In this forum we celebrate research that helps to successfully bring the benefits of computing technologies to children, older adults, people with disabilities, and other populations that are often ignored in the design of mass-marketed products.
— Juan Pablo Hourcade, Editor

Writing About Accessibility

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Words or phrases can suggest bias or reflect negative, disparaging, or patronizing attitudes toward individuals or groups of individuals. These words and phrases can influence our impressions, attitudes, and even our actions. Choosing language that represents the preference of the groups to which it refers can convey respect and integrity. For these reasons, journalists, along with authorities in various research disciplines, have worked to provide guidelines for how to appropriately discuss disability issues. In 2008 we published guidelines for writing about disability by those who work with technology for accessibility [1]. That article is widely referenced within accessibility communities for how to correctly and sensitively discuss disability. When we wrote those guidelines, we noted that language conventions change with time and that the updating of these guidelines would be necessary at some point. We believe that time is now.

Much of what we wrote in our initial set of guidelines for computing researchers remains current. In other cases, however, thinking about how to discuss disability has evolved as thinking and research have progressed. In this updated version, some terminology has been adjusted, examples updated, and references refreshed. The major update, however, relates to inclusion of a section about aging. In the original guidelines, we specifically stated that terminology related to aging was not considered, but likely should be. In the ensuing years, the volume of research related to aging has substantially increased, and thinking about practices for research and terminology in this area have changed. Our updated guidelines, therefore, include a discussion of aging.

We have attempted to gather terminology suggestions that currently reflect the preferences of various disability groups and accurately portray those groups. This article is not meant to be inclusive of all these situations, and we recognize that full agreement is not possible given the individual situations of people with disability [2]; rather, we strive to indicate currently appropriate language for researchers who write about disability within the broad area of HCI.

The recommendations in the paper reflect preferences when writing in English. Even within English, however, language preferences can vary. In particular there are geographic variations. For example, in the U.S., *person with a disability* tends to be favored. In other countries, *disabled person* is preferred. Given the geographic variations in accepted terminology, both will be seen in computing publications.

Insights

- Language choices in writing about people with disabilities and aging individuals should reflect respect.
- The language used in discussing study participants should be explicit in describing the key characteristics relevant to the research question.

IMPAIRMENT, DISABILITY, OR HANDICAP?

The words *impairment*, *disability*, and *handicap* have different meanings that convey important distinctions. Consistent with the World Health Organization terminology, the American Psychological Association recommends that the word *disability* be used to refer to an attribute of a person; in contrast, the word *handicap* should be used only to refer to the source of limitations [3]. That is, a handicap describes a barrier or problem created by society or the environment. For example, "The stairs leading to the stage were a handicap to him." When describing research participants, however, it is important to discuss *people who have a disability* or *disabled people*.

AVOID NEGATIVE LANGUAGE

There are many terms that are considered especially offensive to people with disabilities. We list here some general guidelines and some specific examples. Additional examples can be found in other resources [4,5].

• When making a comparison to persons with a disability, do not use the word *normal* or *healthy*. If people without a disability are described as normal or healthy, this has the negative implication that people with a disability are abnormal or sick. When describing people with no disability, use terms such as *nondisabled* or *persons without disabilities*, *sighted* or *hearing*.

• Avoid using terms that equate people with their disability, such as *quadriplegics*, *the deaf*, or *the disabled*. Instead, use *people who use a wheelchair*, *deaf people* or *people who are deaf*, and *people with disabilities*.

• Avoid terms that reflect a bias or projected feelings of an individual's situation. Examples of phrases to be avoided include: *victim of*, *suffering from*, and *afflicted with*.

• Trendy euphemisms are also to be avoided. Expressions such as *physically challenged*, *special*, *differently abled*, and *handi-capable* generally are regarded by the disability community as patronizing and inaccurate.

LANGUAGE FOR DISCUSSING AGING

Global demographics have come about from medical and other advances that allow people to live longer than previous generations [6]. With increasing longevity come changes in how aging is viewed—particularly by those who are aging. Gone are the days when aging immediately called up images of infirmity, frailty, and incompetency. Today's aging adults are more active and healthy than previous generations. While age-related impairments are well documented, there is awareness that these impairments vary greatly from person to person and that aging individuals often do not regard these impairments as a disability. Given this background, when writing about aging individuals, it is important to not give offense and to accurately reflect the diversity of abilities in the population.

In accessibility research, terms that promote ageist thinking should be avoided. That said, there is no single term generally accepted even by members of this population [7,8]. The term *elderly* generally is not considered acceptable when discussing typically aging individuals. It is often thought of as pejorative and generally has connotations of ill health. While *seniors* or *senior citizens* were terms popular in recent history, these phrases are falling out of favor. Descriptions such as *80 years young* are considered patronizing. The most acceptable appears to be *older adult*, although even that characterization is not without criticism by some.

Use of these terms to describe a group of older participants comes with some provisos, however. The *age* and *age range* of the people in the research study must be completely specified. There is no generally accepted age for being an "older adult" and research studies vary considerably in the age cut-offs used. Ageing is a lifelong process, and precise boundaries do not divide those who are young and those who are old. Depending on the age range of participants, good practice suggests not just grouping together all older participants as "older adults," but rather, for example, differentiating among young-old and old-old research participants [9].

Terms to avoid: *the elderly*, *the aged*.

IMAGE BY ASHRAFUL KADIR

LANGUAGE FOR DISCUSSING VISION IMPAIRMENT

The phrase *visually impaired* is commonly used. While this is a phrase that is acceptable to most stakeholders, for scientific writing this phrase has little meaning. In scientific writing, it is important to note characteristics of the participants [10].

For example, in some studies it is critical to know if participants are screen-reader users or if they prefer magnification or visual filters. Not all blind people use screen readers. Some people with low vision use screen readers; others use magnification software or other software to help better navigate a visual interface.

In other studies, it may be critical to distinguish participants by degree of vision loss. The terms *blind*, *legally blind*, and *low vision* are commonly used, but for scientific writing require definition with reference to the research study and participants' use of assistive technologies.

Terms to avoid: *the blind*, *sight-deficient*, *people with sight problems*, *unsighted*.

LANGUAGE FOR DISCUSSING HEARING LOSS

The choice of the words for referring to people with hearing loss will depend on many factors. Critically, it will depend on the research topic. If the emphasis is on an aid for hearing, then the degree of hearing loss will be critical. If the emphasis is on communication, then the individuals' communication preference, more than their hearing loss, will be important in discussing the research participants.

Some deaf people prefer to use sign language; others prefer to rely on spoken language through speech, lip reading, residual hearing, hearing aids, or cochlear implants. People who use sign language generally refer to themselves as deaf. In some cases, the word *deaf* is spelled with an uppercase *d* to refer to members of the Deaf Community [11]. This would be appropriate if discussing a cultural issue. The use of deaf with the lowercase spelling more typically refers to a hearing loss and is appropriate if cultural issues are not part of the discussion topic.

Typically, the term *hard of hearing* is used to refer to less severe hearing loss than the term *deaf*. Again, however, this terminology is culturally sensitive and for individuals is determined in many cases by their community identity rather than by the degree of hearing loss.

Hearing impaired is a term used for medical writing and refers to the decibel level of hearing. Because it negatively emphasizes a deficiency, members of the Deaf Community often reject the term. However, people who have experienced hearing loss later in life may prefer the term *hearing impaired*, as they do not identify with deaf or hard-of-hearing groups.

As examples, when writing about topics that include sign language or Deaf Culture, use *deaf* or *Deaf*. When writing about general accommodation for this group use *deaf* and *hard of hearing*. When writing about topics that include or are directly dependent on decibel level of hearing, refer to the degree of hearing loss.

Terms to avoid: *deaf mute*, *deaf and dumb*.

With increasing longevity come changes in how aging is viewed. Gone are the days when aging immediately called up images of infirmity, frailty, and incompetency.

IMAGE BY BONNIE NATKO

LANGUAGE FOR DISCUSSING MOBILITY, MOTOR, OR DEXTERITY IMPAIRMENT

The word *mobility* generally refers to walking or moving about. Thus, the term *mobility impairment* may be an inappropriate classification when referring to computer use. If the intended classification is meant to refer to a person's ability to use a standard mouse or keyboard, *dexterity impairment* would be a better choice. *Motor disability* and *physical disability* are also acceptable terms.

When the user group includes people who use a wheelchair, indicate that the research is about *people who use a wheelchair* or *wheelchair users*.

Terms to avoid: *confined to a wheelchair*, *restricted to a wheelchair*, *wheelchair-bound*, *deformed*, *crippled*, *physically challenged*.

LANGUAGE FOR DISCUSSING COGNITIVE IMPAIRMENT

Cognitive disabilities affect a person's ability to learn, process and/or remember information, communicate, or make decisions. Specific forms of cognitive impairment are often referred to in medical literature as *deficits*. This term may be used in computing when referring to specific cognitive skills, for example, *people with a visual processing deficit*, but avoid nonspecific language such as *people with deficits*.

It is important that writers carefully define cognitive disabilities. Consider whether the research relates to learning disabilities, intellectual disability, or specific cognitive ability (such as memory or language processing). Be precise in describing the characteristics of the population.

IMAGE BY BO / FLICKR

Developmental disability is any severe mental and/or physical disorder that began before age 22 and continues indefinitely. Individuals with intellectual disabilities, autism, cerebral palsy, epilepsy and other similar long-term disabilities may be considered to have developmental disabilities.

For people who do not have a cognitive disability, use terms such as *people without disabilities* or, in the case of developmental disabilities, *typically developing* or *neurotypically developing*.

Terms to avoid: *retarded*, *demented*, *deficient*, *insane*, *slow* or *slow learner*, *abnormal* or *normal*, and *mongoloid* (use *person or child with Down Syndrome* instead).

CONCLUSION

We began by noting that terminology changes over time, acknowledging that the terms we suggest here may become unacceptable for unforeseen reasons even within a few years. The language in use at a given time reflects the attitudes and philosophies of the time. It is important to understand the meanings and backgrounds of the terminology you use to make sure that your writing accurately reflects current attitudes and philosophies. The terms used in scientific writing also should appropriately describe the research population.

ACKNOWLEDGMENTS

In the writing of this paper we acknowledge the support of IBM, Google, and Research Councils UK (EP/G066019/1 and EP/K037293/1).

ENDNOTES

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DOI: 10.1145/2828432