

How Many People Use ASL in the United States?

Why Estimates Need Updating*

Ross E. Mitchell, Travas A. Young, Bellamie Bachleda,

and Michael A. Karchmer

Gallaudet Research Institute

Gallaudet University

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Author Contact Information:

Ross E. Mitchell
Gallaudet Research Institute
Gallaudet University
800 Florida Avenue, NE
Washington, DC 20002-3695
(Voice/TTY) 202-651-5576
e-mail: ross.mitchell@gallaudet.edu

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Abstract

This study traces the sources of the estimates of how many people use American Sign Language (ASL) in the United States. A variety of claims can be found in the literature and on the Internet, some of which have been shown to be unfounded but continue to be cited. In our search for the sources of the various (mis)understandings, we have found that all data-based estimates of the number of people who use ASL in the United States have their origin in a single study published in the early 1970s, which inquired about signing in general and not ASL use in particular. There has been neither subsequent research to update these estimates of the prevalence of signing nor any specific study of ASL use. The paper concludes with a call to action to rectify this problem.

How Many People Use ASL in the United States?

Why Estimates Need Updating

In the United States, home language-use surveys are now commonplace. The decennial census has included inquiries about home language use within immigrant households since 1890 and within all American homes since 1970 (see U.S. Census Bureau, 2002a, hereafter, *Measuring America*). Public schools, originally to comply with the *Bilingual Education Act of 1968* authorized in Title VII, Part A, of the Elementary and Secondary Education Act, routinely collect home language use data for each student enrolled. The number of languages used in American homes, as identified by the various federal and state surveys, is quite large. However, American Sign Language (ASL) is neither on the list of non-English languages used in the home nor are its users counted in either the general or school populations by every state in the union.

Conspicuous for its absence in American language census data is an estimate of how many people use American Sign Language in the United States. We have found that California records sign language use in the home when children enter school (e.g., California Department of Education, 2004); the Annual Survey of Deaf and Hard of Hearing Children and Youth (hereafter, Annual Survey) collects data on sign language use by family members with their deaf or hard of hearing children (e.g., see Mitchell & Karchmer, 2005); but there is no systematic and routine collection of data on sign language or ASL use in the general population. Given that estimates for the number of people who use ASL are relatively easy to find in research and practitioner publications, as well as scattered across the Internet, and range from 100,000 to 15,000,000, we decided to track down their sources. What are the sources of the estimates of how many people in the United States use ASL?

In this review of the literature discussing the prevalence of ASL use in the United States, a number of misunderstandings are identified. To make sense of these misunderstandings, two documents require particular attention: a statement presented to U.S. Senate hearings for *The Bilingual Courts Act of 1974* about how sign language use ranks in comparison to other non-English languages used in the United States (Beale, 1974); and the findings from the National Census of the Deaf Population (NCDP; see Schein & Delk, 1974). This in-depth review allows us to clarify the meaning of the original statement for *The Bilingual Courts Act of 1974* hearings and to provide a more justifiable estimate for the number of signers, though not necessarily ASL users, based upon the NCDP, which is the only research study from which data-based estimates may be derived. Before we consider these earlier works, however, we offer some background on why it is difficult to obtain accurate, let alone current, estimates of how many people use ASL in the United States from large-scale, on-going national data collection efforts, namely, the decennial census of the U.S. population and its companion projects, the Current Population Survey (CPS) and the American Community Survey (ACS), as well as surveys commissioned by other federal agencies, particularly, the National Health Survey (NHS), and the Survey of Income and Program Participation (SIPP).

Demography of Language and Deafness

There are two demographic research categories to address: 1) ASL as a language of national-origin, and 2) deafness. For more than a century, the federal government has mandated national census counts, or census-based survey estimates, of non-English language use in the U.S. population. Also, originally as a U.S. Census Bureau activity and then, after a multi-decade delay, a U.S. Public Health Service responsibility, there have been regular estimates of the prevalence of deafness and other disabilities in the country. In this section, we review some of

the specifics pertaining to each of these two demographic categories – language and deafness – and suggest that these distinct projects require a unified perspective before ASL use is likely to be included as part of the demographic description of the U.S. population.

Language Census History

A review of the Census Bureau’s language data collection history reveals that the absence of ASL is not too surprising (*Measuring America*; U.S. Census Bureau, 2004, pp. B29-B32). With the exception of 1950, the decennial census has included questions about *speaking* English or other languages as a standard part of the “long form” since 1890. However, this inquiry was restricted to foreign-born persons in the population through the 1960 decennial census. Beginning in 1970, the question about non-English language use followed, but was no longer linked to, questions about nativity (see *Measuring America*, 1970 Questionnaire, Question 17, p. 78). Both native-born and foreign-born persons were now legitimate respondents. Nonetheless, the question remained an inquiry about what “was *spoken* in this person’s home when he was a child” (emphasis added, *Measuring America*, p. 78). In 1980, an additional question about “how well” an individual speaks English became standard (*Measuring America*, 1980 Questionnaire, Question 13c, p. 85). In 1990, the language use question no longer directly followed the nativity questions but, instead, followed inquiries about ancestry or ethnic origin (*Measuring America*, 1990 Questionnaire, Question 15, p. 92). The sequence of inquiries for Census 2000 was ancestry, language, and then nativity (*Measuring America*, 2000 Questionnaire, Questions 10-12, p. 101). The important point here is that, though the context of the question has varied, native-born persons have been able to declare speaking a language other than English in the home since the 1970 decennial census.

In addition to noting the century-old spoken language emphasis of census data collection, which might cause signers to hesitate declaring their use of ASL at home, there is an official intent for each of the questions related to non-English language use at home:

This series of questions is used to identify the populations who have difficulty communicating in English.... Together, these items identify the size and location of populations who may be isolated by their limited English proficiency and by the languages in which they can communicate (U.S. Bureau of the Census, 1998, p. 50).

Given that some deaf ASL users “have difficulty communicating in English” and are “isolated by their limited English proficiency and by the languages in which they can communicate” (e.g., Johnson, Liddell, & Erting, 1989; Mitchell & Karchmer, 2004b; Kelly, 1987; Schein, 1989; Smith, 1996), we might imagine that ASL would be counted among non-English languages “spoken” at home. However, this is not the case. In the initial data processing phase, any mention of an American signed language is coded as English by the U.S. Census Bureau, apparently on the curious grounds that signed languages are not written and, therefore, cannot be included in ballot materials (Day, personal communication, October 26, 2004). Despite the ever growing literature on the linguistics of signed languages (e.g., Armstrong, Karchmer, & Van Cleve, 2002; Chamberlain, Morford, & Mayberry, 2000; Emmorey & Lane, 2000; Liddell, 2003; Valli & Lucas 2001; Wilcox & Peyton, 1999), historical signing communities in the United States (e.g., Groce, 1985; Lane, Pillard, & French, 2000), and the growing popularity of ASL in American colleges and universities (Welles, 2004), data on reported ASL use are never encoded in the computerized files and, as a consequence, do not appear in U.S. Census reports.

Population of Deaf Persons

ASL and early onset deafness are intimately associated with each other. Lane, Hoffmeister, and Bahan (1996) offer a perspective of what it means to be “Deaf” in America:

When we refer to the DEAF-WORLD in the U.S., we are concerned with a group... possessing a unique language and culture.... (p. ix)

Signed language is the most important instrument for communicating in the DEAF-WORLD.... From the day Deaf Americans enter the DEAF-WORLD, ASL becomes their primary language, and is, in itself, a big chunk of DEAF-WORLD knowledge. (p. 6)

Given this point of view, it makes sense to look at what is being learned from studies of the demography of deafness, rather than non-English language census reports, for routine collection of data of relevance to ASL use in the United States.

Unfortunately, deafness is predominantly treated as a matter of public health and social welfare policy in the United States, not primarily as a social and linguistic phenomenon within the general population. From 1830 until 1930, the U.S. Census Bureau (2002; Best, 1943; Schein & Delk, 1974) had the responsibility to enumerate the American deaf population, but no provision was made for inquiring about sign language use in the population. An examination of the questions on the census forms suggests that the intent was, at first, to enumerate the segment of the U.S. population with disabilities and others who might otherwise be noted for their “infirmity or misfortune” or have been “convicted of a crime” (1850, see *Measuring America*, p. 11). Later, poverty and criminality were separated from the cluster of questions pertaining to specific disabilities.

The inquiry about deafness was not consistent for each decennial census. Initially, interest was in counting those who were “deaf and dumb,” that is, “deafness merely, without the loss of speech, [was] not to be reported” (*Measuring America*, pp. 7, 15). Later, in 1890, enumerators were to note “if a person is mentally or physically defective, the nature of the

defect” (*Measuring America*, p. 32). In other words, deafness counted; loss of speech was not a necessary co-occurring condition. However, in 1900, instructions again emphasized that the person be “*both deaf and dumb... to be reported*” (original emphasis, *Measuring America*, p. 55). Though this inconsistency was far from the only contributor to the problem, serious concerns about data quality resulted in specific disability questions being dropped from the decennial census after 1930 (Schein & Delk, 1974). Not until the 2000 decennial census did a question on sensory disability return to the “long form.” When it did, the question did not separate blindness from deafness, but, astonishingly, considered them together (see *Measuring America*, p. 102, question 16a).

The collection of national data on deafness (and other disabilities) is now driven largely by the priorities of the U.S. Public Health Service and the Social Security Administration in the form of two national survey programs: the National Health Survey (see National Center for Health Statistics, 1963) and the Survey of Income and Program Participation (see U.S. Bureau of the Census, 1986). The former published its first estimates of deafness prevalence in 1965 (Glorig & Roberts, 1965), the latter in 1986 (U.S. Bureau of the Census, 1986). Neither of these data collection programs has ever inquired about sign language or ASL use.

A Unified Perspective

Is ASL use more a disability-related question or a language-use question? There is an irony in such an either-or construction of the question. Establishing an individual’s degree of hearing loss or deafness for both the NHS and SIPP depends on responses to questions about an individual’s difficulty hearing normal conversation (e.g., Mitchell, 2005). In other words, a person with a hearing loss or deafness must “have difficulty communicating in English” (or any other spoken language). Otherwise, this particular disability would not exist.

At the same time, difficulty hearing normal conversation, which interferes with spoken communication, most often occurs as a result of age-related hearing loss. The overwhelming majority of people categorized as deaf by the NHS and SIPP are perfectly fluent speakers of English (or another spoken language) and did not experience any difficulty hearing until well into adulthood (e.g., Blanchfield, Dunbar, Feldman, & Gardner, 1999; Mitchell, 2005). As a consequence, most people who are audiotically deaf do not use sign language.

More to the point of our discussion, it is clear that ASL is used in homes with family members who are not deaf (also, Higgins, 1980; Lane, et al., 1996; Meadow-Orlans, Mertens, & Sass-Lehrer, 2003; Mitchell & Karchmer, 2005; Schein, 1989). Less than five percent of deaf children have deaf parents and more than eighty percent of the children born to deaf couples have no hearing impairment (Mitchell, 2004b; Mitchell & Karchmer, 2004a; Schein & Delk, 1974). Deafness and ASL use should not be conflated. Not all persons with a significant degree of hearing loss use ASL or participate in a signing community (e.g., Dugan, 2003; Kisor, 1990) while, at the same time, persons with no hearing loss are born into families who use ASL and grow up with ASL as their first language (e.g., Finton, 1996; Mudgett-DeCaro, 1996; Padden & Humphries, 1988). Signed language use in the United States is undoubtedly related to the existence of deafness in the population, but the prevalence of its use in the home is certainly not restricted to those who are deaf.

Pertinent to the present study, the lack of a one-to-one relationship between deafness and ASL use means that knowing how many people are deaf does not allow us to estimate how many people use ASL in the United States. An independent study of sign language or ASL use is required. In addition to identifying an empirical source for sign language use data, as we discuss below, our review of the evidence leads us to believe that accepting the twin fallacies that all

deaf persons use ASL and that all ASL users are deaf has generated some of the numbers currently circulating. In other words, American Sign Language is a social and linguistic phenomenon, for which deafness is a necessary human condition motivating its sustained use (Johnston, 2004), but an individual's deafness is neither a necessary nor sufficient condition for becoming an ASL signer. Finding all those who use ASL at home requires a survey of persons without regard to their hearing status.

Methods

Similar to any review of the research literature, we depend on such tools as search engines, databases, major reference works, and citation indices to locate our sources. However, because our topic of interest is reference to an estimate of the number of people in the United States who use ASL, regardless of attribution to its source, a comprehensive and exhaustive search is not possible. Instead, we searched the Internet (using Google, followed by a trail of various links once productive sites were identified), topical research databases (i.e., ERIC, PubMed, LexisNexis Academic Universe, and PsycINFO), a major reference work (*Gallaudet Encyclopedia of Deaf People and Deafness* [Van Cleve, 1987]), and the Social Sciences Citation Index (ISI Web of Science) to identify the range of estimates and follow any source citations. Keywords for the search included *American Sign Language*, *ASL*, and *deaf* alone or in combination with *demographics*, *people*, *population*, *signers*, and *users*. Because not all terms functioned as indexed key words in each database, but were effective when used as text strings, the correspondence among terms is presented in Table 1.

Table 1. Search term correspondence among Internet search engines and electronic data bases

Google	ERIC	PubMed (Medline)	PsycINFO	LexisNexis Academic Universe
American Sign Language	<i>American Sign Language</i>	<i>sign language</i>	<i>sign language</i>	American Sign Language
ASL	ASL	*ASL	ASL	ASL
deaf	<i>deafness</i>	<i>deafness</i>	<i>deafness</i>	deaf
demographics	<i>demography</i>	<i>demography</i>	<i>demography</i>	demographics
people	people	<i>persons</i>	people	people
population	population	<i>population</i>	population	population
signers	signers	signers	signers	signers
users	users	users	users	users

Notes: Terms in plain face text are text strings used to locate Web sites or citations, whereas *italicized* terms are database key words used to index citations.

* This text string was only searched in conjunction with other key words because of the prevalence of technical terms abbreviated as ASL.

Once particular estimates were identified, we also searched the Internet (Google) using particular phrases (e.g., “3rd most used language”) to determine the extent of any particular claim and identify leads to different claims or estimates. When no new estimates or prevalence claims about ASL use could be found, just constant repetition of identified claims, we ceased our search for estimates and focused our efforts on sources. And as will be apparent in the discussion of our findings below, the number of identified sources is small and leads to clear stopping points for the search.

Results

What’s on the Web?

A search of the Internet for estimates of the size of the population of people who use ASL in the United States resulted in a number of “hits,” some of which led directly to sites posting estimates, while others provided links which led to posted estimates. Selected to minimize the

repetition of particular estimates and sources, Table 2 presents a sample of the sites and estimates identified. Notice the wide variability among the claims, ranging from a lower bound of 100,000 to as many as 15,000,000 by Aetna; the latter claim is certainly equating significant hearing loss with sign language use.

Table 2. Selected Internet sources for estimates of the prevalence or prevalence ranking of ASL use in the United States.

Prevalence or prevalence ranking estimate	Web site where estimate was found
100,000 – 500,000	ERIC Digests (Wilcox & Peyton, 1999) MSN Encarta (Wilcox, 2004) Ethnologue.com (Ethnologue, 2004)
250,000 – 500,000	American Sign Language Program @ The University of Iowa (Department of Speech Pathology and Audiology, 2004) ASLTA (NC ASLTA and NCAD Ad Hoc Committee, 2004) Colorado Department of Human Services (Colorado Commission for the Deaf and Hard of Hearing, n.d.)
300,000 – 500,000	Barnes&Noble.com (Costello, 1994) SignWriting.org (Rosenberg, 1999)
500,000*	American Academy of Family Physicians (CDGAP, 1997) ASLinfo.com (ASLinfo.com, n.d.) DEAF C.A.N.! (Deaf Community Advocacy Network, n.d.)
500,000 – 2,000,000	Brenda Schick, Ph.D. (Schick, 1998) DawnSignPress (DawnSignPress, 2003) Gallaudet University Library (Harrington, 2004)
15,000,000	Aetna IntelliHealth (Gordon, 2001)
3rd most used language in the U.S.	HandSpeak (HandSpeak.com, n.d.) Health Literacy Consulting (Osborne, 2003) Missouri Office of State Courts Administrator (Office of State Courts Administrator, n.d.)
4th most used language in the U.S. **	The ASHA Leader Online (Scott & Lee, 2003) Deaf Resource Library (Nakamura, 2002) NIDCD (National Institute on Deafness and Other Communication Disorders, 2000)
3rd to 10th most used language in the U.S.	Wikipedia (Wikimedia, 2003)

* The sites listed here used the number 500,000 in similar but not identical ways, such as “approximately one-half million,” “more than one-half million,” or “more than 500,000.”

** These sites include those that report that ASL is the 3rd most used non-English language.

In general, there are two major claims on the Internet:

- 1) Fewer than two million, and likely fewer than one-half million people in the United States use ASL; and
- 2) ASL may rank as high as the 3rd most used language in the United States.

Note that these claims are largely ahistorical. With the exception of a publication date associated with the source for the estimates provided, the numbers available from the Internet are presented as current and, to within any limits offered, accurate.

What's in the Recent Literature?

There is no recent research on the extent of ASL use in the United States. Instead, linguistics researchers have attended to variations among users of ASL (e.g., Lucas, Bayley, & Valli, 2003) and the differences between ASL and systems of manual or signed communication (e.g., Schick, 2003; Wilbur, 2003). Also, there have been investigations into the increasing popularity of ASL courses, especially at the college and university level (e.g., Welles, 2004). As reviewed above, neither demographers of languages nor demographers of deafness have attended regularly to the prevalence or distribution of ASL use in the U.S. population.

Nonetheless, recent articles in various peer-reviewed and professional publications, as well as a few books and monographs, have included some of the same estimates circulating on the Internet. Many of these print sources do not cite original research. Three examples illustrate the kinds of repetition and confusion present in the literature. First, take the case of Barnett (2001, 2002, Barnett & Franks, 1999), who repeatedly cites Lotke (1995). Lotke, a physician, has neither done research on the prevalence of ASL use nor did he cite any sources when he asserted that “American Sign Language is the third most used language in the United States after English and Spanish.... [N]o single Asian language is used as much as ASL” (1995, p. 55). This

is a case where the repetition of a claim, that ASL is the third most used language, has taken on the status of fact. In the following sections, we demonstrate that this fact status has two problems: 1) it is undoubtedly wrong; and 2) it is time bound – the demographics of language use in the United States has changed since the 1970s, which is when the claim originated.

As a second example, consider Wilcox (1989, 2004; Wilcox & Peyton, 1999; Wilcox & Wilcox, 1997), who cites Padden (1987) when stating:

Although the precise number of ASL users is difficult to determine, ASL is the predominant language – in other words, the language used most frequently for face-to-face communication, learned either as a first or second language – of an estimated 100,000 to 500,000 Americans (Padden, 1987), including Deaf native signers, hearing children of Deaf parents, and adult Deaf signers who have learned ASL from other Deaf individuals. (Wilcox & Peyton, 1999, p. 1)

In this case, a leading deafness and language researcher, Carol Padden, is appropriately cited. However, as we discuss in the next section, Padden (1987) is not a primary source. This encyclopedia entry is a tertiary source; its distance from the original sources obscures some important details.

A third example can be the case of Lane, et al. (1996, p. 42), who cite Schein (1989) and Grosjean (1982) when asserting that “estimates range from 500,000 to two million speakers [of ASL] in the U.S. alone; ... ASL is the leading minority language in the U.S. after the ‘big four’: Spanish, Italian, German, and French.” In this case, similar to the previous example, claims are supported by references to two leading researchers. However, the references offered are not relevant to the claims made: Grosjean (1982, pp. 84-85) makes reference to the prevalence of deafness in the United States, without citation, while Schein (1989, p. 9) reiterates official U.S. deafness statistics from 1971 and mentions, without citation, that “the Deaf community came into being when there were fewer than 10,000 Deaf persons in the United States and that there are presently around 500,000” (p. 222). As we describe later, a closer examination of Schein’s

original work (Schein & Delk, 1974) reveals that there may have been up to 500,000 people who used ASL at home in the early 1970s, only about half of whom were deaf.

What's in the Past Literature?

Before considering the Schein and Delk (1974) NCDP report, we follow the path through citations leading back to it. First, the most recent source cited by any of the “current” publications and web sites, ignoring Schein’s (1989) statement that lacks any reference to publications or data enumerating a sign-language-using population, is the Padden (1987, p. 44) entry in the *Gallaudet Encyclopedia of Deaf People and Deafness*:

No accurate census of users of ASL is available, but estimates of primary users vary from 100,000 to 500,000. Primary users include several groups of signers: native signers, who have learned ASL as a first language from deaf parents; fluent signers, from hearing families, who learned ASL from other deaf individuals; and hearing children of deaf parents, who have learned the language from childhood and continue to use it fluently with deaf people. [Note: The bibliography on p. 53 cites Baker and Cokely (1980).]

Given that the U.S. Census Bureau emphasizes the importance of language use *at home*, as opposed to school, work, or other outside activity, Padden’s emphasis on primary users fits fairly well with what might otherwise be reported from the decennial census. At the same time, however, we do not have a comprehensive review of the literature accompanying this entry; we have Baker and Cokely (1980).

Baker and Cokely (1980, p. 47) present a short summary statement of the research they were able to identify and their sources, but not a thorough review:

American Sign Language (also called ASL or Ameslan) is a visual gestural language created by Deaf people and used by approximately 250,000-500,000 Americans (and some Canadians) of all ages.

Their footnote cites O'Rourke (1975) and Woodward (1978). The more recent work cited by Baker and Cokely, that by Woodward (1978), is a critique of the O'Rourke (1975) report, so we turn to O'Rourke (1975, p. 27) first:

Just fewer than 500,000 deaf persons use sign language (this figure does not take into account the number of people with normal hearing who have learned sign language. The total is actually double or triple that number)... Users of Spanish in the United States number 4 ½ million; 631,000 speak Italian. The third "other" language is sign language.

The source cited for these claims is "research connected with proposed federal legislation to include deaf persons in the Bilingual Courts Act." This act will be considered in the next section. For now, consider Woodward's (1978, p. 188) response:

We could more safely estimate our *native* users of ASL at around 250,000.... There are nine languages with more than 500,000 *native* users in the U.S. and eighteen languages with more than 250,000 *native* users. ASL rates considerably lower than third as frequently used foreign language in the U.S. (original emphasis)

Now it can be seen why Baker and Cokely provide prevalence estimates that differ by a factor of two, as well as why they do not attempt to rank its use relative to other languages spoken in the United States. Woodward and O'Rourke have some serious differences.

Woodward's comments also remind us that discussion of ASL use tends to be imprecise. ASL use needs to be carefully defined and counted. Otherwise, it is inappropriate to make claims about the prevalence of ASL use in the United States because available language-use statistics may not be comparable. In particular, if we were to utilize U.S. Census Bureau estimates as our basis for comparison in establishing the prevalence ranking of ASL use, which is what Woodward did (see U.S. Census Bureau, 1973, Table 19, p. 492), we would have to define ASL use as an *at-home* language-use behavior of both native-born and foreign-born persons regardless of hearing status (careful examination of the entire text of Woodward's analysis reveals that he

does not adopt this definition). With the exception of Padden (1987), and those who cite her, serious efforts at definitional precision are not observed among those discussing ASL use in the United States.

The Woodward (1978) and O'Rourke (1975) publications identify the endpoints of the literature search. There are two sources to which nearly all current claims owe their genesis: Schein and Delk (1974) and Jane Beale's (1974) statement presented to the United States Senate hearings held by the Subcommittee on Improvements in Judicial Machinery in connection with *The Bilingual Courts Act* (S. 1724), which addressed the need for sign language interpreters in America's federal courtrooms. Since the research leading to the Schein and Delk volume preceded the testimony by Beale, we examine her printed statement first.

The Bilingual Courts Act

The Senate hearings record indicates that Beale consulted a number of documents and experts in preparing her statement on behalf of the Registry of Interpreters for the Deaf, a presentation that covered more than statistics on the demography of deafness and languages.

Here is Beale's (1974) summary of the demography of deafness projects at that time:

Preliminary statistics from the National Census of the Deaf and the National Center for Health Statistics... reveal that the deaf population has been underestimated during the past 40 years (the last census of the deaf was in 1930). Approximately 13.2 million Americans have a measurable hearing loss, and of those with a hearing loss, 6.5 million have a bilateral loss. A large portion of these people has become hard of hearing or deaf due to aging. Approximately 2 million people in the United States cannot understand normal speech, and of this number, just under 500,000 comprise the deaf community (deaf people who use sign language). (p. 94)

These numbers correspond in general with those reported by Schein and Delk (1974), but their interpretation is inaccurate.

Turning to the demography of language-use research referenced by Beale, the discussion of U.S. language census statistics cited inadvertently creates even more confusion than the demography of deafness review:

Census statistics on languages spoken in the home, published in “Characteristics of Population by Ethnic Origin”, indicate that 4.5 million Americans speak Spanish; 631,000 speak Italian; 414,000 speak French; 251,000 speak German; and 126,000 speak Yiddish. Thus, the number of deaf persons using sign language (approximately 500,000) compares with the number of persons speaking Italian and French, which rank second and third of the six major foreign languages spoken in American homes. (p. 95)

The document referenced by Beale is a supplemental, intercensal survey (November 1969 CPS; see U.S. Bureau of the Census, 1971). It provides the kind of estimates found in standard language census reports, but also some special estimates related to “current” non-English language use. The latter are less typical analyses, but are precisely the estimates reported by Beale, which leads to serious confusion.

It appears that Beale is attempting to use estimates about persistent non-English language use (her bibliography cites U.S. Bureau of the Census, 1971, Table 7), rather than those that would be more consistent with Woodward’s discussion (i.e., those found in U.S. Census Bureau, 1971, Table 6, p. 10; comparable with U.S. Census Bureau, 1973, Table 19, p. 492). These less typical analyses separate persons who currently use a non-English language in the home from those for whom a non-English language is their “mother tongue,” but do not currently use a language other than English. This distinction was of vital importance to the Senate hearings because a bilingual court interpreter would most clearly be needed for those persons for whom English was *not* the language they currently spoke.

However, this distinction between those who know and use a non-English language and those who know and use *only* a non-English language misleads the reader about the prevalence

of non-English language use in American homes. At the time of the Senate hearings, there were six non-English languages (Spanish, German, Italian, Polish, Yiddish, and French) that were each spoken by more than one-million people who were either foreign-born or children of foreign-born parents and another four (Swedish, Norwegian, Slovak, and Greek) that were each spoken by more than 400,000 foreign-born or children-of-foreign-born persons (U.S. Census Bureau, 1973, Table 19, p. 492). Even if the number of deaf persons for whom an ASL interpreter would need to be present in order to obtain equal access to federal legal proceedings approached 500,000 (see next section for a more justifiable estimate), ASL was not one of the top three or four languages used in American homes among the larger segment of the population that spoke a non-English language at home and, likely, English as well. This confusion about the definition of the reference group used for prevalence ranking, those who speak *only* a non-English language – and who may require a bilingual court interpreter – versus those who speak both English and a non-English language, appears to be the reason why Beale’s Senate committee hearings statement has been a source of confusion since it was offered.

The Ultimate Source

The Schein and Delk (1974) NCDP report remains the ultimate source for data-based estimates of how many people use ASL in the United States. Certainly, no one has directly studied this issue since. At the same time, we have to keep in mind that this was a national study of deafness in the U.S. population and not a study of signed language use in the general population. No one has ever undertaken a study of American Sign Language use in the general population.

Schein and Delk (1974) state, “the majority of the prevocationally deaf population regards its manual communication skills highly” (p. 62; the prevocationally deaf are those who

were born deaf or experienced hearing loss before age 19). This claim is derived from a 1972 survey sample drawn from the NCDP registry. About two-thirds of the nearly 1,500 survey respondents, ages 25-64 years, rated their expressive and receptive signing skills as “Good” – the highest rating possible (see Table IV.9, p. 63). The specific questions eliciting these responses were: “How good is your signing?” and “How about reading signs?” (see Appendix E, Form B, Questions B-81, B-83, and B-84, p. 256). A list of possible responses was presented to each person participating in the survey: “Good,” “Fair,” “Poor,” or “Not at all.” There was *no specific mention of American Sign Language* (or ASL or Ameslan or SIGN). Indeed, the widespread use of the term American Sign Language or its abbreviation ASL was just beginning. This survey’s results really cannot be taken as a definitive estimate of the number of deaf persons using ASL, but more generically those who said they communicated manually.

Nonetheless, the fact that this NCDP follow-up survey was conducted in 1972 with adult respondents at least 25 years of age means that the probability that these prevocationally deaf adults had any noteworthy exposure to a specific system of signed English in the timeframe during which they would have developed their signing fluency level is considerably lower than at any time since. In other words, the collection of dialects and discourse registers employed by “good” signers was more likely to be recognized as communal sign languages than artificial sign systems. This does not mean, however, that the proportion of ASL users was known.

So, keeping in mind that *signing does not necessarily equal ASL use*, how many of these people rated themselves as good signers? According to Schein and Delk (1974), the total prevocationally deaf population – civilian, noninstitutionalized persons of all ages – was estimated to be 410,522 persons in 1971 (see Table II.10, p. 28), which is less than 500,000. Based upon Mitchell’s (2004a) analysis of Schein and Delk (1974), we estimate that there would

have been about 277,000 prevocationally deaf good signers. This significantly contrasts with Beale's one-half million, but is comparable to Woodward's estimate of one-quarter million.

There is still a problem of statistical comparability. Language census data collection pertains to all household members regardless of hearing status. Here, Padden's (1987) definition of primary users, which includes hearing children of deaf adults (CODAs), puts us on the path for obtaining an ASL-using population estimate. Employing rates for fertility and offspring hearing status (see Schein & Delk, 1974, Table III.8, p. 44, Table III.9, and Table IV.9, p. 63), we estimate an upper limit of 101,000 CODAs who may have signed at home and were still in the home with their deaf parents (based upon the likely number of hearing children born to prevocationally-deaf mothers, under age 50, who were "Good" signers). We stress that this must be seen as an upper limit because there is evidence that some deaf parents who do sign, nonetheless, only speak to their hearing children (Stuckless & Birch, 1966; Harris, 1978).

A group of persons who may use ASL at home, and who may have been overlooked by Padden (1987) and Mitchell (2004a), are hearing spouses of deaf adults. We estimate the size of this group by multiplying the proportion of marriages between deaf and hearing adults with the number of prevocationally deaf adults who sign well by gender (for spouse's hearing status, see Schein & Delk, 1974, Table III.7, p. 43), at close to 30,000 hearing spouses. Adding this to the CODA estimate, we revise our estimate of hearing persons likely to be signing at home upward to 131,000. Combining the deaf and hearing totals, our best estimate from the NCDP is that there would have been no more than 408,000 people who were "good signers" in the home in 1972. Again, this must be seen as an upper limit but, in this case, we have no evidence either way about whether signing deaf adults continue to sign at home when establishing a family with a hearing spouse.

Beyond what can be inferred from the NCDP, we have to consider the possibility that there were hearing parents or hearing siblings of deaf children who used ASL or otherwise signed at home. The Annual Survey at the time of the NCDP, unlike recent Annual Surveys (e.g., see, Mitchell & Karchmer, 2005), did not provide data on whether any family members signed with a deaf child at home. We do know that some parents, particularly mothers, may learn to sign with their deaf child (Meadow-Orlans, Mertens, & Sass-Lehrer, 2003), but we have no basis for estimating how many had learned to do so or the nature of the signing in 1972. Likewise, we know that hearing siblings may learn to sign with their deaf sibling(s) in a home with hearing parents (Meadow-Orlans, Mertens, & Sass-Lehrer, 2003), but we do not know the extent of this behavior either. However, if we were to allow that regular signing at home averaged one hearing member of each family with a deaf child that has no deaf adults (about 95% of families with a deaf child have no deaf parents; see Mitchell & Karchmer, 2004a), which is an arbitrary rate, we would estimate an additional 90,000 persons may have signed at home. In other words, we may wish to inflate the estimate from the previous paragraph to not more than 500,000 persons were signing at home in 1972. Certainly, the number of persons who used ASL at home would have to be less than, or at best equal to, the total number of people who signed at home.

Discussion

There is no question that the number of people who use ASL in the United States is important to know, but some of the estimates and characterizations in current circulation should be taken with a grain of salt. As the review of the literature demonstrates, there are at least two errors that have led to confusion: 1) demography of deafness statistics have been inappropriately used to estimate the number of persons, particularly deaf persons, who use ASL; and 2) the earliest claim about the prevalence ranking of ASL use among all languages used in the United

States, which itself conflated deafness with sign use, was not a claim for total prevalence among all persons who use a non-English language at home but restricted to those who use *only* a non-English language at home. There is good reason to believe that the number of deaf ASL users in 1972 was high enough to clearly merit equal access in the federal courts by having access to a bilingual court interpreter (though the right itself is an individual right and not one extended only to groups), but this group was probably about half the size asserted by Beale (1974) in her prepared statement for the Bilingual Courts Act. We cannot provide a revised prevalence ranking given the limited number of languages listed in Beale's original reference, but we are confident that ASL-*only* users would have easily outnumbered many other non-English-language-*only* groups in 1972.

We have to keep in mind that the Schein and Delk (1974) sign language use data were obtained by taking a modest-size sample from a registry that may (or may not) have been biased so as to over identify persons who signed. That is, sign language use data were not part of the full census taken the previous year, but obtained from a post-census survey of less than 1,500 respondents. Beyond uncertainty about biases in the registry and statistical uncertainty resulting from limited sample size, however, the methodology was appropriate and well-executed. The NCDP is the best and only source available for making an estimate of sign use in the United States at any period in the country's history.

Given the insights gained from tracking down the sources of estimates about sign use in the United States, we can account for most of the numbers in current circulation. First, it should be emphasized that estimates of the population of deaf persons in excess of one-half million are sure to be dominated by individuals who lost their hearing as adults, typically after age 65. Most of these late-deafened adults are highly unlikely to use ASL at home. As a consequence, we can

discount these overly large population estimates as the mistaken or unexamined conflation of persons with significant hearing loss with people who use ASL.

Second, most citations of ASL as the third or fourth most used language in the United States seem based at least indirectly upon the repeated misunderstanding of Beale's (1974) prepared statement. Since it requires a very close reading of Beale's remarks to understand that she was referring to the subset of persons who *require an interpreter* for access to English-language courtroom proceedings because they use a language other than English, it would be easy to mistakenly infer that ASL is the fourth most used language, in general, because it was identified by Beale as the third most used language other than English among monolingual persons in the United States. And if the reader did not catch that ASL ranked third in a list of non-English languages, then claims that ASL is the third most used language would be expected to show up. Indeed, both of these claims are observed.

The only estimate in the literature that escapes easy explanation is Padden's (1987) lower bound estimate of 100,000 primary users of ASL. We have found neither any reference to this lower estimate nor an explanation for why it was offered. We suspect that this conservative estimate may be associated with the number of prelingually deaf persons, many but not all of whom are likely to be signers – Schein and Delk (1974, Table II.1, p. 16) estimated that there were 201,626 such persons in 1971. Regardless, we have not been able to identify any source that has preferred to cite the 100,000 estimate as the likely size of the population or make claims about the prevalence ranking of ASL use that would be based upon this number.

What Next? A Call to Action

The most important finding of this literature review is that the need for an accurate estimate of the number of people who use ASL in the United States still exists. The need for a

current study is magnified by the profound changes in the demographics of the U.S. population at large. Between 1970 and 2000, the total population has grown by 38% (see Gibson & Jung, 2002; U.S. Census Bureau, 2002b). More importantly, the increased rate of non-European immigration has changed the face of America. The proportion of non-Hispanic white persons has dropped from 83% to 69% (see Gibson & Jung, 2002; U.S. Census Bureau, 2002b) and the 10 most commonly spoken non-English languages in American homes, after Spanish, are now Chinese, French, German, Tagalog, Vietnamese, Italian, Korean, Russian, Polish, and Arabic, rather than the solely European list of German, Italian, French, Polish, Gypsy (Romani), Swedish, Norwegian, Slovak, Greek, and Czech (Shin & Bruno, 2003; U.S. Bureau of the Census, 1973). With this much change, an approximation based upon the prevalence of signing among preprofessionally deaf persons and their families in 1972 cannot be used to project the size of the signing population in 2005, let alone the number of people who use ASL in the United States. We propose three strategies for rectifying this problem.

First, we note that, in principle, more recent estimates of ASL use at home in the United States could have been derived from the decennial census. However, given the current phrasing of the non-English home language use question, “Does this person speak a language other than English at home?” (Shin & Bruno, 2003, p. 1, part a), we are convinced that there would have been underreporting of ASL use. That is, ASL is not a “spoken” language, so people may not report ASL as a language other than English because it is *signed* in the home. In any case, the issue is moot since, as noted above, U.S. Census practice is to code ASL to English when it appears on its forms, so an analysis of ASL use is not possible.

We advocate for the U.S. Census Bureau to change its language census data coding practices in order to preserve the affirmative responses they receive for signed language or ASL

use at home and, if possible, work to improve the likelihood that signed languages are recognized as appropriate responses for non-English languages used at home. To accomplish these ends, we propose two steps to be implemented immediately:

- 1) Reword the non-English home language use question to eliminate any possible inhibition to providing ASL or a signed language as a response; this may be as simple as substituting the word “use” for “speak.” Even better would be to add “American Sign Language” as one of the sample languages listed in the question (Shin & Bruno, 2003, p. 1, part b).
- 2) At the initial data coding phase, code all ASL or signed language responses for what they are; do not code them as English.

With these small changes in practice, the decennial census could easily become a data source for estimates of the number of people who use ASL at home. Further, if the sensory disability question remains a part of the decennial census, it would be possible to estimate how many of these ASL users are also deaf.

A second possible way to utilize existing, high quality, federally-sponsored national surveys is to add a question to the NHS, in particular, its annual National Health Interview Survey (NHIS). That is, with appropriate investment in survey item development and a very small change in overall survey instrument design, the NHIS could include a direct question to each respondent about whether ASL or any other non-English language is *used* in the home regardless of the respondent’s hearing status or difficulty with conversation. And even if the response rate is low for ASL use, making the estimate from any given year relatively unreliable, the current NHIS design permits “stacking” multiple years of data, which would improve the reliability of the estimates. Given the importance of access to health care for deaf persons who

sign, as well as other persons who do not speak English, and the need to know that informed consent has been obtained legitimately, including a question about ASL and other non-English language use on the NHIS would provide information relevant to improving the nation's health services as well as supplying missing demographic information.

The third and most expensive way to obtain a good estimate of the number of persons who use ASL in the United States would be to undertake an independent study designed to address this question directly. However, because a tremendous amount of talent and resources go into maintaining the extensive capacities of the U.S. Census Bureau, which does the fieldwork for the NHIS, it would only make sense to do an independent survey if it includes a kind of inquiry that requires the skills and abilities of an independent group of researchers. For example, given the complexity of identifying who uses ASL, as opposed to some other form of manual communication, if claims about ASL use are to be independently verified then the U.S. Census Bureau staff and field agents would be unable to easily conduct such an investigation; an independent team would have to be formed. But if “the names used by speakers [sic] of a language to identify it may reflect ethnic, geographic, or political affiliations and do not necessarily respect linguistic distinctions” (U.S. Census Bureau, 2004, p. B-31), then the need to fund a separate study arises only if the first two strategies fail.

Conclusion

It appears that misunderstandings and misrepresentations of what is known about the demography of deafness and ASL use in the United States are widespread. Though the tendency for advocates to overstate or exaggerate when citing statistics may have played some role, we suspect that the perpetuation of inordinate claims can as easily be attributed to three simple problems. First, many writers have not exercised due care and precision in identifying their

population of interest, let alone having data that corresponds to their presumed target group. Second, once claims appear in writing, especially official government documents, these claims tend to take on the status of fact. And third, there has been a persistent need for statistics on ASL use even though there has *never* been a true study of ASL use in the general U.S. population; writers are compelled to come up with something even though no statistics exist.

In sum, Schein and Delk (1974) provided evidence that there may have been as many as 500,000 people, regardless of hearing status, who signed at home in 1972; certainly, their estimates suggest that there were more than 250,000 prevocationally deaf persons who were good signers. In the remaining literature reviewed, all of the population size estimates greater than 500,000 appear to result from conflating deafness with ASL use and are based on demography of deafness estimates. In order to pursue an estimate of the number of people who use ASL in the United States, three different strategies have been proposed: 1) a few small but significant changes in U.S. Census practice are made so ASL use can be recorded; 2) changes to the NHIS are made to include a specific inquiry about non-English language *use*, which would include ASL as a legitimate response, for all respondents; or 3) a far more resource intensive independent survey of ASL use in the United States is undertaken. By realizing that the conflation of ASL signing and deafness is wrong and misleading, it becomes clear that a new and unified approach to the demography of language and deafness is required and that relatively minor changes in current practices are necessary to obtain data that would help to answer the question, “How many people use ASL in the United States?”

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