

Illiteracy and Hearing Loss Management: The Readability of Clinic Forms

Laura J. Kelly and Alice Kahn
*Miami University
Oxford, Ohio*

Illiteracy can be viewed as a hidden communication impairment which potentially interacts with hearing loss to complicate its management. Components of the management process which may be affected include identification and quantification of hearing impairment, program design, information dissemination, use of alternative communication strategies, and communication technology. Documents routinely used to procure and disseminate information were solicited from speech and hearing facilities and analyzed for level of readability. Results indicated that approximately 41% of the documents reviewed require a college age reading level, suggesting that many speech and hearing clients may not be fully understanding the materials they have been given for intake or counseling purposes. Recommendations for improving management of hearing loss with illiterate adults include simplification of printed intake materials, early identification of reading skill level, and use of rehabilitation teams.

Hearing loss management has evolved from lip reading classes into a holistic process incorporating counseling, training in communication skills, and use of a wide variety of communication technology. While the scope of management has broadened, the underlying purpose remains the same, to promote effective communication. Audiologists have traditionally focused on the auditory/oral channel resulting in potentially erroneous assumptions regarding an individual's ability to use alternative communication forms and/or the importance a form may have in an exchange. This "communication bias" is illustrated by audiology's apparent lack of awareness regarding the extent of illiteracy and its potential impact on the management of hearing loss.

Communication bias is characterized by a preference for a particular communication mode. Oral communication bias, for example, can be defined as the tendency to assume auditory/oral communication is the most efficient means of information exchange in any given situation (Kelly & Kahn, in press). Commu-

Laura J. Kelly, PhD, is an Assistant Professor of Audiology, Department of Communication, Miami University, 2 Bachelor Hall, Oxford, Ohio, 45056. Alice Kahn, PhD, is an Assistant Professor of Speech-Language Pathology, Department of Communication, Miami University.

nication bias is not inherently negative, but in failing to acknowledge it, professionals risk overlooking: (a) communication problems occurring simultaneously within the same channel (e.g., visual agnosia and illiteracy); (b) communication problems occurring simultaneously between channels (e.g., hearing loss and illiteracy); or (c) the feasibility of using alternative means of communication. There also may be a tendency to assume an individual has immediate access to alternative forms of communication to replace or supplement those that are impaired. Such is the case when a professional automatically assumes a client can use written communication to supplement information received by an impaired auditory system.

There is no universally accepted definition of illiteracy. Prior to World War II an adult was considered illiterate if he/she had no reading or writing skills. More recently, a skill level below the fifth grade level has been used to identify illiterate adults (Fingeret, 1983). Chall (cited in Burton, 1991) suggests the proliferation of increasingly complex and technical material requires the acquisition of at least a twelfth grade reading level.

These differences in criteria have resulted in a wide range of estimates of the number of illiterate persons. The U.S. Bureau of Census (1982) has estimated that 13% of adults in this country over the age of twenty are illiterate. The elderly population is thought to contain the highest concentration of undereducated adults (Sebring & Hannifrod, 1980 as cited in Heisel & Larson, 1984). Estimates of the number of illiterate adults over the age of 60 range from 10% to 50% (Lumsden, 1979). Based on even the lowest of these figures it is reasonable to assume audiologists, particularly those serving large numbers of elderly clients, are providing services to individuals with limited reading ability.

Attempts by the authors to document level of professional awareness of illiteracy have proven difficult. At a recent national conference participants were asked to complete a pilot questionnaire on illiteracy among the geriatric population. The majority of the approximately 30 professionals approached declined to participate on the grounds that "none of my clients are illiterate" or "other agencies deal with those individuals." When asked how they knew their clients were literate, most admitted they did not know, or assumed literacy if the individual provided completed intake forms.

Raising awareness and conducting research regarding the potential impact of illiteracy on hearing loss management is difficult because we do not know how many illiterate clients we serve. Yet, it appears it will be difficult to identify the number of hearing-impaired individuals who are illiterate without some degree of professional awareness.

Consider the potential ramifications of service delivery to this population. Limited reading skills reduce the accuracy and efficiency of the initial intake process as well as diagnosis and planning of rehabilitation sessions. Illiteracy restricts the benefits derived from using communication technology such as telecommunications devices, fax machines, computers, and closed captioning. It also limits the available resources to disseminate information about hearing loss

and the types of materials or assignments which can be employed in therapy to promote carryover. This necessitates revision and/or expansion of remediation programs.

In many facilities initial information regarding client status is obtained through written case histories and other types of intake forms. Professionals often accept completed intake forms as proof that the client is literate. However, if filled out by a second party, intake forms not only reinforce this erroneous conclusion, but may provide inaccurate or incomplete information. Inaccuracy also can occur if individuals with limited reading skills attempt to complete forms themselves and misunderstand selected vocabulary or phrasing.

In the interests of time efficiency and accountability, printed informational material describing clinic policies, procedures, and scope of services are often supplied to clients and families as part of initial processing. Professionals may assume these materials help answer common questions and provide important information about legal rights. In reality, an illiterate client may be left confused and misinformed. Thus, illiteracy should be viewed as a pre-existing communication barrier which is likely to affect many aspects of hearing loss management.

Assessing the level of difficulty of forms and other written information can be accomplished by estimating the amount of formal education required to read them. One method is through the use of readability formulas. These indices count language variables used to predict the probable level of education required to understand a document.

While it is possible to use individual judgements of the grade level required to read given passages, some degree of training is preferred and the time and effort required for longer documents may be prohibitive (Klare, 1975). When paired with computer technology, readability formulas represent a means for estimating the readability of large numbers of documents rapidly and consistently.

The purpose of the current investigation was to estimate the level of education required to read forms and informational materials routinely distributed in facilities providing speech and hearing services. It was hypothesized the analysis of these documents might prove useful in identifying a potential source of confusion to illiterate adults seeking assistance for hearing loss.

METHODS

Materials

Letters requesting copies of forms and informational materials were sent to facilities in the Midwest, southern United States, and Canada. Replies were received from 17 of the 32 facilities contacted representing 8 universities, 4 hospitals, and 5 private practice settings. As shown in Table 1, the 125 forms received were divided into three categories: legal, history, and informational. Legal forms (42) were defined as those requesting permission to perform a procedure or release information. History forms (37) were defined as those used

Table 1
Summary of Number (*N*) and Percentage (%) of Facilities Responding
and Document Types Received for Analysis

Facility Type (<i>N</i> = 17)			Document Type (<i>N</i> = 125)		
	<i>n</i>	%		<i>n</i>	%
University	8	47	Legal	42	34
Hospitals	4	24	History	37	30
Private Practice	5	29	Informational	46	37

to gather information from clients, and informational forms (46) were those used to disseminate information to clients.

Analysis of Documents

Statistical analysis was performed using the software *Thunder* (Gross, 1986) designed for use with Apple Macintosh as a spelling checker. An additional capability of *Thunder* is the generation of selected statistics and calculation of readability formulae for documents undergoing word processing. Summary statistics generated included number of words, syllables, words with at least 3 syllables, sentences, paragraphs, and average number of words per paragraph. Estimates of readability were made using 2 formulas, Gunning's FOG index (Gunning, 1968) and Flesch's index (Flesch, 1948). Both formulas are based upon word, sentence, and syllable counts in conjunction with a constant or constants, different for each formula. Calculation of Gunning's FOG index results in a number representing the approximate grade of schooling required to understand the material. Flesch's index results in a range of values used to place the material in one of seven categories of schooling: grade 5, grade 6, grade 7, junior high school, high school, college, or college graduate.

Examination of the rankings obtained for the sampled documents revealed agreement between formulae for general grade level. Therefore, in order to simplify data reporting, Flesch's index was selected and further collapsed into four categories: grade school level, junior high school, high school, and university.

RESULTS

Readability estimates for each category of document and for all the materials combined are illustrated in Table 2. Fifty-two (42%) of the documents were classified as university level, 21 (17%) as high school, 25 (20%) as junior high school level, and 27 (22%) as grade school level to understand completely. This general trend was seen for all facility types with 34 (60%) of the forms supplied by university facilities, 9 (30%) of hospitals, and 9 (23%) of private practices

Table 2
 Number (N) and Estimated Percentage (%) of Documents
 Which Fall Within Each Readability Level When Grouped According to Facility Type

Readability Level	Facility Type							
	University		Hospital		Private Practice		All Forms	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
University	34	60	9	30	9	23	52	42
High School	7	12	6	20	8	21	21	17
Junior High School	7	12	8	26	10	26	25	20
Grade School	9	16	7	23	11	30	27	22

classified as having a university readability level. The remaining readability levels show a fairly equal distribution within each facility type.

Table 3 summarizes readability levels when forms and documents are classified according to purpose. Legal forms were found to have the highest readability requirements with 21 (50%) being ranked as having a university readability level. Eighteen (39%) of the case history forms and 13 (35%) of the informational forms were rated as having a university readability level.

It should be emphasized that categorization of these materials using readability formulas are considered broad estimates. For definitive classification longer documents are required. Case history forms often have a limited number of complete sentences, and release of information forms are usually composed of only three or four sentences. The nature of this sample precluded controlling for document length; however, the relative consistency of rank ordering among document types and differences among facilities (e.g., university vs. private practice) suggest this analysis to be a fair indicator of the distribution of readability levels for the sampled materials. For example, informational documents

Table 3
 Number (N) and Estimated Percentage (%) of Documents
 Which Fall Within Each Readability Level When Grouped According to Document Purpose

Readability Level	Document Purpose					
	Legal		History		Informational	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
University	21	50	18	39	13	35
High School	5	12	11	23	5	13
Junior High School	6	14	9	19	10	27
Grade School	10	24	8	17	9	24

tended to be the longest and hence should provide the best indication of document readability. Percentage of material in each readability category within this group compare favorably with those found within the case histories. General distribution and ranking (with university level highest) was similar for all three document types.

DISCUSSION

It is difficult to estimate the degree to which the documents used by speech and hearing facilities represent a barrier to clients with limited reading skills without more specific figures on the number of illiterate persons presently seeking rehabilitative services. However, it is logical to assume these individuals would be less likely to elect therapeutic intervention and/or less likely to stay in therapy if literacy is perceived to be a prerequisite. The results of this analysis indicate over half of the sampled documents employed by the speech and hearing facilities require a high school level of education or higher for complete understanding.

Identifying illiteracy at the time of the first hearing evaluation will assist in hearing loss management with illiterate clients. However, this process is complicated by the difficulty in establishing a working definition of illiteracy. Clinics may wish to establish their own criteria depending on the population they serve and the procedures they use in testing and remediation. Facilities in urban areas or communities with multicultural populations are likely to have larger numbers of clients who speak English as a second language. These facilities may choose to evaluate literacy in more than one language.

No attempt was made in this initial investigation to control for socioeconomic, age distribution, and cultural profiles of the populations served by the facilities whose forms were analyzed. While studies suggest second language acquisition is a consideration in the rate of literacy for written English (U.S. Department of Education as cited in "Breaking Through" in *Adult Basic Education Administrator's Manual*, 1989), there is also evidence that a high percentage of illiterate older adults "reflect a highly productive and self-sufficient population" (Kasworm & Medina, 1989, p. 66). Thus, socioeconomic, age, and/or cultural profiles alone may not necessarily provide evidence of the illiteracy rate among a particular clinic population.

The greatest barrier to identification of illiteracy is an unwillingness on the part of many adults to admit they cannot read. For this reason, an indirect approach is suggested when requesting information from a client regarding their reading habits. As an alternative to "How well do you read and write?", professionals could enquire about the clients' preferred books, magazines, or newspapers and how frequently the client engages in activities which require reading and writing (Kahn & Kelly, in press). While this approach may elicit a more honest response, there may still be resistance to indepth investigation of reading abilities. Clinicians should be flexible and have alternative materials at hand

with a variety of reading levels, as well as large type versions (clients may complain they have not brought glasses) of literacy assessment, diagnostic, and therapy materials.

Facilities providing speech and hearing services should review written forms and informational materials, rewriting them as necessary to accommodate individuals with limited reading skills. Every attempt should be made to simplify content of intake documents for general vocabulary and unnecessary technical terminology removed. Whenever possible legal documents, regardless of readability level, should be presented verbatim and in the presence of a witness to help maximize client understanding and to verify presentation of legal material. Document simplification also has the added advantage of reducing explanation time for professionals and the amount of storage space required for more lengthy forms.

When planning rehabilitation sessions with poor readers a greater emphasis needs to be placed on family involvement and the use of support systems. According to Fingeret (1983) illiterate adults develop social networks which are mobilized when encountering situations which require literacy. A reciprocal relationship evolves within the network, in which the non-reader contributes whatever expertise he or she has acquired through life experiences. The resulting mutual exchange serves to promote an illiterate adult's feelings of self worth and maintains a sense of environmental control. Thus, effective communication within the context of these interactions is important for both daily functioning and personal well being. Audiologists capitalizing on this interaction will be better able to promote carryover of newly acquired communication skills.

Audiologists also may wish to consider designing programs in conjunction with specialists in adult literacy. Like aural rehabilitation, approaches to literacy instruction with older adults should incorporate personal interests and the social applications of communication (Rigg & Kazemek, 1983). Focusing on the shared goal of more effective interpersonal interaction may help lessen the embarrassment some individuals may experience when seeking help for hearing loss and/or poor reading skills. Unfortunately, many individuals still feel stigmatized by society for experiencing difficulties in these areas. Taking opportunities to creatively combine intervention procedures can only serve to reinforce skill development in both modes of information exchange.

Interestingly, Laubach Literacy International defines illiteracy as "the lack of the basic listening, speaking, reading, writing or mathematical skills adults need to solve the problems encountered in daily life" (1989, p. 3). It is intriguing to see the inclusion of listening and speaking skills as components important to literacy. This agency recognizes the mutuality effects among different methods of communication. If we continue to profess an expertise in the remediation of communication disorders we must maintain a broader perspective of communication and increase our sensitivity to the potential for illiteracy in the populations served.

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