My name is (last name and initials).

Number 1: pardon hall double

Number 2: top cruel storage

Number 3: eight dissolve needle

Number 4: fable recline tolley

Number 5: shade infect card

Number 6: brain squad tramp

Number 7: plan lift behold

Number 8: glory nut force

Speaker Test 5, 13, 21

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say again I am Speaker _____.
My name is (last name and initials).

Number 1: crook fair amble

Number 2: brick dim matching

Number 3: shook opal trail

Number 4: flame were relief

Number 5: plot kind sleeping

Number 6: eighty swoop quit

Number 7: world handy dot

Number 8: unfit reverse budget

Speaker Test 6, 14, 22

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say I am Speaker _____.

My name is (last name and initials).

Number 1: term hate commit

Number 2: proud waist meaning

Number 3: deflect law jobber

Number 4: tell invite flat

Number 5: faithful suit became

Number 6: rural noon save

Number 7: edge binding prince

Number 8: desk vote young

Speaker Test 7, 15, 23

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say again I am Speaker _____.
My name is (last name and initials).

Number 1: chisel bond dream

Number 2: forge seal notion

Number 3: verse harvest tight

Number 4: guide jungle blunt

Number 5: pun speed hail

Number 6: eat pad depth

Number 7: wife rocket keep

Number 8: content fork ask

Speaker Test 8, 16, 24

READ FROM THIS CARD

In reading the test, remember to pause after each group of three words.

I am Speaker _____. I say again I am Speaker _____.
My name is (last name and initials).

Number 1: gadget why belt

Number 2: sandy power fit

Number 3: attic main describe

Number 4: cattle heel tare

Number 5: ring option class

Number 6: killer span thimble

Number 7: dozen guard chapter

Number 8: wealth prevent foremost

APPENDIX B

READING INSTRUCTIONS FOR SPEAKERS

APPENDIX B

READING INSTRUCTIONS FOR SPEAKERS

Instructions for Speakers

This is a test of your ability to be intelligible, that is, to be heard. Your rating as a speaker depends upon the number of times the words that you speak are recorded correctly by your listeners. It is important that you read the words exactly as they are printed on the page. As an illustration, suppose your card contained the following words: "I am Speaker One. I say again I am Speaker One. My name is Clayton, S.D." Number 1: mortar shut assist. Number 2: blimp injure knob. You would read as I did. You may have noticed that I read Number One: mortar shut assist, as a unit, as if the words were a sentence and made sense. They usually don't but read them as though they do.

Questions?

Now, read this practice test.

APPENDIX C

SENTENCE INTELLIGIBILITY TESTS

APPENDIX C

SENTENCE INTELLIGIBILITY TESTS

Speaker Test 1, 9, 17

READ FROM THIS CARD

In reading the test, remember to pause after each sentence.

I am . . (last name and initials).

1. The birch canoe slid on the smooth planks.
2. Glue the sheet to the dark blue background.
3. It's easy to tell the depth of a well.
4. These days a chicken leg is a rare dish.
5. Rice is often served in round bowls.
6. John is just a dope of long standing.
7. The juice of lemons makes fine punch.
8. The chest was thrown beside the parked truck.
9. The hogs were fed chopped corn and garbage.
10. A cry in the night chills my marrow.
11. Blow high or low but follow the notes.
12. Four hours of steady work faced us.
13. A large size in stockings is hard to sell.
14. Many are taught to breathe through the nose.
15. Ten days' leave is coming up.
16. The Frenchman was shot when the sun rose.
17. A rod is used to catch pink salmon.
18. He smoked a pipe until it burned his tongue.
19. The light flashed the message to the eyes of the watcher.
20. The source of the huge river is the clear spring.

Speaker Test 2, 10, 18

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials).

1. Death marks the end of our efforts.
2. The gift of speech was denied the poor child.
3. Never kill a snake with your bare hands.
4. Kick the ball straight and follow through.
5. Help the woman get back to her feet.
6. Put a dot on the i and sharpen the point.
7. The hum of bees made Jim sleepy.
8. A pint of tea helps to pass the evening.
9. Smokey fires lack flames and heat.
10. The soft cushion broke the man's fall.
11. While he spoke, the others took their leave.
12. The core of the apple housed a green worm.
13. The salt breeze came across from the sea.
14. The girl at the booth sold fifty bonds.
15. The purple pup gnawed a hole in the sock.
16. The fish twisted and turned on the bent hook.
17. A lot of fat slows a mile racer.
18. Press the pants and sew a button on the vest.
19. The swan dive was far short of perfect.
20. James tried his best to gain ground.

Speaker Test 3, 11, 19

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials).

1. For quick cleaning, buy a hemp rug.
2. The beauty of the view stunned the young boy.
3. Two blue herring swan in the sink.
4. Her purse was full of useless trash.
5. The colt reared and threw the sick rider.
6. It snowed, rained, and hailed the same morning.
7. An eel tastes sweet but looks awful.
8. Read verse out loud for pleasure.
9. Hoist the load to your left shoulder.
10. He was bribed to cause the new motor to fail.
11. Take the winding path to reach the lake.
12. Red pencil the words spelled wrong.
13. A plump hen is well fitted for stew.
14. The tempo was slow but picked up soon.
15. Note closely the size of the gas tank.
16. Haste may cause a loss of power.
17. The coast was guarded by field guns in the hills.
18. Cold, damp rooms are bad for romance.
19. A true saint is lean but quite human.
20. Wipe the grease off your dirty face.

Speaker Test 4, 12, 20

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials)

1. Mend the coat before you go out.
2. The wrist was badly strained and hung limp.
3. The stray cat bore green kittens.
4. A pest may be a man or a disease.
5. The coy girl gave no clear response.
6. The meal was cooked before the bell rang.
7. What joy there is in living.
8. A king ruled the state in early days.
9. The ship was torn apart on the sharp reef.
10. Soldiers poured through the wide breach in the wall.
11. The deep cave wound left then straight.
12. He quoted the book by the hour.
13. A frog grunts loudly if he wants food.
14. Sickness kept him home the third week.
15. Give her the gun, he shouted then.
16. The broad road shimmered in the hot sun.
17. The lazy cow lay in the cool grass.
18. Joe blew his bass horn wildly.
19. Lift the square stone over the fence.
20. The rope will bind the seven mice at once.

Speaker Test 5, 13, 21

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials).

1. Hop over the fence and plunge in.
2. A dead dog is no use for hunting ducks.
3. This soup tastes like stewed buzzard.
4. The ape grinned and gnashed his yellow teeth.
5. The friendly gang is gone from the drug store.
6. Mesh wire keeps chicks inside.
7. Sue the bank under a false name.
8. The frosty air passed through the coat.
9. He drank a coke with rum therein.
10. The crooked maze failed to fool the mouse.
11. Print her name beside the plain cross.
12. Adding fast leads to wrong sums.
13. The show was a huge flop at the very start.
14. The berry hung and swayed on the same stem.
15. Sam loves his sour and grouchy wife.
16. Do the task quickly or you fail.
17. A saw is a tool used for making boards.
18. She horned in on the gossip of the girls.
19. The plague killed thirty cows in a week.
20. Weeds stop the plants from getting big.

Speaker Test 6, 14, 22

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials).

1. The wagon moved on well oiled wheels.
2. The fleas hopped on both the cat and the chair.
3. Never buy a blind pig in a bag.
4. March the soldiers past the next hill.
5. A cup of sugar makes sweet fudge.
6. Place a rosebush near the porch steps.
7. George gave his sister a lot of coins.
8. Both lost their lives in a raging storm.
9. We talked of the side show in the circus.
10. Use a pencil to write the rough draft.
11. He ran half way to the hardware store.
12. Eight cops visit the new cook.
13. A cute baby is not shy or cross.
14. The clock struck to mark the third period.
15. College girls are full of zip and verve.
16. A small creek cut across the field.
17. Boys thrive on rough games and candy.
18. Cars and busses stalled in snow drifts.
19. The set of china hit the floor with a crash.
20. May is a grand season for hikes on the road.

Speaker Test 7, 15, 23

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials)

1. The dune rose from the edge of the water.
2. Those words were the cue for the actor to leave.
3. Farmers hate to use a hoe or rake.
4. A yacht slid around the point into the bay.
5. The two met while playing on the sand.
6. It's foolish to make a pass at Jane.
7. The ink stain dried on the finished page.
8. Fail once on this job and be discharged.
9. Scotch can't be bought today at all.
10. The walled town was seized without a fight.
11. The lease ran out in sixteen weeks.
12. They pulled a fast one on the deacon.
13. The lewd face stared out of the window.
14. A fine starry night greets the pair.
15. I am speaking dumb and vain words.
16. A tame squirrel makes a nice pet.
17. The throb of the car woke the sleeping cop.
18. George the second was then queen of the May.
19. Great men are the worst husbands.
20. The heart beat strongly and with firm strokes.

Speaker Test 8, 16, 24

READ FROM THIS PAGE

In reading the test, remember to pause after each sentence.

I am . . (last name and initials)

1. The pearl was worn in a thin silver ring.
2. The fruit peel was cut in thick slices.
3. The Navy attached the big task force.
4. See the cat glaring at the scared mouse.
5. The crest of the wave was eight feet below.
6. There are more than two factors here.
7. Breed dogs until you win the prize.
8. The climb was warm and done without water.
9. Ann tore her blonde hair in anger.
10. The hat brim was wide and too droopy.
11. Girls chat and gossip all day.
12. The lawyer tried to lose his case.
13. The lash curled around the fence post.
14. Cut the pie into large parts.
15. Put a big crawling bug in her ear.
16. The bait was snapped and the black fox captured.
17. Men strive but seldom get rich.
18. Always close the barn door tight.
19. He lay prone and hardly moved a limb.
20. Soothe the child with cocaine and cough drops.

APPENDIX D

GLOBAL PROFICIENCY TEST

APPENDIX D

GLOBAL PROFICIENCY TEST

READ FROM THIS PAGE

I am .. (last name and initials)

(pause)

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

APPENDIX E

WORD INTELLIGIBILITY ANSWER SHEET

APPENDIX E

WORD INTELLIGIBILITY ANSWER SHEET

Speaker # _____ 1, 9, 17

1	form	campus	court
	warm	canvas	fort
	swarm	pamphlet	port
	storm	panther	quart
2	airforce	spark	tassel
	airport	park	tackle
	air corps	dark	cattle
	airborne	bark	pastle
3	group	quicker	beef
	troop	flicker	beast
	coupe	slicker	beat
	fruit	liquor	beam
4	reason	wonder	corn
	region	blunder	torn
	legion	thunder	horn
	legend	sponsor	born
5	stretch	hear	guard
	threat	steer	hearten
	dread	near	garden
	bread	deer	bargin
6	certain	export	file
	pertain	extort	panel
	person	expert	funnel
	curtain	escort	final
7	raid	fitting	owl
	rate	pretty	call
	range	city	hall
	rage	sitting	all
8	uncle	dread	screech
	buckle	dress	preach
	knuckle	rest	reach
	stucco	red	street

Speaker #_____ 2, 10, 18

1	skid	move	swim
	skin	mood	twin
	hid	food	swift
	hit	smooth	twist
2	proclaim	spin	repeat
	domain	pin	receive
	cocaine	thin	recede
	profane	fin	reprieve
3	heart	fasten	angle
	barge	passion	amber
	lard	fashion	anger
	hard	passing	anchor
4	yoke	chat	heading
	joke	chap	sitting
	choke	shack	knitting
	dope	shaft	fitting
5	court	balance	drank
	cord	ballot	rank
	horse	gallons	ranch
	course	valid	drag
6	banking	borrow	unfold
	flanking	horror	untold
	lanky	father	controlled
	blanket	power	uphold
7	pipe	beast	dray
	pike	beat	grey
	type	meat	spray
	tight	least	pray
8	thrift	confirm	verse
	drip	confer	first
	drift	conserve	burst
	grip	concern	hurt

Speaker #_____ 3, 11, 19

1	deed	protrude	train
	weed	conclude	crane
	seed	construed	strain
	feed	include	terrain
2	virtual	hide	pack
	curfew	five	patch
	virtue	hire	catch
	virgin	fire	cat
3	dimmer	envy	rumor
	dinner	empty	roamer
	thinner	entry	rubber
	tinner	ending	rover
4	sphere	gull	petal
	fear	gall	mettle
	spear	gold	meadow
	beer	goal	settle
5	fault	burst	trade
	vault	hurt	trace
	dog	first	praise
	fog	birch	pray
6	black	kernel	graft
	track	curdle	draft
	slack	turtle	drab
	flak	hurdle	grab
7	glow	late	break
	go	laden	rake
	grow	lazy	great
	goat	lady	grape
8	change	pen	hard
	chain	pin	part
	stain	tent	harsh
	shame	ten	heart

Speaker #_____ 4, 12, 20

1	stardom	call	bubble
	pardon	ball	stubble
	garden	hall	trouble
	autumn	small	double
2	top	tool	storage
	hop	cruel	porridge
	pop	drool	shortage
	prop	cool	story
3	eight	revolve	needle
	ache	involve	fetal
	hate	resolve	eagle
	bake	dissolve	beetle
4	able	recline	folly
	stable	refine	volley
	fable	reclaim	polish
	table	reply	trolley
5	gave	effect	hard
	shade	expect	card
	fade	inspect	cord
	shave	infect	harsh
6	strange	wad	plant
	bring	wash	clamp
	rain	squad	cramp
	brain	squash	tramp
7	clad	lift	behave
	clan	rift	withhold
	plan	drift	revolt
	plant	list	behold
8	quarry	such	force
	glory	touch	fourth
	gory	nut	course
	sorry	butt	horse

Speaker #_____ 5, 13, 21

1	cook	fair	annual
	crook	bare	ample
	brook	care	amble
	book	pair	apple
2	brink	skim	action
	bridge	hymn	matching
	brisk	vim	magic
	brick	dim	smashing
3	took	open	trial
	shook	oboe	file
	shock	opal	frail
	cook	oval	trail
4	flame	worm	relieve
	blame	work	receive
	claim	word	relief
	plane	were	release
5	clock	kind	leaping
	block	pine	sleeping
	plot	fine	creeping
	blot	time	reaping
6	eighty	proof	whip
	aching	hoop	quit
	dainty	group	quick
	baby	swoop	twist
7	world	happy	dodge
	whirl	handy	dark
	wool	candy	dot
	would	envy	dock
8	conscript	refer	budget
	conflict	rehearse	bucket
	assist	reverse	bunion
	unfit	revert	budge

Speaker #_____ 6, 14, 22

1	squirm	hate	commit
	firm	haste	submit
	term	eight	permit
	turn	take	commence
2	cloud	waist	feeling
	crowd	wake	meeting
	proud	wade	feeding
	prod	wait	meaning
3	neglect	lost	robber
	deflect	long	jobber
	reflect	log	harbor
	reflex	law	shopper
4	held	invite	blast
	bell	insight	flat
	fell	inside	flak
	tell	advice	black
5	playful	suit	depend
	faithful	shoot	detain
	fateful	boot	became
	baseball	fruit	retain
6	plural	norm	brave
	neutral	new	stave
	rural	nude	bathe
	ruler	noon	save
7	egg	finding	tint
	edge	binding	print
	hedge	blinding	prince
	head	landing	tense
8	desk	both	yawn
	deck	boat	jump
	death	vote	junk
	debt	quote	young

Speaker #_____ 7, 15, 23

1	cheerful	barn	ream
	drizzle	bond	green
	chisel	born	dream
	fiddle	bomb	scream
2	gorge	seal	lotion
	forge	steel	motion
	ford	feel	ocean
	board	field	notion
3	bird	harbor	height
	birth	Harvard	pipe
	first	harvest	kite
	verse	horrid	tight
4	dive	jungle	blunt
	side	tinkle	blood
	died	shingle	flood
	guide	single	stunt
5	pun	seed	sail
	punch	speed	hail
	pond	bead	rail
	punt	greed	stale
6	eat	past	death
	heat	pass	debt
	heap	path	depth
	deep	pad	deaf
7	wipe	rocking	keep
	wife	locker	feet
	wide	rocket	peep
	white	locket	heat
8	contest	fort	add
	contend	fore	have
	content	force	ax
	contempt	fork	ask

Speaker #_____ 8, 16, 24

1	dagger	why	milk
	gadget	wine	built
	jacket	wire	felt
	jagged	wise	belt
2	fancy	collar	fit
	brandy	pilot	sit
	sandy	tower	spit
	candy	power	fifth
3	adding	main	destroyed
	addict	fame	prescribe
	acting	fade	deprive
	attic	maid	describe
4	tattle	field	fair
	tackle	feel	tare
	paddle	heel	hair
	cattle	eel	pair
5	bring	option	clash
	ring	auction	class
	rink	object	clap
	drink	action	clad
6	teller	band	thimble
	pillar	span	symbol
	killer	spend	temple
	color	bend	simple
7	dungeon	barge	capture
	cousin	dark	captor
	dozen	barred	chapter
	doesn't	guard	captain
8	weld	prevent	formal
	wealth	present	forebode
	whelp	resent	foremost
	well	revenge	promote

APPENDIX F

SENTENCE INTELLIGIBILITY ANSWER SHEET

APPENDIX F

SENTENCE INTELLIGIBILITY ANSWER SHEET

Speaker #_____ 1, 9, 17

1. The _____ on the _____.
2. _____the_____to the_____.
3. _____to_____the_____of a _____.
4. These _____a_____is a _____.
5. _____is_____in_____.
6. _____is_____a_____of_____.
7. The_____of_____.
8. The_____was_____the_____.
9. The_____were_____and_____.
10. A_____in the_____.
11. _____or_____but_____the_____.
12. _____of_____us.
13. A_____in_____is_____to_____.
14. _____are_____to_____the____.
15. _____is_____.
16. The_____was_____the_____.
17. A_____is_____to_____.
18. He_____a_____it_____his_____.
19. The_____the_____to the _____ of the_____.
20. The_____of the_____is the_____.

Speaker #_____2, 10, 18

1. _____the_____of_____.
2. The_____of_____was_____the_____.
3. _____a_____with your_____.
4. _____the_____and_____.
5. _____the_____to her_____.
6. _____a_____on the_____and_____the_____.
7. The_____of_____.
8. A_____of_____to_____the_____.
9. _____and_____.
10. The_____the_____.
11. _____he_____, the_____their_____.
12. The_____of the_____a_____.
13. The_____from the_____.
14. The_____at the_____.
15. The_____a_____in the_____.
16. The_____and_____on the_____.
17. A_____of_____a_____.
18. _____the_____and_____a_____ on the_____.
19. The_____was_____of_____.
20. _____his_____to_____.

Speaker #_____3, 11, 19

1. For_____,_____a_____.
2. The_____of the_____the_____.
3. _____in the_____.
4. _____was_____of_____.
5. The_____and_____the_____.
6. It_____,_____, and_____the_____.
7. An_____but_____.
8. _____for_____.
9. _____the_____to_____.
10. He was_____to_____the_____to_____.
11. _____the_____to_____the_____.
12. _____the_____.
13. A_____is_____for_____.
14. The_____was_____but_____.
15. _____the_____of the_____.
16. _____a_____of_____.
17. The_____was_____by_____in the _____.
18. _____are_____for_____.
19. A_____is_____but_____.
20. _____the_____your_____.

Speaker #_____ 4, 12, 20

1. _____the_____you_____.
2. The_____was_____and_____.
3. The_____.
4. A_____a_____or a_____.
5. The_____no_____.
6. The_____was_____the_____.
7. _____in_____.
8. A_____the_____in_____.
9. The_____was_____on the_____.
10. _____through the_____in the _____.
11. The_____then_____.
12. _____the_____the_____.
13. A_____if he_____.
14. _____him_____the_____.
15. _____the_____, he_____.
16. The_____in the_____.
17. The_____in the_____.
18. _____his_____.
19. _____the_____the_____.
20. The_____will_____the_____at_____.

Speaker #_____5, 13, 21

1. _____the_____and_____.
2. A_____is no_____for_____.
3. This_____.
4. The_____and_____his_____.
5. The_____is_____from the_____.
6. _____.
7. _____the_____a_____.
8. The_____the_____.
9. _____a_____with_____.
10. The_____to_____the_____.
11. _____her_____the_____.
12. _____to_____.
13. The_____was a_____at the_____.
14. The_____and_____on the_____.
15. _____his_____and_____.
16. _____the_____or_____.
17. A_____is a_____for_____.
18. _____in___the_____of the_____.
19. The_____in a_____.
20. _____the_____from_____.

Speaker #_____6, 14, 22

1. The_____on_____.
2. The_____on_____the_____and the_____.
3. _____a_____in a_____.
4. _____the_____the_____.
5. A_____of_____.
6. _____a_____the_____.
7. _____his_____a____of_____.
8. _____their_____in a_____.
9. _____of the_____in the_____.
10. ____a_____to_____the_____.
11. He_____to the_____.
12. _____the_____.
13. A_____is_____or_____.
14. The_____to_____the_____.
15. _____are_____of_____and_____.
16. A_____the_____.
17. _____on_____and_____.
18. _____and_____in _____.
19. The_____of_____the_____with a_____.
20. _____is a_____for_____on the_____.

Speaker #_____7, 15, 23

1. The_____the_____of the_____.
2. _____were_____for the_____to_____.
3. _____to_____a_____or_____.
4. A_____the_____into the_____.
5. The_____on the_____.
6. _____to_____a_____at_____.
7. The_____on the_____.
8. _____on_____and be_____.
9. _____be_____at_____.
10. The_____was_____a_____.
11. The_____in_____.
12. _____a_____on the_____.
13. The_____of the_____.
14. A_____the_____.
15. _____am_____and_____.
16. A_____a_____.
17. The_____of the_____the_____.
18. _____the_____was_____of the_____.
19. _____the_____.
20. The_____and with_____.

Speaker #_____8, 16, 24

1. The_____was_____in a_____.
2. The_____was_____in_____.
3. The_____the_____.
4. _____the_____at the_____.
5. The_____of the_____was_____.
6. _____are_____than_____.
7. _____you_____the_____.
8. The_____was_____and_____.
9. _____her_____in_____.
10. The_____was_____and_____.
11. _____and_____.
12. The_____to_____.
13. The_____the_____.
14. _____the_____.
15. _____a_____in her_____.
16. The_____was_____and the_____.
17. _____but_____.
18. _____the_____.
19. He_____and_____a_____.
20. _____the_____with_____and_____.

APPENDIX G

GLOBAL PROFICIENCY RATING ANSWER SHEET

APPENDIX G

GLOBAL PROFICIENCY RATING ANSWER SHEET

Key: 1 - very poor
2 - poor
3 - average
4 - good
5 - very good

Circle the rating that best represents the speaker.

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

Speaker #____ 1 2 3 4 5

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