

The Listenability of Consumer- Information Phone Scripts.

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Abstract: The absence of a scale for levels of listening ability has prompted many to use readability formulas for testing the listenability of speech. This paper reviews the literature of listenability and of the use of readability formulas for testing it. While this use assumes that there is a relation between reading and listening skills, research indicates this is not so. If adjustments are made, however, a few studies show that the formulas are useful for predicting listenability. The Department of Consumer Affairs of Los Angeles County has an automated consumer-information phone system. When that broke down, they decided to re-write the 132 recorded messages in plain language. The results confirm that increased readability improves the listenability of spoken texts. The results do not confirm, however, the usefulness of the formulas in re-writing spoken texts.

Background

The Department of Consumer Affairs of the County of Los Angeles offers consumer services and information to the 10 million citizens of Los Angeles County. The paid and volunteer staff responds to over 700,000 requests each year. The Department distributes information in the form of tip sheets, form letters, web pages, and recorded messages on an automated phone system.

In 2002, the phone system broke down and a new one was ordered. Tim Bissell, the Chief Deputy Director of the Department, wanted to re-write the scripts in plain language. He hired local readability consultant William DuBay. They devised a plan for coaching the staff and conducting plain-language workshops.

In 2004, the Department of Consumer Affairs received a grant from the County's Quality and Productivity Commission. The purpose of the grant was to support the plain-language plans of the Department.

The staff learned that plain language means matching the language with the reading skill of the audience. It also means a change in how documents are produced. There was a new awareness of the reading habits of their clients and their reading requirements.

They also learned that the average reader in the U.S. is an adult of reading ability. The 1992 National Adult Literacy Survey reported that the average adult in the U.S. reads at the 9th grade level. That study broke down reading skill into five levels as shown in this chart:

Table 1. U. S. National Adult Literacy Survey 1992

Literacy Level	Grade Range	Percentage of Population
1 Rudimentary	1-2	21%
2 Basic	3-6	27%
3 Intermediate	7-10	32%
4 Adept	11-15	17%
5 Advanced	16+	3%

The staff learned how to use the Flesch-Kincaid readability formula. They found that their average texts were written at the 11th-grade level. Some of were at the 16th-grade level.

Over a period of time, the staff rewrote and edited 100 information sheets, 70 web pages, five forms, 38 form letters, 132 phone scripts and procedure manuals. The readability of the Department's forms, information sheets, and web pages were improved by an average of four grade levels, from 11th to the 7th grade. For the written materials, this represented a 150% increase in predicted audience comprehension.

For the phone scripts, however, very little was known about listenability. There had been no national survey of listening skills showing us how listening skills were distributed in the adult population. There was no scale for the assessment of listening skills. There was little information about how listening skills related to reading skills.

We devised a plan to test the comprehension of the new phone scripts. When a client first calls the system, the call is directed to a menu of recorded messages for different consumer issues. At the end of each message, the caller is told, "To speak to an advisor, press one." The Department employs about 80 volunteer staff to take these calls.

We assumed that the increase in listenability of the new messages would reduce the number of transferals to the live counselors. Simpler and more clearly written user manuals are known to result in fewer support calls. The change in the callers' behavior would be an observable account of increased comprehension.

To guide us, we had only the studies described in the following.

An accepted definition of **readability** is "ease of reading." For purposes of this paper, **listenability** means "ease of listening," with **listening** here meaning "the process of hearing, recognizing, and understanding human speech."

Listenability in History

Speakers of many languages have been concerned about the listenability of spoken language for a very long time. St. Paul wrote to his congregation: "For if the trumpet give an uncertain voice, who shall prepare himself for war? So also ye, unless ye utter by the tongue speech easy to understood, how shall it be known what is spoken? for ye will be speaking into the air" (1 Corinthians 14, 8-10).

Cicero, one of history's most persuasive speakers, dominated the teaching of rhetoric and eloquence for 1,500 years. In his Latin essay, "The Orator," Cicero stresses the following [1]:

1. All audiences are different. The good speaker must first study and understand the "inclinations and character," of the audience and adapt his speech to "their particular humours and dispositions."
2. The four elements that most directly affect the listeners are
 - a. **Content**—what is said. This includes the ideas, the basic **thesis**, and the arguments for it. In this regard, Cicero stresses that good speaking is mostly good thinking.
 - b. **Organization**—in what order. The speaker must first make "himself master of the hearer's good wishes" and then "invalidate what makes against him." Thus, "having cleared the way," the speaker can state his strong points at both the beginning and the end. He will bring in other points wherever they are most serviceable.
 - c. **Delivery**. Cicero describes delivery as the "eloquence of the body," meaning action, the tone of voice, facial expressions, pronunciation, posture and gestures. He writes

For even those who were from being masters of good language, have many times, by the sole dignity of their action, reaped the fruits of Eloquence; while others who had the finest powers of elocution, have too often, by the mere awkwardness of their delivery, led people to believe that they were scarcely able to express themselves.

- d. **Style**, which includes one of the three styles of good speaking: 1. the **plain style**, “neat and accurate,” used for instruction, 2. the **lofty and majestic** style, “vehement and impetuous,” for forcing emotion and moving audiences to action, and 3. the **middle** style, “moderately florid,” used mainly for entertainment.

Cicero also emphasizes the importance of maintaining the decorum becoming to each of these different styles, different audiences, and different purposes: “For, as in the conduct of life, so in the practice of Speaking, nothing is more difficult than to maintain a propriety of character.”

3. Cicero writes that the **plain style**, “imitates the language of conversation....” and “seems easy to imitate at first thought, but when attempted, nothing is more difficult.”

Plainness does not mean the absence of all ornaments, only the more obvious ones. As Aristotle had taught before him, Cicero points out that a metaphor or simile can help us see a relation we had not recognized. In fact, he makes abundant use of them to teach us what the plain style is all about:

... although it is not full-blooded, it should nevertheless have some of the sap of life so that, though it lack great strength, it may be, so to speak, in sound health.... Just as some women are said to be handsomer when unadorned... so this plain style gives pleasure when unembellished.... All noticeable pearls, as it were, will be excluded. Not even curling irons will be used. All cosmetics, artificial white and red, will be rejected. Only elegance and neatness will remain.

After the conquest of England by the Normans in 1066, English was rarely spoken outside the servants' quarters. Only in the 14th century did it begin to creep into schools and the halls of government and law. English quickly advanced to become the language of the greatest body of poetry ever written.

The 15th-century Renaissance brought a revival of the ancient classics, mainly the writings of Cicero, who had great appeal in Tudor England. Under his influence, a variety of prose styles flourished for both speech and writing. While the upper classes used more polished styles, merchants, artists, farmers, and sea captains developed a plain style of their own [2].

In his plays, Shakespeare used different styles, sometimes making fun of pompous speech. In King Richard III, he reminds us: “An honest tale speeds best being plainly told.”

In 1604, Robert Cawdrey, in his introduction to the first English dictionary, *A Table Alphabeticall of Hard Usual English Wordes*, made an eloquent appeal for plain speech:

Such as by their place and calling, (but especially Preachers) as have occasion to speak publicly before the ignorant people, are to be admonished, that they never affect any strange ynkhorne termes, but labour to speak so as commonly received, and so as the most ignorant may well understand them.... Some men seek so far for outlandish English, that they forget altogether their mothers language, so that if some of their mothers were alive, they were not able to tell, or

understand what they say, and yet these fine English Clearks, will say they speak in their mother tongue; but one might well charge them, for counterfeiting the Kings English.

Cawdrey urges speakers to use the "plainest and best kind of speech.... such words as we use."

The Modern Study of Readability

In the 19th century, teachers discovered that, for learning to read, students should have graded texts that match their reading skills. They began to separate students and textbooks into different grades. It wasn't until 1825 that the first series of graded readers was published. In 1836, McGuffey's *Eclectic Readers* came out. They had a profound effect on education for generations.

In 1880, Lucius A. Sherman, a professor of English Literature at the University of Nebraska, began examining literature from a historical and statistical point of view. Like others of his time, he regarded literature as a means of spiritual inspiration. He also advocated a scientific and objective approach to literature. In 1893, he published *Analytics of Literature: A Manual for the Objective Study of English Prose and Poetry* [3].

Sherman's book showed that, over time, the English sentence had shrunk. In pre-Elizabethan times, the average sentence was 50 words long. In his time, it was 23 words long. He also showed that the sentences became simpler and less abstract. He believed this process was due to the influence of spoken language on written text. He wrote:

Literary English, in short, will follow the forms of the standard spoken English from which it comes. No man should talk worse than he writes, no man writes better than he should talk.... The oral sentence is clearest because it is the product of millions of daily efforts to be clear and strong. It represents the work of the race for thousands of years in perfecting an effective instrument of communication (p. 312).

In the early 20th century, teachers felt an urgent need to provide texts that matched the reading levels of their students. Around 1911, Psychologist **Edward L. Thorndike**, noticed that teachers of language in Germany and Russia were using counts of word frequency to match texts with students. The more frequent a word is, the more familiar it is, and easier to use.

In 1921, Thorndike published *The Teacher's Word Book*, which listed 10,000 words by frequency of use [4]. Thorndike would follow up with a series of word-frequency books and dictionaries for teachers, educators, and students.

That same year, **Edward Kitson** published *The Mind of the Buyer*, one of the first attempts to apply modern psychology to marketing [5]. Kitson identified the variables that would later be used by the readability formulas. He stated that sentence length and the length of words measured in syllables were the best indicators of readability. Later research showed that these two variables are the best predictors of reading difficulty.

In 1923, **Bertha Lively** and **Sidney Pressey** of Ohio State University used Thorndike's list to assess the "vocabulary burden" of textbooks [6]. In 1928, **Mabel Vogel** and **Carleton Washburne** of the Winnetka Public Schools created the first readability formula, demonstrating that they could match the reading level of a reader with the grade level of a text. Their formula was the prototype for many others that would follow.

In the 1930s, a number of studies focused on helping adults learn to read. In 1934, **Edgar Dale** and **Ralph Tyler** published their own readability formula and first study on adult readability formulas [7].

In 1935, educator **William S. Gray** and **Bernice Leary** published *What Makes a Book Readable* [8]. This landmark work featured study of 228 variables affecting readability. It found that five of them used together could predict the difficulty of adult materials. Their book included a survey of the reading ability of adults in the U.S. It found that the average adult in the U.S. reads at grade 7.8.

In 1943, **Rudolf Flesch** published his first readability formulas [9]. Publishers quickly discovered that his formula could help them increase readership up to 75 percent. Researchers have since confirmed that readability is tightly correlated with comprehension, retention, reading speed, and persistence (the amount of text read)..

The popular formulas in use today correlate near or above .90 with comprehension as measured by reading tests. The formulas have benefited countless numbers of readers in many countries and languages. They are widely used in science, education, government, publishing, the military, health care, and law. Their success is testament to their solid theory and research base [10].

By the year 2000, **George Klare** reports there were over 1,000 studies published on more than 200 formulas. In 1951, **Wilson Taylor** published his **cloze test**, a new method of testing both readability and reading skill. The cloze test stimulated another 1,000 published studies. Research on readability is still going on, with new formulas being published each year [11–12–13–14].

The ability of the formulas to predict the difficulty of a text is well proven. But their worth in re-writing texts to a different grade level is not as certain. In reviewing studies of such use, Klare found that the formulas work best when used with texts that are well written. The variables used by the formulas (word and sentence length) are tightly related to other variables of the text (e.g., approach, design, and organization). If one adjusts the length of words and sentences (“writing to the formula”) but not the other variables, the text is likely to be worse than when one started [15].

For this reason, many emphasize the **qualitative assessment** of readability, also called **text leveling**. This is a subjective judgment that relies much on comparisons with text samples of specific grade levels [16–17]

The Modern Study of Listenability

Little research has been done on what makes speech easy to listen to. A search on ERIC for "readability" brings up 2,733 titles, while "listenability" brings up only nine.

It was not until the 1970s that the International Listening Association was formed. Before that time, few outside the speech-communication field realized that listening was a separate skill that one could teach and measure [18].

Teachers began to note that children were arriving at school without the listening skills needed for learning. Audiologists like Alfred Tomatis and Billie Thompson began showing the central role of listening in learning behaviors and disabilities [19].

Alice Ridge writes: “The federal Education Act of 1978 amended the Education Act of 1965 to include oral communication in its definition of basic skills for K–12 students.” A few states attempted to comply and began building listening curricula. Universities and school districts started to offer workshops on listening. They began treating listening as a separate discipline [20].

Unlike literacy, there is no national survey describing how listening skills are distributed in the population. There are several tests for listening, but they each measure different sub-skills [21]. These limitations give added significance to the few studies we have, briefly reviewed in the following.

With the invention of the telephone in 1876, the phonograph in 1877, and the radio in 1899, people began, for the first time, listening to absent, disembodied speakers. They no longer had the benefits physical delivery identified by Cicero. It was now one-way speech, like a blind person listening to a sermon.

This led script writers for radio to apply the readability formulas to spoken text. They needed to know if the requirements of writing apply to spoken text.

In his 1943 Ph.D. thesis, "Marks of a Readable Style," Flesch wrote:

Writers for a radio audience may well supplement this method [the use of his formula] with certain recent findings about the relationship between reading and listening comprehension. Goldstein...has found significant differences in favor of listening for third grade reading, but no reliable ...differences for seventh grade material [22]. Larsen and Feder ... have found listening superior for easy passages, reading superior for passages of medium difficulty, and a very pronounced difference in favor of reading for difficult material [23]. In other words, if material is put on the air rather than on the printed page, easy matter becomes easier but difficult matter more difficult. Radio will therefore magnify differentials in difficulty by the writer's formula [7].

Flesch later stated that his formula worked better for measuring levels of listening than reading difficulty [24]. His observations were confirmed in a study by **Jeanne S. Chall** and **Harold E. Dial** in 1948 [25]. They began by noting that radio has always prided itself on being easy to understand. A recent study, however, showed that the average newscasts of radio station WCAU in Philadelphia were scored by the Flesch formula at the 10th grade level. This meant that 60 percent of American adults would have found it difficult to read. The authors asked: "Are we justified in using a readability formula, developed primarily for measuring the difficulty of written materials, to measure the difficulty of spoken materials?"

To answer that question, they took 18 radio scripts from the 5th to the 16th grade levels of difficulty as scored by the Dale-Chall and Flesch formulas. They recorded the scripts on disks and then played them for their subjects 100 college freshmen in Franklin and Ohio State Universities. They then tested them on both understanding and interest.

The findings showed that both interest and understanding were tightly related to the formula predictions. There was also a correlation of .90 between correct answers and their subjective judgments of understanding, showing the subjects adequately judged their ability to understand what they heard.

The formula predictions, however, did not have a one-to-one relationship with the listeners' judgment of understanding. There was a close agreement only for the easiest stories. "Above the eighth-grade level of difficulty, the listeners did not well differentiate their understanding of the stories, as compared to the formula predictions."

Chall and Dial concluded in their report: "This experiment shows that with adjustments, a readability formula can be a helpful tool in predicting the listener's understanding and interest."

Two further studies, by Tom Sticht and his colleagues in 1974 [26] and Jeanne Chall in 1983 [27], showed that, after the 8th grade, reading ability continues to advance, but listening ability does not. A text at the 8th-grade level or below will be understood by a greater number of listeners than one of a predicted college or graduate level. The data indicates that, beginning with fairly difficult material (above the 8th grade level) listening to a text being read is more difficult than reading it.

In a 1950 study, P.E. Vernon found that about half of radio listeners in the United Kingdom understood and retained nothing from educational broadcasts [28]. He further found that many of the radio listeners who found a program as “most interesting” and who said they had learned a great deal from it were among those who understood and retained extremely little of the broadcast. The average listener apparently understood much less than the newscasters thought and were unaware of their lack of comprehension.

In 1952, William Allen wrote four commentaries each for two films, rated by the Flesch Reading Ease and Human Interest formulas [29]. His results showed that greater readability produced increased learning of the content of the films. The Flesch Reading Ease, the Dale-Chall, and the Lorge formulas were about equally effective in comparative ranking of comprehension scores, even though they differed in grade placements. The individual style factor that showed the clearest relationship to improved comprehension was sentence length, with a correlation of .61. Allen’s findings were confirmed in another film study by J. Molstad in 1955 [30].

In 1955, Francis Cartier tested three difficulty levels of seven stories and found that formula predictions appeared to be consistent with the comprehension scores of listeners [31]. In another study, Cartier used the four Flesch formulas in a cross-cultural application [32]. Using a group of Filipino college students, he found that the prediction scores of the Reading Ease formula correlated .79 with the students’ rating of the material.

That same year, Kenneth Harwood published two papers on the connection between readability and listenability. His first study showed that, as expected, language in the “difficult” range was more comprehensible when read than when listened to [33]. His second study looked at the effects of different rates of presentation [34]. He found that while listenability decreased somewhat with an increase in the speed of presentation, mean listenability at each of the four rates did not differ significantly.

In 1963, George Klare reviewed eight studies of the relationship between listenability and readability. He found three positive, four negative, and one indeterminate [35]. He wrote, “The relationship of readability scores to listenability criteria is not clear.”

In 1971, M. Timothy O’Keefe did a study comparing the listenability of Voice of America shortwave radio broadcasts in Southeast Asia to similar broadcasts by the U.S.S.R., West Germany, and the BBC [36]. He found that even the Voice of America’s Special English broadcasts (using a limited vocabulary) scored 50 on the Flesch Reading Ease scale, bordering between “difficult” and “fairly difficult.” Regular English broadcasts of the Voice of America had a score of 48.570; U.S.S.R, 37.239; West Germany, 40.715; and the BBC, 38.269—all regarded as “difficult.”

O’Keefe found that the Special English broadcasts of the Voice of America required at least a seventh-grade level of language skill, and the news reports, a high school ability. The difficulty level of its regular English broadcasts, he wrote, may also be “unnecessarily limiting its audience.”

In 1971, John B. Carroll conducted a review of 1,200 studies of how speech in audio-visual materials affects learning [37]. He states, “Verbal discourse in educational media, besides being sometimes of inappropriate difficulty for the intended audiences, is often needlessly complex, poorly organized, and poorly presented.”

Noting the large body of research on readability, Carroll comments: “One might wish that research on comprehensibility of texts in English had been initiated with orally-presented texts. Such research would have disclosed more readily the characteristics of language that present difficulties in understanding apart from the decoding of print.” He notes that, “...a large proportion of the characteristics that make

oral language difficult are the same as those that make printed language difficult. With appropriate caution, we can generalize at least some of the results obtained with ‘readability’ research to oral language” [38].

Eight of the nine studies on listenability reviewed by Carroll involved the application of readability formulas to speech. He concludes:

The evidence is very sparse as to whether such application of readability formulas is generally valid for the appraisal of whether a text is more “listenable” when presented orally. Part of the difficulty, of course, is that oral presentation of materials entails two opposite effects: on the one hand, it eliminates some of the factors that affect readability, in particular, ability to decode print, and on the other hand, it introduces additional factors, notably the ability of the speaker to “deliver” the message, and the rate of presentation.

An examination of the meager evidence assembled to date forces one to conclude that the application of standard readability formulas to prose destined for oral presentation is risky at best. Nevertheless, all the studies examined, that seemed to be relevant to the problem, do show positive relationships; positive relationships are exhibited at all age levels. [39].

Carroll reviews several studies that of style characteristics that contribute to the difficulty of both spoken and written language (pp. 113-128). They include:

1. Vocabulary load.
2. Sentence length.
3. Grammatical complexity.
4. Passive voice.
5. Poor organization.
6. Lack of similarity to natural language.

In 1975, Carl Jón Denbow, reviewing 17 studies, found that the relationship between readability and listenability is “not simple” [40]. Nevertheless, he concluded that the studies generally indicate that listening comprehension is better than reading comprehension when the material is easy and worse when it is difficult.

Denbow did an experiment using 140 students drawn from speech and journalism classes at Marshall University. He divided them into three experimental groups and one control group. The experimental groups were divided into a hearing group, a reading group, and a paced reading group who were given one sentence at a time projected on a screen. Each of the two stories used were presented in two forms, one written at the 5th-6th grade level and the other at the 13th-15th grade level as scored by the Dale-Chall formula.

The results found no difference in the relationships of listening and reading to the readability scores. It also found that the formula scores accurately predicted the increases in both reading and listening comprehension. Denbow noted that similar study by Robert Young at the University of Ohio found that the readability formulas accurately predicted reading and listening comprehension as measured by multiple-choice tests [41]

Some formulas have been developed just for spoken text. In 1962, J. R. Rogers published a formula for predicting the difficult of spoken text [42]. He used 480 samples of speech taken from the unrehearsed

and typical conversations of students in elementary, middle, and high school as his data for developing his formula. The resulting formula is:

$$G = .669 I + .4981 LD - 2.0625$$

Where:

G = reading grade level

I = average idea unit length

LD = the average number of words in a hundred-word sampling that do not appear on Dale's long list (3,000 words).

Rogers' formula has a multiple correlation of .727 with the grade level of his samples.

Irving Fang in 1967 used newscasts to develop his Easy Listening Formula (ELF), shown here:

ELF = number of syllables above one per word in a sentence.

An average sentence should have an ELF score below 12 for easy listenability. Fang found a correlation of .96 between his formula and Flesch's Reading Ease formula on 36 television scripts and 36 newspaper samples [43].

Davis Foulger in 1978 found out that, for listening purposes, the Fang formula is not as accurate as the Flesch Reading Ease formula [44].

In 1986, Donald Rubin and Bennett Rafoth published a **qualitative method** for selecting listenable materials [45]. They complained that most tests for listening skills were identical with reading tests and did not involve the special characteristics of speech. They developed the concept of **orality** as a key feature of listenability. Among ten significant features of orality, they listed:

1. Sentence structure is relatively simple.
2. Passages contain a high degree of redundancy.
3. Passages have clear structural characteristics.
4. Passages use vocabulary associated with speech.
5. Passages use expressions that evoke face-to-face conversation.

In a 1993 follow-up, Rubin added the concept of **considerateness** to orality as a measure of listenability [46].

Neither study explains how to adjust these variables to different levels of listening skill or even considered such differences. Citing two studies often used by critics of the formulas [47–48], Rubin rejects using the readability formulas for either speech or writing. Later writers, however, found those studies faulty [49–50].

Tina Lowery did a 2006 study of the effects of text complexity on the memorability of TV commercials [51]. After reviewing the studies on the use of the readability formulas to study listenability, she states: "As a result of these studies, many researchers continue to use the Flesch formula as the simplest and most accurate measure of language difficulty, whether applied to text that is read or spoken."

In the first part of her study, she linked the complexity of 88 TV commercials as scored by the Flesch Reading Ease formula with consumer responses to the 88 TV ads. ASI Communications had gathered the consumer responses to each of the ads from telephone interviews covering age groups between 18 and 65 throughout the country. That study found that the Flesch score was a “significant and positive predictor of recall.”

In the second part of her study, she gave a recall test to 81 students after reading either a difficult (35.3) or easy (85.6) version of an ad as scored by the Flesch formula. Again, she found a positive correlation between the Flesch ranking and reader recall. The study also found a positive correlation between product recall and involvement with the product.

Summing up the research on listenability, it indicates:

1. A large amount of verbal communication is not understood because it is too complicated. This includes speech in radio, TV, classes, educational materials, and communications between professionals and clients.
2. The brain deals with complexity better on paper than in speech, with listening skills falling behind reading skills after the 8th grade. A message that may be easy for a person to read may be too difficult for the same person when spoken.
3. The same variables of language style that contribute to easy reading also contribute to easy listening. These include content, vocabulary, sentence structure, and organization. This suggests that the qualitative methods of text leveling are suitable for assessing the difficulty of spoken texts.
4. Readability formulas are useful for speech if the special features of listening skill are taken into account.

Method

When re-writing the phone scripts, the staff of the Department focused on preserving the integrity of the content. They also emphasized the qualitative improvement of the messages by focusing on these features known to improve readability:

1. More familiar vocabulary
2. Shorter sentences.
3. Better organization.
4. More use of the active voice.
5. More use of concrete nouns and action verbs.
6. A more conversational tone and personal approach.
7. More use of imperative mood for instructions.
8. The addition of appropriate examples.

Here are two samples from the original and transformed scripts on the “Statute of Limitations:”

Original Sample

If you are unsure about whether it is too late to sue, you may wish to consider filing your case and letting the Judge decide. Since the laws governing the statute of limitations can be complex, the following is general information only:

If a case involves a written contract, the statute of limitations is up to four years from the date the contract was broken (Grade 10.6).

Transformed Sample

The law limits how long you can wait before filing your case. This is called the statute of limitations. The statute of limitations prevents the filing of old cases. If your case is not filed in time, the judge might dismiss it.

Here are six important time limits:

Number one: If your case involves a written contract, you must file your case within four years of the date the contract was broken. A contract is broken when someone fails to do what the contract requires him to do. For example, if a contract requires someone to make payments or perform work, the contract is broken when the payments are not made or the work is not done. (Grade 6.5)

The phone scripts were scored by the Flesch-Kincaid readability formula (in the Readability Statistics of the Grammar Check function in Microsoft Word). The Word Flesch-Kincaid grade-level scores in Table 2 correlated well with the scores of the Fog, Smog, and original Dale-Chall formulas. The readability scores are as follows:

Table 2. Recorded messages and Flesch-Kincaid grade-level scores.

	Number of Recorded Messages	Original Average Grade Level	Transformed Average Grade Level	Average Grade-Level Change
Small-Claims Advisor Scripts	40	9.0	7.5	-1.5
Real Estate Division Scripts	28	9.6	9.3	-.3
Consumer Services Scripts	64	9.6	9.8	+.2

The new scripts use the same menus and selections as the old ones, including this statement at the end of each script: “To speak with an advisor, press one.” The menus were organized around the three sections of the Department, including Consumer Services, the Real Estate Division, and the Small Claims Advisor Program. The voice used on the recordings was a male professional voice much the same as the previous one. Every effort was made to keep the two automated systems the same except for the changes in the style of the language.

Results

After the new phone scripts were recorded and installed on the new automated phone system, tapes were run on the number of calls that were made to the automated system, and the number of calls transferred to the live advisors. Comparisons were made between the statistics of two months of the old system (August and November 2000) and the same months with the new system (2005). The results reported for the three programs were:

Table 3. Consumer Affairs Automated Phone Statistics, Aug. & Sept., 2000 & 2005

	Consumer Services	Real Estate Division	Small Claims Advisor	Total Results
2000 Total 2-month's calls	16,501	3,338	19,060	38,899
2000 Total calls transferred	6,839	2,759	9,645	19,243
2000 Percentage transferred	41.44%	41.14%	50.6%	58.23%
2005 Total 2-month's calls	17,411	4,304	18,419	40,134
2005 Total calls transferred	4,962	1,221	6,343	12,526
2005 Percentage transferred	28.49%	28.36%	34.43%	30.43%
Total Percentage of change	68.76%	34.32%	68.05%	52.26%

Discussion

The positive results indicate that those variables of good writing that affect readability also affect listenability.

As you can see, the percentage of transferred calls dropped from 58 percent in 2000 to 30 percent in 2005, a change of 52 percent. The volunteer advisors in 2005 were taking 20,974 fewer calls those two months than they would have using the old system. On average, an advisor can handle eight calls per hour, and 20,974 calls would take 2,621 hours to answer. The Department's in-kind base rate for volunteer counselors is \$25 an hour. Equivalent total savings were \$65,543 for the two months, or, extrapolated, \$393,258 annually.

Other benefits of the increased listenability included:

1. Reduced caller-wait times.
2. Reduced wait times for walk-in clients.
3. Less complex calls are answered by the recordings without need of advisor assistance. Counselors now are free to spend more time answering more complicated questions.
4. More productive use of staff and volunteer time.

The correlations of the results with the Flesch-Kincaid scores are mixed. Small Claims had the greatest drop in grade level (1.5 grades) but produced nearly the same percentage of change as did Consumer Services, which actually raised grade level by a small fraction.

These results may be explained by:

1. Improvements in the readability levels near the top "breaking point" of listening skills (around the 8th grade) that can make significant changes in listening comprehension.
2. The greater difficulty of legal compared with consumer requirements.
3. Significant changes in style that the readability formulas do not measure. This is a frequent observance in using formulas to re-write texts. The many other stylistic changes made could have contributed to the notable changes in listener response in this study.
4. Some undetected difference between the two phone systems.

These results confirm the benefits of increased readability for spoken texts. They do not, however, confirm or deny that readability formulas are useful for improving the listenability of spoken texts.

We have a new awareness of the limitations of listening as a skill. This awareness expands our view of the listening audience and its “particular humours and dispositions” as noted by Cicero. We have much to learn, however, about listenability and how to improve the comprehension of spoken language.

THE END.

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