

DEAF GAIN

An Introduction

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As a source of exchange, innovation and creativity, cultural diversity is as necessary for humankind as biodiversity is for nature. In this sense, it is the common heritage of humanity and should be recognised and affirmed for the benefit of present and future generations.

—Article 1, *UNESCO Universal Declaration on Cultural Diversity*, 2001

Aaron Williamson began to lose his hearing at the age of seven. Having spent the rest of his childhood in visits to audiologists, he now wonders, “Why had all the doctors told me that I was losing my hearing, and not a single one told me that I was gaining my deafness?”¹ This is, to be sure, not a common question. Common sense tells us that *deaf* is defined by the loss of hearing. A visit to any dictionary confirms that there is no way to conceive of deafness other than through the loss of the auditory sense. Yet this definition is not always so common and does not always make sense among those who are deaf.² Rather than defining their particular sensory orientation in relation to a norm of hearing, deaf individuals live within the plenitude of their particular sensory orientation and languaculture.³ To many in the deaf community, being deaf has nothing to do with “loss” but is, rather, a distinct way of being in the world, one that opens up perceptions, perspectives, and insights that are less common to the majority of hearing persons. The biological, social, and cultural implications of being deaf are not automatically defined simply by *loss* but could also be defined by *difference*, and, in some significant instances, as *gain*. In order to explore this notion, the editors of this volume coined the term *Deaf Gain* to counter the frame of hearing loss as it refers to the unique cognitive, creative, and cultural gains manifested through deaf ways of being in the world.⁴

“Deaf” within the Framework of Normalcy

The shift from hearing loss to Deaf Gain is only one instance of a larger paradigm shift in thought from an overarching framework of normalcy to one of diversity. As Lennard Davis and others have shown, the invention and enforcement of standards of normalcy gained ascendancy within the industrial nineteenth century

and have continued to be a dominant means of measuring and defining human biological, psychological, and cognitive abilities.⁵ The concept of “normal” emerged as a way of understanding human beings only between 1840 and the 1860s, with the emergence of statistical science as a way of measuring human populations. Physical attributes of humans were, for the first time, graphed onto a plot called a bell curve, signifying a distribution in which the majority of subjects are grouped in the center and a correspondingly small number of people are, in each measurement, further out from the center. The bell curve became seen as a “natural” way of understanding human populations and seeped into public-policy-making discourse.

The concept of normalcy was not only about the majorities but also about defining the margins at either end of the curve. A child whose school test results lie on the high edge of the curve will find it easier to apply for scholarships and be granted admittance to prestigious schools. A child whose IQ test scores show learning difficulties will be labeled as intellectually inferior and find such opportunities more difficult to attain. Self-described progressive scientists and reformers of the late nineteenth and early twentieth centuries advocated bringing the “negative” ends of the curve into normalcy, whereas some eugenicists advocated more extreme measures.

This “age of normalcy” has had profound implications for Western deaf communities. Although American deaf education was conducted in sign language for much of the nineteenth century, for most of the following century educators forbade its use in the classroom and tried to abolish its use among deaf people. This philosophy, called oralism, fit in with a particular approach to biological difference—one that is intent on fixing, rehabilitating, and minimizing the distance between the normal and what is seen as pathological. When infants are born into institutions, such as hospitals, that strive to maintain normalcy, they are set on a trajectory of measurement, diagnosis, and rehabilitation. Upon identifying the precise nature of loss, a medico-educational approach to rehabilitation is put in place. This increasingly involves technological interventions such as cochlear implants, electronic devices implanted into the inner ear that stimulate a semblance of hearing via electronic signals. Pediatric implantation was controversial when it became a relatively common practice in the 1990s, and the controversy was due in no small part to the overblown claims that deaf children with implants were no longer audiologically deaf. Within the framework of normalcy, which insists upon pushing individuals into standard bodies, cochlear implants were an ideal device with which to extinguish the existence of a signing deaf community. This goal was publicly acknowledged by Gerald E. Loeb, a self-described coinventor of the cochlear implant, who predicted in 1993 the “extinction of the alternative culture of the Deaf, probably within the decade.”⁶ Loeb’s prediction was wrong, but he accurately illustrates the point that those who promoted cochlear implants saw no harm in eliminating sign language and Deaf culture. The

approach of normalizing deaf individuals has become so pervasive that the use of sign language, a naturally occurring human language, is often discouraged.

Currently the rapid increase of medical interventions—cochlear implants and educational programs that focus exclusively on auditory and oral education—threaten to cause a precipitous decline in numbers of sign-language users. A November 2011 conference cohosted by the World Federation of the Deaf and the European Union of the Deaf took up the question of whether sign languages could be considered endangered languages. Although no sign language currently approaches the status of an endangered language according to UNESCO’s measurement of language vitality, a number of presenters at the conference made it clear that their sign languages were in danger under a key measurement of language vitality: intergenerational transmission.⁷ In Denmark, Janne Boye-Niemi, the president of the Danish Deaf Association, pointed out that there has been a rapid decline in the number of children attending schools for deaf people, a decline of 20 percent within the past decade in nearly every school or program for deaf children. Even in those programs which continue to include deaf children, sign language is not used as a language of education. The opportunity for sign-language transmission in the schools has declined so precipitously that the world has now seen its first sign-language refugees, with seven deaf children having moved from Denmark to Sweden with their families in order to receive an education in sign language in Sweden, something no longer available in their country of birth.⁸

The decline of sign language is not inevitable. It is, however, logical within the framework of normalcy, for such a framework sees sign language as a type of prosthetic, a compensation for the loss of hearing, and if this can be even partially remediated, then there is little need for anyone to use sign language. This is the crux of an argument advanced against bilingual education for deaf children—that if they can get by with one language, then there is no need for them to be bilingual in both their national signed and spoken languages.⁹ But instead of conceiving deafness as a deviation from a norm of hearing, it may be seen as one particular way of being that is no less human, or no less valid, than any other. The concept of normalcy does not do this, but there is a different framework available, one that predates the invention of the regime of normalcy by thousands of years: that is the fundamental condition of *biocultural diversity*.

“Deaf” within a Framework of Biocultural Diversity

We are perhaps most familiar with the notion of biological diversity, as our earth is home to an astounding array of genetic variation, with more than one and a half million identified plant and animal species and millions more yet to be discovered. The number of mollusk species alone—85,000—is incredible, not to mention 12,600 varieties of ant, and between 7,000 and 10,000 kinds of mushroom. As biologists have made abundantly clear over the past few decades, one of the prime indicators of the health of an ecosystem is the genetic variation that exists

within it. In contrast, a decrease in biodiversity results in the condition of monoculture, in which ecosystems become increasingly fragile and vulnerable to widespread degradation and disease. This may be the case for ecosystems, but what are the implications for human well-being?

Although biologists have long recognized the fundamental nature of biodiversity, we have only begun to recognize the deep connection of biological diversity with linguistic and cultural diversity, resulting in a new field of study: biocultural diversity. As Daniel Nettle and Suzanne Romaine write, “Research has shown quite striking correlations between areas of biodiversity and areas of highly linguistic diversity, allowing us to talk about a common repository of what we will call *biolinguistic diversity*: the rich spectrum of life encompassing all the earth’s species of plants and animals along with human cultures and their languages.”¹⁰ Although this correlation has been observed for some time, recent research has verified the correlation through a larger and more accurate set of data.¹¹ Results from this large set of data indicate that biodiversity hot spots and wilderness areas often contain significant linguistic diversity, amounting to 70 percent of all languages on earth.

This correlation also holds true for the statistical decline of biological and linguistic diversity. Biologists have estimated that biodiversity loss is currently occurring at rates one thousand times greater than historic rates, and linguists estimate that some 50 to 90 percent of the world’s languages will be gone within the century.¹² We are more familiar with the negative implications of monocultural farming practices on biodiversity, whereas we are less aware of the effects of loss in linguistic and cultural diversity. If greater biodiversity is an indicator of the health of an ecosystem, the correlation suggests that greater linguistic and cultural diversity is an indicator of the health of a social ecosystem. In a publication sponsored by UNESCO, Tove Skutnabb-Kangas, Luisa Maffi, and David Harmon explain that “[l]inguistic diversity is . . . our treasury of historically developed knowledge—including knowledge about how to maintain and use sustainably some of the most vulnerable and most biologically diverse environments in the world.”¹³ As we continue to lose languages at an accelerating rate, these authors warn, we destabilize the future of human flourishing: “From this perspective, fostering the health and vigour of ecosystems is one and the same goal as fostering the health and vigour of human societies, their cultures, and their languages. We need an integrated biocultural approach to the planet’s environmental crisis.”¹⁴

Given the correlation of biological and linguistic and cultural diversity, environmentalists and linguists may have much more in common than was previously assumed. Activists working toward the preservation of biocultural diversity often point to the very real knowledge of the local ecosystem that is contained within the language. Often, indigenous cultures possess an entire pharmacopoeia derived from local plants and manifested within a fully developed lexicon, such as the extensive Australian Aboriginal pharmacopoeia¹⁵ as well as that of the Nahuatl.¹⁶

Also, consider the extensive knowledge of the land accumulated by the Saami from the northern regions of Scandinavia: after Nordic biologists announced their discovery that salmon could spawn in very small rivulets, the president of the Saami Parliament in Finland, Pekka Aikio, explained that the Saami have always known this, given that the name for rivulets in Saami means “salmon spawning ground.”¹⁷

In addition to the ecological knowledge contained in languages, defenders of linguistic diversity also make the case that every language contains a worldview, a particular perspective on what it means to be human. This becomes evident as different languages place varying distinctions on aspects of experience. Kwakiutl, Turkish, and Hopi, for example, feature conjugations that make distinctions between hearsay and that which comes from the speaker’s own experience.¹⁸ Many Oceanic languages grammatically distinguish possession in terms of that which the speaker exercises control over and that which she does not. Some languages, such as Palikure in Brazil, use three genders, and others none. These are but a very few examples of the astounding semantic and grammatical complexity that provides “a rich source of data concerning the structure of conceptual categories and a window into the rich creativity of the human mind.”¹⁹

The majority of the research and language-planning work within biocultural diversity focuses on spoken languages. Yet what about signed languages? Clearly, signed languages of deaf communities do not hold the ecological wisdom of indigenous languages of cultures that have been in intimate contact with their environment for a thousand years. Yet there is another mother lode of human diversity at work within signed languages and deaf communities. As will be seen throughout this book, users of sign languages contribute toward a robust diversity in their unique epistemological take on the world characterized by a visual-kinetic language and a host of embodied cultural behaviors and products that are virtually unknown to the rest of the world. Along with the emergence of sign-language studies comes a new perspective on cognitive, creative, and cultural production that increases the already astounding variation on ways to be human.

In this light, deafness looks less like a biological dead end than like another evolutionary adaptation. Deaf people, rather than representing a net loss to be fixed, represent instead one of the necessities of evolution. Consider that, for some reason, the 400-odd assorted genes for deafness have not been phased out over the past ten thousand years of human history. In this time, we have gone from walking on all fours to standing erect, from being cave dwellers in the hills of East Africa to loft dwellers in the concrete canyons of Manhattan. Evolutionary biology theorizes that all species evolve by natural selection, with genes not optimal for survival being weeded out either by their carriers’ dying out or by carriers’ not finding reproductive partners. Yet the gene for deafness has stubbornly persisted across thousands of generations and is found everywhere in the world. This alone should indicate that deafness is not an evolutionary error but a natural human

variation that continues to thrive.²⁰ One such “deaf gene,” Cx26, has been found to be so persistent that biologists have sought to explore its properties in greater depth, finding that those individuals with two mutated copies of the Cx26 gene have thicker skin than those without. Studies have shown that the Cx26 gene is responsible for increased protection against infections from bacteria as well as accelerated healing of wounds.²¹ This finding is akin to the discovery that the genetic mutation for sickle-cell anemia has been found to protect against malaria. This notion of the unexpected benefits arising from genetic variation encourages us to broaden our perspective to inquire into the multitudinous effects that a particular biological difference may bring about. When we look through the lens of biocultural diversity rather than normalcy, we are better able to move beyond the single story of deficit to the many stories of complex cause and effect. In this reckoning, what could be considered a pathological condition—deafness—could instead be seen as a contributor to a more robust social and cultural ecology.

Placing deaf studies within the frame of biocultural diversity provides a frame of reference that predates the frame of normalcy by some tens of thousands of years; it also expands the frame of biocultural diversity, which has yet to consider the epistemological and physical diversity inherent in the wider spectrum of minds and bodies in order to encompass the full range of human flourishing.

Diversifying Diversity: A Plurality of Minds and Bodies

The long civil- and human-rights struggles of underrepresented groups have resulted in increasing awareness of diversity along the lines of race, ethnicity, gender, sexual orientation, and economic class. Slowly, disability is making its way into the discourse of diversity. One factor in the slow recognition of disability within the category of diversity has been the deeply rooted assumptions of normalcy that manifest themselves as biological fact. Scholars in disability studies have been chipping away at the normalcy paradigm for some time now. An important early aspect of deaf studies and disability studies consisted of mounting a challenge to the early twentieth-century model of understanding disabled people called the medical model. Disability studies scholars posited a social model problematizing the fact that our societies are constructed around a particular bodily type—able-bodied men—and that it is this which excludes people with bodies that deviate from the norm. This social model has been particularly effective in raising issues of access and equity. The academic discipline of deaf studies took a different tack, with a focus on the cultural and linguistic uniqueness of deaf people. This understanding of deaf people has been enormously successful in spreading the use and awareness of sign language throughout many countries. Deaf people have benefited from greater social acceptance of sign language, including legal provisions for interpreting services that led to video relay interpreting and other forms of sign-language access. The social model emerging from disability studies and the deaf community’s success in getting access to public spaces via sign lan-

guage show the creation of public spaces for discourses predicated on differently designed bodies.

In spite of these inroads, in common understanding, physical and cognitive differences are more frequently thought of as deviation rather than diversity. This can be illustrated by looking at citizenship debates in the nineteenth and twentieth centuries. In the United States, these were battles in which excluded groups sought to enter the center of American life, to reshape what it meant to be American in a way that made the term more inclusive. Whether they were Irish immigrants, Mexican immigrants, Quakers, African Americans, women, or lesbian, gay, bisexual, and transgender communities, the story remained the same: each group sought acknowledgment as part of the multiplicity of American life. However, in their citizenship battles, groups such as women and African Americans have shied away from being categorized with people who are physically different. And with good reason. Historian Douglas Baynton has pointed out that the exclusion of these two groups from political life was justified by using terms of disability. African Americans supposedly had lower IQs. Women were seen by medical professionals as naturally hysterical and likely to become more so if they had the audacity to try to get a college education. As Baynton writes, the idea of physical difference was used as a “justification of inequality.” Political leaders of these groups did not challenge the idea that physical difference was a disqualification for inclusion in political life; they instead refuted claims that their groups were physically different.²² The deaf community has been guilty of this as well, with popular discourse shunning the disability label while not challenging this medical model for those with “real disabilities.”²³ The social and cultural models, as successful as they have been, cannot be said to have expanded the boundaries of normalcy in such a way that diversity is understood to encompass differently shaped minds and bodies.

The challenge for the inclusion of physical and cognitive diversity in our understanding of diversity is thus much greater than it ought to be. The inclusion of people with disabilities has become more common, but this inclusion is a form of diversity predicated on the hegemony of normalcy, which remains more or less the same. In an era when the discovery of the genetic causes of various conditions is front-page news, physical difference is still seen as something to be eradicated. American society accepts physical difference in currently existing individuals, but rejects it in future generations. To change this requires us to challenge the idea of normal and bring into its place a focus on physical and cognitive diversity as an essential element in our understanding of diversity.

In this work, the idea of Deaf Gain is joined by other concepts. An overlooked aspect of diversity is the astounding array of cognitive differences among humans. Thomas Armstrong and others have argued for a wholesale reevaluation of the human mind through the notion of neurodiversity. In his book *Neurodiversity: Discovering the Extraordinary Gifts of Autism, ADHD, Dyslexia, and Other Brain*

Differences, Armstrong writes, “[W]e need to admit that there is no standard brain . . . or standard cultural or racial group, and that, in fact, diversity among brains is just as wonderfully enriching as biodiversity and the diversity among cultures and races.”²⁴ The notion of neurodiversity is not a “feel-good” way of addressing cognitive and psychological differences; rather, it is a recognition of the vastly different ways that the brain can operate, resulting in an understanding that some brains have abilities that those considered normative do not. This observation is buttressed by significant research in neurology and quantitative and qualitative research and, furthermore, is borne out by the marketplace, as evidenced in the hiring practices of companies that recognize that diverse minds perform some tasks far better than minds that allegedly fall within the normal spectrum.

Matthew Schneps, himself a dyslexic physicist, has investigated the trade-offs of dyslexia. People with dyslexia tend to place more attention on a whole visual field as opposed to the central focus of foveal vision necessary to follow a line of print. This opens the way for dyslexic individuals to exercise a greater ability to do comparisons of large amounts of visual material.²⁵ One specific documented outcome is the dyslexic person’s ability to detect black holes at a more effective rate than nondyslexic scientists.²⁶ Such reversals of disability have filtered out to the public sphere, with the *New York Times* noting “the upside of dyslexia,” where, among other things, people with dyslexia have been found to be overrepresented in fields that require scientists to process and understand large quantities of visual data, such as astrophysics.²⁷ The abilities rather than disabilities of neurodiverse minds were clearly evident to Hans Asperger as he identified the eponymous syndrome. “For success in science or art,” he wrote, “a dash of autism is essential. The essential ingredient may be an ability to turn away from the everyday world, from the simply practical and to rethink a subject with originality so as to create in new untrodden ways with all abilities canalized into the one specialty.”²⁸

Further testimony to the practical uses of neurodiverse minds can be found in businesses in Denmark, Norway, Iceland, and Scotland, whose workforces mostly comprise those who are on the neurodiversity spectrum, especially those who are adept at detail-oriented tasks. One Danish software company, 75 percent of its workforce comprising individuals on the autism spectrum, claims that its rate of committing errors “was 0.5 per cent, compared with five per cent from other testers. That’s an improvement by a factor of 10, which is why we can charge market rates. This is not cheap labour and it’s not occupational therapy. We simply do a better job.”²⁹ The neurodiversity movement is a key concept that stands to transform many long-held prejudices against a large segment of our population. At the same time, it, along with Deaf Gain, introduces a new aspect to the discourse on diversity.

Bodily diversity can be seen to serve as an impetus toward new inventions and new ways of thinking, thus benefiting society in ways otherwise overlooked. Measures to open up societies and public spaces to a wider range of bodily types, com-

monly framed in public policy as improving “access,” has spurred a wide range of innovation. Curb cuts are useful to more than people who use wheelchairs. Closed-captioning has proliferated in public gathering spaces such as airports, stadiums, and restaurants, offering a visual replacement in noisy auditory environments. Disabled people, falling outside the boundaries of the normal, can serve as a stimulus to creating new technologies and new ways of thinking. Anthropologists postulate that things are not invented to meet needs but needs are discovered after something has been invented. A classic example of this is text-messaging, which was added to phones by engineers who envisioned limited phone usage.³⁰ The result is billions of text messages sent around the world on a daily basis.³¹ Mara Mills has written of the extensive interaction between deaf people, deaf education, and the invention and refinement of sound and motion technologies in the late nineteenth and early twentieth centuries. In order to most efficiently convey sound in a mechanical format, such as in the telephone or phonograph, it was necessary to be able to show how sound was carried and perceived. This was the realm of oral deaf education, and scientists, including a deaf scientist, used tools from this field to refine their technologies. Deaf people were also seen as ideal subjects by which to test visual means of sound reproduction and were often consulted in the early experimental stage of new technologies. The phonoscope, a device considered to be “at the very origin of moving photography projection and the film industry,” was developed by a scientist working out of the National Institute of the Deaf in Paris, France. The scientist was inspired to string together and project a series of photographs for deaf people to lip-read. From this, the world changed.³² See also Mark Zaurov’s chapter in this volume on Wladislav Zeitlin, a deaf German inventor who made significant advances that led to a breakthrough in visual media, the television.

As we seek to create a new rhetoric infused with an orientation of diversity rather than normalcy, we must explore a common vocabulary that allows for the accurate expression of key ideas. In this next section, we present broad categories of Deaf Gain that could be extrapolated to a host of cognitive, creative, and cultural diversities.

Deaf INCREASE / BENEFIT / CONTRIBUTE / AHEAD

The notion of Deaf Gain is inherently multidisciplinary, situated at the intersections of several fields: neuroscience, linguistics, sensory studies, history, art, architecture, and philosophy, among others. Deaf Gain is itself diverse. We do not posit a universal Deaf Gain. Which gains emerge or are valued are highly contingent on cultural and historical contexts, including the status of deaf people and sign languages in particular societies. The essays in this volume explore Deaf Gain across numerous contexts, but they represent neither the limits nor the universal application of Deaf Gain in other contexts.

In order to categorize its many facets, the editors have earlier written of the



Figure I.1 (above). DEAF. Signed by Mario Hernandez Jr.

Figure I.2 (below). GAIN OR INCREASE. Signed by Mario Hernandez Jr.

cognitive, creative, and cultural dimensions of Deaf Gain.³³ In this next section, we explore a different ordering of the many aspects of Deaf Gain through a semantic categorization that emerges from signed languages rather than written languages. When the editors of this volume first coined the term *Deaf Gain*, the sign was used that signifies Deaf INCREASE. This sign signifies the broad category of gain—more of something than was originally present.

Within the semantic umbrella, there are more precise aspects to the nature of the gain; these include Deaf BENEFIT, Deaf CONTRIBUTE, and Deaf AHEAD. Each angle allows us to root the Deaf Gain concept in the lived experiences of different human bodies. The following are some highlights of each angle of approach.

Deaf Gain: BENEFIT

The first dimension of Deaf Gain we explore is that of the benefit to the individual. Whereas popular constructions of deafness are defined exclusively by the negative effects—problems with literacy development and social and cognitive development—a Deaf Gain perspective brings forth a number of social, psychological, and cognitive benefits. In calling attention to Deaf Gain benefits, we are not claiming that it is necessarily better to be deaf than to be hearing, but we are saying that it is not necessarily better to be hearing than deaf. Often-cited benefits experienced by deaf individuals are those in the realm of visual processing and visual attentiveness. As detailed in the chapter by Matthew Dye in this volume, these gains include enhancements in spatial cognition, facial recognition, peripheral process-

ing, and speed in detecting images. Such visual acuity is not the exclusive interest of neurological researchers but has been recognized as an attribute sought after in certain professions. The government in Oaxaca, Mexico, for example, has invested \$4.4 million to install 230 security cameras that are monitored by deaf and hard-of-hearing police officers. Ignacio Villalobos Carranza, deputy secretary for the Ministry of Public Security of Oaxaca, noted that “these police officers have a very strong deaf and visual sense and can better detect what is happening in different places where the cameras are located.”³⁴ Although more research is needed to determine the degree of deaf advantage in deterring crime, such an investment may be the beginning of a Deaf Gain economic advantage.

In addition to the well-documented research on visual-processing gains come the psychological benefits of interpersonal connections formed through prolonged eye contact.³⁵ Because signing is a visual language, the eyes must at all times be focused on the signer, as opposed to the method of hearing individuals, who can communicate for hours on end without once looking at each other. Psychologists have long recognized the psychological benefits of relationship building that result from direct eye contact, beginning with mother–infant attachment and self-regulation for belongingness to social situations.³⁶ In situations where mother–infant eye contact is not sustained or is frequently interrupted, disturbances occur in attachment as well.³⁷ Although Deaf Gain psychology has not been the focus of this research, one could uncover ways in which hearing people would have much to learn from the ways in which deaf people use their eyes to establish connections with others.

This notion of a deep interpersonal engagement among members of the deaf community is explored most fully by Robert Sirvage, who has investigated the embodiment of reciprocity that arises when two or more deaf people engage in conversation while navigating through space.³⁸ Because eye gaze must be fixed on the signer, those who are signing will also widen their visual field to ensure the safety of others. Often this behavior is fully conscious, as when one participant warns another about an upcoming obstacle; but there is also a subconscious, reflexive interaction taking place, in which participants use the determinants of a fixed



Figure 1.3. BENEFIT. Signed by Mario Hernandez Jr.

signing space in order to push or pull participants around obstacles. On the surface, this may seem like a minor cultural behavior, but when considered further, it becomes a generous way of being-in-the-world in which deaf individuals hold each other in a visual embrace of well-being and safety. This requires a level of empathy and understanding of the other's well-being at all times. In living a lifetime in such intracultural eye contact, a level of intersubjective engagement occurs that, when multiplied on a larger cultural level, results in a collectivist cultural organization, as is discussed by Elizabeth Lockwood in this volume.

One of the most popular hearing constructions of deafness is the projection of a life of social isolation. Yet anyone who has spent time within the deaf community knows that the opposite is true. As Megan Matovich has put it, the deaf person is a "citizen of the world,"³⁹ a transnational traveler par excellence.⁴⁰ Being visual citizens of auditory nations, deaf people are accustomed to navigating in cultures other than their own and are able to use gestural abilities to communicate with hearing people, who are from a different language community. Accustomed to being in the minority and being the object of staring, culturally deaf individuals are particularly adept in fulfilling experiences such as the Peace Corps. Deaf American Peace Corps volunteer Kelly Rogel writes of being a member of Kenya's "forty-third tribe" during her time in the country. Kenya has forty-two officially recognized tribes, with sign-language-using deaf Kenyans considering themselves an unofficial forty-third tribe. And Rogel, as a deaf person even "8,500 miles away from the States, in a different hemisphere, at the equator," still identifies as a member of this tribe, as having found "a piece of home" far from her country of citizenship.⁴¹ Moreover, being deaf opens up a global network of deaf people with whom one can interact in International Sign. Deaf travelers to other countries can meet local deaf people, communicate with them without needing to learn the local language, and generally gain a greater set of cultural tools to use in their travels.

One of the editors, Dirksen Bauman, who is hearing, has traveled with both hearing and deaf groups and reports that the difference is stark. As a hearing individual traveling with hearing people in a country with an unknown language, he is reduced to the status of a tourist, observing the visual surface of urban and rural landscapes. Travelling with deaf individuals, however, immediately carries him deeper into the cultural life of the country and its people. Further testimony to the Deaf Gain benefit of being a citizen of the world are the international gatherings of deaf people, in which deaf people from multiple nations interact in the same space over a limited period of time. Again, the lack of linguistic barriers and common visual ways of being allow for more in-depth exchanges than would otherwise be possible to hearing people in the same environment. A delighted Danish participant in the 1900 World's Congress of the Deaf in Paris noted, "With the help of the sign language, a deaf-mute from Karlskrona [Sweden] can converse

quickly and without difficulty with a deaf-mute from Chicago even if they don't understand a syllable of each other's written language."⁴² These transnational benefits have been seen from at least as far back as the Parisian deaf-mute banquets of the early nineteenth century, to deaf craftsmen who traveled Europe using local deaf communities for tips on employment opportunities, to the present-day world's congresses of the World Federation of the Deaf.⁴³

In addition to the intersubjective and transnational gains, deaf individuals have observed that there are other benefits to being deaf that are manifested through greater personal reflection and focus. Pierre Desloges, the eighteenth-century Parisian bookbinder, wrote that "nature has not been as cruel to us as is commonly assumed; it always compensates in one of the senses for what is absent in the others. The privation of hearing makes us more attentive in general. Our ideas concentrated in ourselves, so to speak, necessarily incline us toward reflectiveness and meditation."⁴⁴ Rather than perceiving his own deafness as a negative experience, Desloges noted that it sharpens reflection. Desloges's claim about greater attentiveness and reflectiveness is not unlike Thomas Edison's claim "This deafness had been of great advantage to me in various ways."⁴⁵ Although this ability of concentration is anecdotal, one cannot doubt the validity of Desloges's or Edison's experience, given that both had intimate experiences of being productive deaf members of their societies.

These individuals are not the only ones who have borne out the variety of productive benefits of being deaf. In her chapter in this volume on deaf workers at the rubber factories of Akron, Ohio, Kati Morton shows that hearing employers were eager to hire deaf workers, seeing them as having better vision and manual dexterity. Nearly a century later, training executives are using Deaf Gain attributes to train managers to be more effective leaders. One such trainer, Bruno Kahne, has modeled a leadership-training program after communication habits of the deaf he has observed. He extols the benefits of maintaining eye contact, being sensitive to the protocols of turn taking, communicating with direct, economic speech, and staying focused. In his book *Deaf Tips: Twelve Lessons from the Deaf World to Improve Your Communication in Your Personal, Social, and Professional Life*, Kahne presents findings from interviews and research that support the position that deaf individuals could serve as mentors to hearing individuals when it comes to communication.⁴⁶

Taken together, these attributes of Deaf Gain—enhanced and prolonged eye contact, intersubjective engagement, collectivist social patterns, transnational bonds, less auditory distraction, and acute visuospatial aptitudes—all contribute to a new perspective on what it means to be deaf. By calling attention to these gains, we are not making the case that hearing individuals should intentionally become deaf; but we do call into question the reverse notion, that deaf individuals should intentionally become hearing.



Figure 1.4. *CONTRIBUTE*. Signed by Mario Hernandez Jr.

Deaf Gain: CONTRIBUTE

In addition to the individual benefit of being deaf, the existence of deaf / sign-language communities confers specific gains to humanity as a whole. Deaf *CONTRIBUTE* refers to the contributions of deaf individuals, communities, and their languages to humanity as a whole. In the most general sense, the existence of deaf people and communities contributes to a more robust biocultural diversity, as has been discussed. Testimony to the value of such diversity are the new perspectives on human nature that have arisen from the study of signed languages.⁴⁷ Along with other long-standing human misunderstandings, such as that the earth is flat and that it lies at the center of the universe, a more pernicious misunderstanding has been that speech is the sole form of human language. With the revelation of the fully developed grammatical system of signed languages in the 1960s, the human capacity for linguistic expression was radically transformed.⁴⁸ In the wake of this paradigm shift, a new map of the brain has been drawn, one which shows that language is actually formed through deeper neurological patterning than auditory patterning exclusively, and is wholly independent of any one modality.

This revolution in understanding the biological properties of language is explored in greater depth in Laura-Ann Petitto's chapter in this volume. In short, as William Stokoe has shown, speech is no longer a necessary condition for language but, rather, a sufficient condition for language, a point that is explored more fully in this volume by David Armstrong.⁴⁹ Contributions that are explored in the pages throughout this volume include a deepening of what it means to be bilingual and multilingual, as explored by Ofelia García and Debra Cole; the number of insights that have resulted from the emergence and study of signing communities, explored by Annelies Kusters; and the historical uses of sign language and gesture to foster intercultural communication, as noted by Clara Sherley-Appel and John Bonvillian.

These are foundational and transformative contributions that have resulted from the existence of deaf and signing communities. Such an opportunity to explore the nature of human language could never occur with spoken languages, as

any new, emerging language would be considered a dialect or creole of a previously existing language. Because deaf children do not access the dominant spoken language, they are ripe to generate a language from the innate capacities with which we are all endowed. This is clearly a contribution from deaf communities that is long lasting and paradigm shifting. We now have a more complete understanding of the human capacity for language. In short, we now know that “to sign is human.”⁵⁰

Deaf Gain: AHEAD

The sign for Deaf Gain *AHEAD* might be better translated into English as “taking the lead.” The sign begins as one hand is behind the other, signifying the hearing-loss perspective that traditionally frames deaf individuals as being delayed and at a disadvantage. However, the hand that is previously behind moves ahead of the other, assuming the position of a vanguard. In several of the examples listed earlier, it may be understood that deaf people are either poised to transform or have already transformed their benefits and contributions into the public sphere in ways that represent thinking that is ahead of their hearing counterparts. We have earlier seen how disability has been a stimulus to innovation, with the design and application of new inventions. Indeed, if one considers some of the major technological advances of the past century, deaf people have been involved to one or another degree. The inventors of Morse code and the telephone both had deaf wives. Thomas Edison, who was deaf, invented the light bulb and refined the conduction of electricity. Wladislav Zeitlin, as mentioned previously and later in this volume, invented technologies influential in the making of the television. Vincent Cerf, credited as a “father” of the Internet, is deaf. Can one imagine the past 150 years of human society without these inventions? Although one does not need to be deaf to invent, and none of these inventions necessarily hinged on deafness, the parallels point to ways in which being deaf may be a contributing factor. The following examples, which are in various stages of being realized, stand to have very real applications, resulting in what could be described as a “Deaf Gain economy”



Figure 1.5. *AHEAD*. Signed by Mario Hernandez Jr.

supported by Deaf Gain consultants in a variety of niche areas, or by Deaf Gain businesses.

One realm in which deaf individuals may bring to bear their visual and spatial perceptual acuties is the field of architecture. As detailed by Hansel Bauman in this volume, the DeafSpace movement, as it is known, has far-reaching implications for architectural design principles as well as the very process of design. As a result, it is not outlandish to imagine that architectural firms would actively seek out DeafSpace-trained architects and urban planners to lend their eyes and perceptions. Another related dimension to DeafSpace design is the potential for deaf people to work as lighting specialists. From a young age, deaf individuals are keenly aware of their bodies in relation to light, as they often need to negotiate and create lighting environments in order to communicate effectively through sign language. This would be the equivalent of negotiating the auditory environment in order to speak; yet, unlike distracting noises, lighting issues are omnipresent. Thus, Melissa Malzkuhn has offered the notion of creating a group of deaf “light detectives” who explore and consult on the improvement of the lit environment.⁵¹

Another realm of Deaf Gain AHEAD is literary expression. As has been recognized previously,⁵² sign language represents a medium of literature that has qualities that have been sought after for centuries: increased visual forms of textuality as well as a return to oral, performance, and embodied texts. At one and the same time, the sign-language literary text is visual and embodied, representing a synthesis of what poets and writers have long been searching for. One such testimony to the Deaf-AHEAD nature of sign-language literature is the reaction of Allen Ginsberg when he witnessed a translation of the phrase “hydrogen jukebox” from his poem “Howl” into sign language.⁵³ Ginsberg was astonished at the precise, concrete, and creative imagery that resulted from a jukebox revved up to the point of a mushroom-cloud explosion of a hydrogen bomb. He felt that sign-language poetry does what he and his fellow poets have been trying to do—create clear images. For centuries, poets have been experimenting with ways to make their texts increasingly visual—from Horace’s *ut picture poesis*, a comparison of poetry and painting, to Blake’s illuminated manuscripts, to concrete poetry. There is a more recent desire for a return to an embodied, performative oral poetics through spoken-word poetry and the burgeoning scene of poetry slams. Sign-language poetry represents a synthesis of deep yearnings for a visual, embodied literary medium. In addition, visual/gestural theater is another realm in which deaf individuals could be considered vanguards. The traditions of mime and silent theater could be pushed to new levels through the hands and bodies of individuals who spend their lives communicating in a gestural medium. Such performances can be witnessed frequently at international deaf arts and theater festivals, where national deaf-theater companies produce works that are seen and appreciated by audiences all over the world. For more on signed literature, see Rachel Sutton-Spence’s chapter in this volume.

Aligned with the Deaf Gain *AHEAD* advances within the arts, film is another area of particularly rich contributions from deaf sensibilities. As has been written about previously, there are deep, perhaps homological affinities between signed languages and film languages.⁵⁴ As originally described by Bernard Bragg and written by William Stokoe, “In a signed language . . . narrative is no longer linear and prosaic. Instead, the essence of sign language is to cut from a normal view to a close-up to a distant shot to a close-up again, and so on, even including flashback and flash-forward scenes, exactly as a movie editor works.”⁵⁵ Given the fact that those who grow up signing construct cinematic narratives every day of their lives, if they were to be given cameras and editing programs from a young age, imagine what sort of filmmakers would grow from this community. One example of a culturally deaf aesthetic within filmmaking can be seen in the short film *Gallaudet*.⁵⁶ Again, Deaf Gain filmmakers and consultants could bring their own sensitivities to bear on film and video production.

The insights that come from thinking, creating, and producing in a visual gestural medium could also be mined for advances in teaching and learning, particularly in regard to the notion of multiple intelligences. The potential contributions of deaf people in visual learning are now beginning to be uncovered, thanks in part to a National Science Foundation Science of Learning Center founded at Gallaudet University called Visual Language and Visual Learning, or VL2. This area of inquiry is long overdue, given the advances in understanding multiple intelligences and the critical role that gesture and vision play in cognition and learning. The work of Susan Goldin-Meadow is instructive here, as she has shown how gesture is a key factor in increasing student retention.⁵⁷ Goldin-Meadow’s decades of research align with what neuroscientists are now recognizing as the vital role that the hand plays in the development of intelligence. “Any theory of human intelligence,” writes Frank Wilson, “which ignores the interdependence of hand and brain function . . . is grossly misleading and sterile.”⁵⁸ A Deaf Gain education that seizes on the sophisticated visual gestural medium of signed languages stands to reawaken the fundamental relation of hand to intelligence. Further, we know that the information received through the eyes and sent to the brain via the optic nerve is comparable to a superhighway compared to the smaller input that occurs through the ears. In an increasingly visual age, understanding how to decipher visual data and become visually literate is becoming an imperative in education.

As a result, we can envision a future in which deaf education is replaced by a Deaf Gain education, where traditional deaf residential schools could become elite boarding schools in which any child in pursuit of a rigorous visual- and gestural-based, bilingual education could be welcomed. As with the phenomenon of “baby signs,” explored in this volume by Kristin Snoddon, there is no reason why such centers of visual learning would not attract parents eager to give their hearing children a competitive advantage in the future. Research shows gains in both deaf and hearing children’s reading development when they learn sign language.⁵⁹ The

curriculum, as well, could emphasize particular areas of visual, spatial, and tactile pursuits, leading to such Deaf Gain professions as architecture, film, education, theater, and video-gaming design. The chapter by Hilary Sutherland and Katherine Rogers, in which they explore the benefits of deaf researchers, is in this vein, as is Peter Hauser and Geo Kartheiser's chapter on the benefits of signing for deaf and hearing people.

The interface of Deaf Gain with digital technology is emblematic of a long-standing vanguard relationship of deaf people to technology. Deaf people were the first to use the medium of film for propaganda and information purposes;⁶⁰ they were among the first to make the leap from blogs to vlogs, or video blogs. Although deaf individuals are often early adopters of visual communication technologies, they have not always participated in the invention. There could be a host of additional insights into the visual and gestural interface with technology to come from a Deaf Gain perspective. Increasingly, gesture is being used as a means of communicating with screens. Different visual-manual interfaces, such as the iPhone and other gestural interfaces, have yet to take full advantage of the more sophisticated system of signed languages, a fact recognized by Microsoft, which has filed a patent exploring potential uses of sign language with its Kinect technology.⁶¹ Who would be better suited to envisioning such products than those who use sign language every day? Perhaps the greatest contribution would be that deaf people could represent a way of adapting to the skills needed in a digital world while maintaining the face-to-face contact, which is a hallmark of the deaf community. They are able to straddle both arenas in ways that hearing people would do well to emulate.

The aforementioned examples of Deaf Gain *AHEAD* are by no means exhaustive. Many more could be cited and elaborated. Together they point toward a larger ethical advance that aligns with the neurodiversity and biocultural diversity movements: a greater appreciation of the deep value of human diversity rather than human monoculture. Freeing ourselves from the shackles of normalcy, we are now more able to see how Deaf Gain can change the ways in which we appreciate the gifts of all humans. Although this may seem dramatic, the recent history of the social model shows that we have only begun to tap into the ways in which physical diversities enhance our world.

The first step in integrating people with disabilities into society has often taken the form of what are known as "accommodations." As we noted earlier, accommodations designed for disabled people, such as curb cuts and subtitles, are found to benefit others as well. The multiple applications of accommodation are one example of the gain society receives from ensuring that differently shaped bodies and differently organized brains are seen as a part of human diversity. We can now imagine replacing deaf education's dreary focus on remediating hearing loss with a Deaf Gain-focused education that maximizes the visual-spatial-kinetic nature

of deaf ways of being and the use of sign language to produce cosmopolitan, technologically savvy, yet collectivist global citizens who live in a deep, intersubjective reciprocity with fellow citizens of the world.

A Map of the Book

The editors have developed the idea of Deaf Gain over time, beginning with presentations in American Sign Language (ASL) to scholars and students at Gallaudet University in 2009. The concept was being used in the American deaf community before our first academic publication on Deaf Gain came out, in 2010.⁶² Since then, we have published and given presentations on Deaf Gain in several languages, including International Sign, around the world. As justifies a concept developed around a signing community, we have seen the notion of Deaf Gain spread throughout deaf communities around the world. It is even being used as a narrative device in a prime-time television series, *Switched at Birth*.⁶³

This volume is notable for its diversity of contributions on a topic about diversifying diversity. Contributions include perspectives from neuroscience, ethics, legal studies, sensory studies, literature, art, architecture, and history. This volume could have been even larger than it is, for we are only now beginning to understand the many gains brought about by deaf ways of being in the world. As is likely the case among such a large number of contributors, there are underlying differences in their approach to topics. Some chapters directly challenge essentialist constructions of knowledge, whereas other chapters present evidence that suggests essential biological characteristics that have been misunderstood over time. We let the chapters speak for themselves. The differences that become evident among writers invite rich dialogue about the nature of biological and social constructions. In this section we present a short map of twenty-seven explorations of the new territory of understanding human difference, Deaf Gain.

This volume begins with “Philosophical Gains,” in which authors reflect on issues of Deaf Gain, normalcy, bioethics, essentialism, and legal theory. The first chapter, Teresa Blankmeyer Burke’s “Armchairs and Stares: On the Privation of Deafness,” offers an opening salvo in the paradigm shift of Deaf Gain, asking readers to consider the privation of deafness—that is, the loss of being deaf that is experienced either by hearing individuals or by deaf individuals who use technology to increase their hearing. By welcoming readers into Burke’s own experiences, Burke’s chapter serves as a portal into this brave new world of robustly challenged assumptions of normalcy. James Tabery’s “Identifying the ‘Able’ in a Variable World: Two Lessons” continues to challenge commonly held definitions that are based in essentialist constructions of norms. In providing a wealth of examples of the shifting terrain of allegedly objective conclusions based on genetic variations, Tabery argues for an antiessentialist stance that would also apply to definitions of Deaf Gain itself. One particularly poignant example of essentialist

conclusions about the pathological nature of deafness is the 2008 amendment to the United Kingdom's Human Fertilisation and Embryology Act (HFEA) of 1990. Alison Bryan and Steve Emery challenge the underlying ethical assumptions of the HFEA, which makes it illegal to increase one's chances of having a deaf baby when using fertilization procedures. As Bryan and Emery make evident, when a government decides what types of life are more worth living than others, the stakes in a Deaf Gain paradigm shift are quite high.

The second part, "Language Gains," explores what is perhaps the most prominent area of Deaf Gain: the redefinition of language. Laura-Ann Petitto has been at the heart of this revolution, which she describes in "Three Revolutions: Language, Culture, and Biology." The revelation that signed languages possess a fully developed grammatical structure was the first revolution, bringing about a revolution in the identity of the deaf community as well. Yet, Petitto argues, more recent discoveries in neuroscience have brought about a third revolution that challenges dogma relating to brain function: that signed and spoken languages are *biologically equivalent*—that is, the very same brain tissue is activated regardless of modality. This revolution places signed languages at the very core of the human capacity for meaning making. David Armstrong's "Deaf Gain in Evolutionary Perspective" makes a similar argument about the human capacity for gestural and signed communication, though from an evolutionary perspective. Although there is vast disagreement among theories of language origins, Armstrong argues that sign-language studies provides compelling rationale to make the claim that all language began through the gestural modality, making gesture a necessary component of language. Just as Petitto and Armstrong have argued for a redefinition of language, Ofelia García and Debra Cole argue in "Deaf Gains in the Study of Bilingualism and Bilingual Education" that their understanding of bilingualism and multilingualism has altered since considering the complex situation of deaf bilinguals, who "translanguage" across modalities. Given these redefinitions, a new and emerging understanding of language ideologies is in order. This is the point of Cindee Calton's chapter, "What We Learned from Sign Languages When We Stopped Having to Defend Them." Here, Calton explores the shifts in language ideologies that have come about since signed languages were determined to be fully developed languages, especially shifts in attitudes toward arbitrariness and iconicity in language.

The third part, "Language Gains in Action," continues to widen the circle of the paradigm shift articulated in Part II. If it is the case, as chapters in Parts I and II argue, that signed languages are as much a part of the human capacity for language as spoken languages are, it follows that hearing people as well as deaf people would stand to benefit from sign gains. Peter Hauser and Geo Kartheiser's chapter, "Advantages of Learning a Signed Language," provides an overview of the research pertaining to cognitive benefits that arise from the use of signed languages, parsing out what are deaf gains and what are sign gains. As with any

language learning, the greatest development occurs in the early stages of life. In her chapter, “Baby Sign as Deaf Gain,” Kristin Snoddon delves into the research behind the popular phenomenon known as baby sign. She notes that the greater the fluency in a signed language, the greater the developmental gain; as a result, the most effective baby-sign program should involve Deaf or sign-language-fluent adults. Given the human proclivity toward signed and gestural communication, it stands to reason that both hearing and deaf people would have used this language long before there was a formal discipline known as linguistics. This is indeed the case, as Clara Sherley-Appel and John D. Bonvillian explain in their chapter, “Manual Signs and Gestures of the Inuit of Baffin Island: Observations during the Three Voyages Led by Martin Frobisher.” The authors gain a glimpse into the widespread use of a gestural language among the relatively homogeneous and hearing Inuit in the late sixteenth century through the writings of a British explorer. About a century later, another British author, John Bulwer, published several books extolling the benefits of incorporating gesture and signed language into the rhetoric of public speaking. As Jennifer Nelson shows in her chapter, “Bulwer’s Speaking Hands: Deafness and Rhetoric,” Bulwer’s *Chirologia* and *Chironomia* read like a seventeenth-century manifesto on Sign Gain. Having been influenced by deaf individuals, this rhetorician recognized a supreme Deaf Gain irony: that deaf people are the vanguard in the arts of eloquent discourse.

The fourth part of the book, “Sensory Gains,” reviews the perceptual, neurological, and cultural implications of a deaf sensory orientation. The first chapter in this section, “Seeing the World through Deaf Eyes,” by Matthew Dye, provides an overview of the research into visual cognition and deaf people, noting perceptual acuities in a host of specific visual tasks. Although the majority of research has been in the domain of visual processing, Donna Jo Napoli contends that there are significant heightened tactile sensibilities that are a part of the deaf experience. In her chapter, “A Magic Touch: Deaf Gain and the Benefits of Tactile Sensation,” Napoli explores the research relating to deaf tactile gains in cognition and psychosocial development. Following Dye’s and Napoli’s overviews of research on neuroplasticity in the case of visual and tactile gains, Benjamin Bahan demonstrates how these sensory orientations form deep patterns of cultural behaviors. Bahan’s chapter, “Senses and Culture: Exploring Sensory Orientations,” could be seen as an exploration of cultural plasticity resulting from the fundamental condition of neuroplasticity. The following chapter moves from the scale of the influence of the senses on cultural formation to an individual inventor whose visual orientation guided him in pioneering research that led to dozens of patents and inventions influential in the development of the television. Mark Zaurov’s chapter, “The Deaf Gain of Wladislav Zeitlin, Jewish Scientist and Inventor,” explores Zeitlin’s writings and career to foreground the role that his deafness and visual orientation contributed to the nature of his inventions. Finally, this section ends with a call toward a research practice mindful of Deaf Gain. Hilary Sutherland and Kath-

erine Rogers's chapter, "The Hidden Gain: A New Lens of Research with d/Deaf Children and Adults," examines Deaf Gain research practices that focus on the development and use of "visually reliant tools" as a method for collecting data that could reveal Deaf Gain aptitudes. Drawing on their experiences as Deaf researchers, they present specific cases where visual methodologies result in a view of Deaf abilities rather than disabilities. Together, these chapters on sensory gains provide insight into a deaf sensorium that is determined not by lack but rather by plasticity and visual and/or tactile acuity.

The fifth part, "Social Gains," explores Deaf Gain as it is manifested within particular sociocultural formations. One such formation is the phenomenon of "shared signing communities," where the common language is a signed language because of a high incidence of deafness. Annelies Kusters explores the lives within these communities in her chapter, "Deaf Gain and Shared Signing Communities." In doing so, Kusters cautions against forming an idealized image of these communities as Deaf Gain incubators; rather, she notes that there are competing discourses of loss and gain within these communities. She urges scholars to recognize this ambiguity as part of the reality of living within hearing-deaf intersections. Another complex point of hearing-deaf contact is found within the workplace, where traditionally, deaf employees have been subject to discriminatory practices and negative attitudes. However, Kati Morton's chapter, "Gainful Employment: Historical Examples from Akron, Ohio," documents historical instances in which employers actively sought to hire deaf workers, who were known for their manual dexterity and productivity. In company publications, Goodyear Tire Company officials noted that deaf workers were not distracted by conversation while performing manual labor. Such individual productivity may be contrasted with what is often cited as a collectivist social pattern among deaf communities. In her chapter, "Effective Deaf Action in the Deaf Community in Uruguay," Elizabeth M. Lockwood explores political activism within the Uruguayan Deaf community, noting the effectual nature of a collectivist social movement in achieving civil and human rights. On the same continent, a very different form of collective social formation is evident in the chapter by Ronice Müller de Quadros, Karin Strobel, and Mara Lúcia Masutti, "Deaf Gains in Brazil: Linguistic Policies and Network Establishment." These authors examine the ways in which the deaf community has led the way in forging greater recognition of linguistic and cultural pluralism with Brazil, as well as in the maintenance of cultural practices and connections through imagined spaces of distance learning. Evidence of connections among hearing individuals through the same distance-learning system indicate a Deaf Gain in taking advantage of technology as a means of forging (imagined) community. The section ends where it began, with a note on the ambiguities found in previous Deaf Gain literature. The final chapter of the section, "Deaf Gain: Beyond Deaf Culture," inquires about the deaf gains that occur among those who do not always identify as culturally Deaf. The authors, Irene W. Leigh, Donna A. Morere,

and Caroline Kobek Pezzarossi, question the assumption that Deaf Gain is largely due to the use of a visual-spatial language, given that the majority of individuals who are deaf and hard of hearing do not use sign language. This chapter encourages a closer examination of the lives of all deaf and hard-of-hearing individuals to identify instances of sensory and social gains.

The final part, “Creative Gains,” turns the volume’s focus toward Deaf Gain within the arts. One of the most significant gains has been within the field of architecture, known as DeafSpace. Architect Hansel Bauman, in “DeafSpace: An Architecture toward a More Livable and Sustainable World,” examines the ways in which DeafSpace design principles result in an architectural pattern language that increases the sensory reach and sense of belonging and connection among a building’s inhabitants. Bauman suggests ways that the highly collaborative DeafSpace architectural movement deepens current trends toward greater sustainability and livability. Deaf Gain within the design process is also the focus of Antti Raike, Suvi Pylvänen, and Päivi Rainò’s chapter, “Co-design from Divergent Thinking.” These authors use specific case studies in which design has taken place in a collaborative context with Deaf users of the design products. In addition to architecture and design, Deaf Gain can be registered within literature, music, performance, and the visual arts. Christopher Krentz explores what he calls “the hearing line” in “The Hearing Line: How Literature Gains from Deaf People.” Inspired by W. E. B. Du Bois’s notion of the color line, Krentz examines ways in which there is a hearing line within literature that cuts through such canonical texts as *Moby-Dick*, as well as the work of Deaf American writers. There is Deaf Gain in written literature, yet there are also profound gains in the very question of what constitutes literature. This challenge comes in the form of signed-language literature. Rachel Sutton-Spence’s chapter, “Deaf Gain and Creativity in Signed Literature,” explores signed poetry through the works of British Sign Language poets, demonstrating unique notions of anthropomorphism and embodied metaphor in their work. Although poetry is often considered to be closely aligned with music, such phonetic properties as rhyme and rhythm have their visual counterparts. This is not to say that deaf people do not gravitate toward music. Summer Loeffler’s chapter, “Deaf Music: Embodying Language and Rhythm,” wonders aloud whether Deaf culture is the only culture on the planet without its own musical tradition. She answers this rhetorical question with ample evidence of ways in which Deaf music challenges the essentialist notion that music is tied to sound. Finally, this section concludes with the voices of Deaf artists themselves. In order to examine the role of Deaf Gain within the artistic process, Jennifer Grinder Witteborg, in “Deaf Gain and the Creative Arts: Interviews with Deaf Artists,” has interviewed a number of Deaf artists and performers on their perspectives of Deaf Gain and the artistic process.

The volume then concludes with an Afterword by Tove Skutnabb-Kangas, an internationally recognized leader in promoting linguistic human rights for

minority languages. Her concluding thoughts leave the reader with a call for a more radical embrace of biolinguistic diversity as one of the great human resources. For those interested in promoting greater human well-being, taking on the cause of minority languages and signed languages is one critical area of engagement in an age when languages are disappearing as fast as endangered species. As Skutnabb-Kangas notes, in biolinguistic-diversity advocacy, Deaf Gain finds a home of kindred spirits and communal engagement for the betterment of the world in maintaining a robust diversity.

Conclusion: A New Definition of Hearing Loss

Having dislodged the four-letter word *deaf* from its essentialist roots based in hearing loss, we have shifted the paradigm to the point where the words *hearing loss* take on a different meaning. In this sense, “hearing loss” refers to the loss that hearing people experience by not being open to the benefits, contributions, and advances that arise through deaf ways of being. Classic effects of hearing loss are a lack of comfort with eye contact, an inability to use the body as a means of communication, a long-standing misunderstanding of the nature of human language, and a tendency to maintain monolingualism throughout one’s life. With ideological rehabilitation, the negative effects of hearing loss can be mitigated.

There is much that can be said about sign languages and signing communities, and much that we need to learn. But what we do know is that there exists a continuum of different social responses to the presence of deaf people. One response is to attempt to cure deafness or eliminate it. And there is a long history of attempted cures of deafness, ranging from religious healing to herbal cures to surgical cures such as the cochlear implant. Studies of deafness form an important part of genetic work, including attempts to both understand and alleviate genetic causes of deafness. Putting aside these attempts at removal of deafness and looking instead at adaptations, we see another continuum. On one end of the scale, we can place modern Western societies, with national communities of deaf people who consider themselves linguistic and cultural minorities and advocate for the same rights as similar minorities. On another end of the scale, we can place village communities in which the majority of people, both deaf and hearing, have learned to sign. In between, as noted in Kusters’s chapter in this volume, are numerous ways to include deaf people and sign language in human societies. Both national and village communities have one thing in common: they show that human beings and societies are able to adopt to bodily difference, even to the extent of creating and adopting new modalities in which to express language. These societies expose the arbitrariness of societies built around the concept of normalcy. Societies organized around the restrictions of a particular type of walking, speaking, hearing body are artificial constructs. What is “natural” is the adaptation of human communities to difference.

Scholars are now realizing that deaf people have brought to the world unique

ways of living and being as visual beings. The multiple diversities of human knowledge have become increasingly important, as seen in a world where multinational corporations seek the medical knowledge of small Indian tribes in the Amazon rain forest. Forms of knowledge previously thought to be marginal are now being recognized as potentially significant in their contributions to humanity. In the case of deaf people, we go beyond documenting the factual knowledge of a particular culture to discovering new ways of being, to an understanding of a different cognitive take on the world. This directly challenges ideologies of normalcy and, more significantly, presents a strong argument against attempts to reduce genetic variations in human populations. In our unreflective haste to remove disability, are we ready to eliminate diversity from the human race? Deaf Gain, neurodiversity, and other attempts to redefine how we see the human form are not peripheral issues. In this book, we show how bodily diversity is central to our society's ongoing attempts to understand what it means to be human.

Notes

1. Aaron Williamson is a British performance artist. He asked this question during a lecture to a graduate class in deaf studies at Gallaudet University in 2002. His work can be found at aaronwilliamson.org.
2. A note on usage: as has become customary in deaf studies, the lowercase *deaf* refers to the audiological condition of deafness, whereas the capitalized *Deaf* refers to people who identify with the culture of deaf individuals.
3. For more on the notion of "languaculture," see Thomas Horejes, *Social Constructions of Deafness: Deaf Linguacultures in Education* (Washington, D.C.: Gallaudet University Press, 2013).
4. H-Dirksen L. Bauman and Joseph J. Murray, "Reframing: From Hearing Loss to Deaf-Gain," *Deaf Studies Digital Journal* 2 (2009); and H-Dirksen L. Bauman and Joseph Murray, "Deaf Studies in the Twenty-First Century: Deaf-Gain and the Future of Human Diversity," in *Oxford Handbook of Deaf Studies, Language, and Education*, ed. Marc Marschark and Patricia Spencer, vol. 2 (Oxford: Oxford University Press, 2010).
5. See Lennard J. Davis, *Enforcing Normalcy: Disability, Deafness, and the Body* (New York: Verso, 1995).
6. See <http://www.usc.edu/uscnews/experts/635.html> for Loeb's description of himself as the coinventor of the cochlear implant. The description appears in a letter to the editor of the *Atlantic Monthly*, December 1993, 8.
7. Ad Hoc Expert Group on Endangered Languages, "A Methodology for Assessing Language Vitality and Endangerment" (UNESCO, 2003), a document submitted to the International Expert Meeting on UNESCO Programme Safeguarding of Endangered Languages, Paris, March 10–12, 2003. Retrieved from <http://www.unesco.org/new/en/culture/themes/endangered-languages/language-vitality/>.
8. Janne Boye-Niemelä, "The Current Status of Danish Sign Language" (paper presented at the conference "Sign Languages as Endangered Languages," World Federation of the Deaf and European Union of the Deaf, November 6–9, 2011, in Ål, Norway).
9. Harry Knoors and Mark Marschark, "Language Planning for the Twenty-First Century: Revisiting Bilingual Language Policy for Deaf Children," *Journal of Deaf Studies and Deaf Education* 17, no. 3 (November 2012): 291–305.
10. Daniel Nettle and Suzanne Romaine, *Vanishing Voices: The Extinction of the World's Languages* (New York: Oxford University Press, 2000), 13.

11. L. J. Gorenflo et al., "Co-occurrence of Linguistic and Biological Diversity in Biodiversity Hotspots and High Biodiversity Wilderness Areas," *Proceedings of the National Academy of Sciences (PNAS)*, May 7, 2012, doi:10.1073/pnas.1117511109.
12. Ibid.
13. Tove Skutnabb-Kangas, Luisa Maffi, and David Harmon, *Sharing a World of Difference: The Earth's Linguistic, Cultural, and Biological Diversity* (Paris: UNESCO, 2003), 42.
14. Ibid.
15. Ella Mary Stack, "Aboriginal Pharmacopoeia" (occasional paper no. 10, Northern Territory Library Service, Darwin, Australia, 1989).
16. *América Indígena* 47, no. 2 (1987).
17. Skutnabb-Kangas, Maffi, and Harmon, *Sharing a World of Difference*, 36.
18. Nettle and Romaine, *Vanishing Voices*, 61.
19. Ibid., 60.
20. These ideas were raised by David Armstrong in "Deaf Gain in Evolutionary Perspective" (presentation at "Difference as Diversity," conference at Gallaudet University, Washington, D.C., April 2010). See also Armstrong, this volume.
21. D. P. Kelsell et al., "Connexin 26 Mutations in Hereditary Non-Syndromic Sensorineural Deafness," *Nature* 387 (May 1, 1997): 80–83; Christian G. Meyer et al., "Selection for Deafness?" *Nature Medicine* 8, no. 12 (2002): 1332–33, doi:10.1038/nm1202-1332.
22. Douglas Baynton, "Disability and the Justification of Inequality in American History," in *The New Disability History: American Perspectives*, ed. Paul K. Longmore and Lauri Uman-sky (New York: New York University Press, 2001), 33–57.
23. Tavian Robinson, "We Are of a Different Class: Ableist Rhetoric in Deaf America, 1880–1920," in *Deaf and Disability Studies: Interdisciplinary Perspectives*, ed. Susan Burch and Alison Kafer (Washington, D.C.: Gallaudet University Press, 2010).
24. Thomas Armstrong, *Neurodiversity: Discovering the Extraordinary Gifts of Autism, ADHD, Dyslexia, and Other Brain Differences* (Cambridge, Mass.: Da Capo Press, 2010), 3.
25. Matthew H. Schneps, L. Todd Rose, and Kurt W. Fischer, "Visual Learning and the Brain: Implications for Dyslexia," *Journal of Mind, Brain, and Education* 1, no. 3 (2007).
26. Ibid.
27. Annie Murphy Paul, "The Upside of Dyslexia," *New York Times*, February 4, 2012, <http://www.nytimes.com/2012/02/05/opinion/sunday/the-upside-of-dyslexia.html>.
28. Hans Asperger, quoted in Joan James, "Singular Scientists," *Journal of the Royal Society of Medicine* 96, no. 1 (January 2003): 36–39.
29. T. Armstrong, *Neurodiversity*, 204.
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45. Thomas Edison, quoted in Theresa Collins and Lisa Gitelman, *Thomas Edison and Modern America: An Introduction with Documents* (New York: Palgrave Macmillan, 2002), 42.
46. Bruno Kahne, *Deaf Tips: Twelve Lessons from the Deaf World to Improve Your Communication in Your Personal, Social, and Professional Life* (CreateSpace Independent Publishing Platform, 2013).
47. Signed languages have also been developed in many indigenous communities, from the Walpiri in Australia to the Assiniboiné tribe in North America. Plains Indian sign language has also been documented. Although these languages may not be as fully developed as native languages of deaf communities, they are nonetheless testimony to the human nature of signed languages. See Adam Kendon, *Sign Languages of Aboriginal Australia: Cultural, Semiotic, and Communicative Perspectives* (Cambridge: Cambridge University Press, 1988); and Brenda Farnell, *Do You See What I Mean? Plains Indian Sign Talk and the Embodiment of Action* (Lincoln: University of Nebraska Press, 2009).
48. It is important to note that individuals throughout history have observed the fully grammatical nature of signed languages, including John Bulwer, *Chirologia; or, The Natural Language of the Hand* (1644); Desloges, "Deaf Person's Observations" (1779); and Auguste Bebian, *Essai sur les sourds-muets et sur le langage natuel* (1817), among others. Nevertheless, the full case for the fully human status of signed languages was not made until William Stokoe's work in the 1960s.
49. William Stokoe, *Language in Hand: Why Sign Came before Speech* (Washington, D.C.: Gallaudet University Press, 1999).
50. H-Dirksen L. Bauman, "Listening to Deaf Studies," introduction to *Open Your Eyes: Deaf Studies Talking*, ed. H-Dirksen L. Bauman (Minneapolis: University of Minnesota Press, 2008).
51. Melissa Malzkuhn, personal communication, July 23, 2012.
52. H-Dirksen L. Bauman, Jennifer Nelson, and Heidi Rose, eds., *Signing the Body Poetic: Essays in American Sign Language Literature* (Berkeley: University of California Press, 2006).

53. See H-Dirksen L. Bauman, Jennifer Nelson, and Heidi Rose, introduction to *ibid.*, 6.
 54. H-Dirksen L. Bauman, "Redesigning Literature: The Cinematic Poetics of American Sign Language Poetry," *Sign Language Studies* 4, no. 1 (Fall 2003); and "Getting Out of Line: Toward a Visual and Cinematic Poetics of Sign Language Literature," in Bauman, Nelson, and Rose, *Signing the Body Poetic*.
 55. Oliver Sacks, *Seeing Voices* (New York: Vintage, 1990), 90.
 56. The film *Gallaudet* can be seen at movie.gallaudet.edu. This film was directed by Ryan Commerson, filmed by Wayne Betts Jr., and produced by H-Dirksen L. Bauman.
 57. S. W. Cook, Z. Mitchell, and S. Goldin-Meadow, "Gesture Makes Learning Last," *Cognition* 106 (2008): 1047–58.
 58. Frank Wilson, *The Hand: How Its Use Shapes the Brain, Language, and Human Culture* (New York: Vintage, 1998).
 59. Marilyn Daniels, "Seeing Language: The Effects over Time of Sign Language on Vocabulary Development in Early Childhood Education," *Child Study Journal* 26 (1996): 193–208; Laura Felzer, "A Multisensory Reading Program That Really Works," *Teaching and Change* 5 (1998): 169–83; Marilyn Daniels, "Happy Hands: The Effects of ASL on Hearing Children's Literacy," *Literacy Research and Instruction* 44 (2004): 86–98.
 60. See "Historic Sign Language Films and the Preservation of American Sign Language," a special issue of *Sign Language Studies* 4, no. 3 (Spring 2004).
 61. Microsoft has filed a patent to explore the use of ASL with a Kinect device. Microsoft Corporation, gesture keyboarding, US Patent 20,100,199,228, filed February 23, 2009, and issued August 5, 2010. See Tim Goldman, "Patent Shows Kinect Recognizing Sign Language," *Escapist*, August 2010, <http://www.escapistmagazine.com/news/view/102637-Patent-Shows-Kinect-Recognizing-Sign-Language>.
 62. Bauman and Murray, "Deaf Studies in the Twenty-First Century," 210–25.
 63. "Human/Need/Desire," *Switched at Birth*, season 2, episode 6, directed by Norman Buckley, ABC Family, aired on February 11, 2013.
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