Deaf Studies in the 21st Century: "Deaf-gain" and the Future of Human Diversity

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Abstract

This article provides an overview of the field of Deaf Studies, as it has emerged in the latter part of the 20th century, and then provides a new rhetorical frame for future directions that this field may take in the 21st century. Historically, Deaf Studies and Deaf communities have been put on the defensive, as they have been constructed within frames of "deafness as lack" and "disability." Within these constructions, attempts to rid society of deafness have been conducted as "progress," whether through 19th- and early 20th-century eugenics, or contemporary medical interventions and denial of signed languages in deaf education. The result has been a precipitous decline in the usage of sign language languages in deaf education. The result has been a precipitous decline in the usage of sign language among deaf children at a time when, ironically, research shows cognitive benefits of sign language for hearing children. A vigorous response to the human right of sign language education for deaf children can best be found in reframing deafness, not as a lack, but as a form of human diversity capable of making vital contributions to the greater good of society. We refer to this notion as the opposite of hearing loss: Deaf-gain. This article explores the cognitive, creative, and cultural aspects of Deaf-gain, with specific examples, from discoveries about the human capacity for language, advances in visual learning, and creative insights into architecture, literature, and collectivist cultural patterns. In the end, deaf people may be seen through a lens of human diversity and, therefore, worth valuing as they are, without recourse to 'normalization.'

Keywords: bioethics, Deaf-gain, Deaf studies, human diversity, language death

What Is Deaf Studies?

The academic field of Deaf Studies is comprised of interdisciplinary approaches to the exploration of Deaf individuals, communities, and cultures as they have evolved within a larger context of power and ideology. Deaf Studies curricula are likely to include perspectives from, among others, anthropology, linguistics, literary theory, bilingual education, and a host of cultural studies practices including gender, disability, and ethnic studies. Although this wide diversity of disciplines offers multiple perspectives, the field's fundamental orientation is derived from the notion that deaf people are not defined by their lack of hearing, but by linguistic, cultural, and sensorial ways of being in the world.

Building on this central precept, the field of Deaf Studies grew from a few courses in the 1970s to offer its first degree-granting programs in the early 1980s at Boston University and California State University at Northridge. Since that time, Gallaudet University established an undergraduate Deaf Studies degree in 1994 and an MA degree in 2002. Bristol University also offers undergraduate and graduate degrees in Deaf Studies. In addition to a growing number of degree-granting programs in Deaf Studies, national and international conferences, peer-reviewed journals, and a growing body of research and publications continue to shed light on the unique linguistic, cultural, and epistemological implications of the formation of a Deaf variety of the human race.

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As the field of Deaf Studies matures into the 21st century, it finds itself having to move beyond the initial tasks of explaining Deaf culture and identity to confronting questions about the very reasons Deaf people and their sign languages should continue to exist. This chapter will first provide a brief overview of the formation of Deaf Studies in the late 20th century, then will examine current and future trajectories of Deaf Studies that include a fundamental reframing of the meanings of "deaf" from loss to gain.

Deaf Studies in the Late 20th Century

The emergence of the field of Deaf Studies was brought about by the convergence of two transformative occasions. The first was the revelation of the full linguistic status of sign languages. Once the linguistic nature of sign languages took hold, a very different construction of the users of these languages appeared warranted. In the 1970s, Deaf people began to see themselves as belonging to a linguistic minority rather than a group of people bonded through disability. Soon, a body of work and flurry of cultural productivity emerged that worked toward the rewriting of Deaf identity from pathology to culture. To understand this culture, a body of inquiry soon developed. Deaf culture needed Deaf Studies to explore itself.

Although the validation of signed languages and the formation of Deaf cultural rhetoric are cited as the immediate causes of the formation of Deaf Studies, the remote, but nonetheless, integral cause is the emergence of ethnic and minority studies in the last quarter of the 20th century. These minority studies movements emerged out of a tradition of Cultural Studies that was set in motion within the Birmingham School of Cultural Studies, where a critique of class structures led scholars like Hoggart (1957), Williams (1958, 1961), and Hall (1973) to recognize that traditional curricular offerings were manifestations of the ideologies of the cultural elite. In the wake of the critique of class within Marxist

(Erting, Johnson, Smith, & Snider, 1993), the reconceptualization of identity along an axis of culture rather than pathology (Lane, Hoffmeister, & Bahan, 1996; Padden & Humphries, 1988), and a critique of the dominant ideological structures that have created unequal power relations (Davis, 1995; Lane, 1992). This latter critical activity can be found either implicitly or explicitly throughout Deaf Studies since its inception, and may be considered a defining element of what distinguishes Deaf Studies from other disciplines that have evolved around the audiological condition of deafness. These professions, namely education and medicine, have often been in a contentious battle with Deaf Studies to define the meanings of the overdetermined four letter word: DEAF.

But this reexamination and modification has only gone so far, and at times, academic journals, books, and academic programs have adopted the name of Deaf Studies without incorporating its basic critical orientation. When research on educational or rehabilitation practices involving deaf people do not recognize the pervasive presence of power, they often reinscribe the very ideological constructions called into question by Deaf Studies. Currently, many American Sign Language (ASL) and Deaf Studies programs are housed in Speech, Language, and Hearing Sciences departments across the nation. If one perceives deaf people as being identified with hearing loss, then this would be an appropriate affiliation; yet, there is a fundamental contradiction in the idea of putting the study of a natural human language and social formation within departments that focus on pathological constructions of sign languages and their users. To put this into perspective, it is difficult to imagine placing Native American, Hispanic, or African American Studies in academic journals and departments with a medicalized view of these groups of people. Indeed, although sign language linguists have contributed to a fundamental redefinition of the human capacity for language, the field of Deaf Studies still finds

(Furman, Goldberg, & Lusin, 2007). Currently, ASL is the second most-taught language in community colleges and the fourth most-taught in 4-year colleges and universities (Furman et al., 2007). This growth of interest in ASL has also brought about an increase in the numbers of Deaf Studies degrees, programs, and courses, given the integral connection of language and culture. With the proliferation of Deaf Studies programs and scholarly output, the field of Deaf Studies is clearly on solid footing and looking forward to continued growth. However, the popularity of ASL and Deaf Studies has been primarily among hearing students, while deaf children are increasingly not educated in bilingual–bicultural academic programs, thus resulting in the cultural paradox that ASL is promoted for hearing individuals but may be discouraged among deaf individuals (Bauman, 2008). In fact, as will be discussed later, the very existence of several sign languages and their communities may be at risk. As a result, the future of Deaf communities and their languages may rest in how well Deaf Studies scholars can articulate the value of maintaining vibrant Deaf communities, so that they are not washed away in the tidal wave of normalizing practices that are gaining momentum in the early 21st century.

In what follows, we examine the position that Deaf Studies scholars now find themselves in—in an existential defense of why deaf people and their languages should continue to exist. To approach this question, it is important to look at past and current discourses of normalcy and how they have affected Deaf lives. We then outline a shift in the field of Deaf Studies from interrogation of deafness to explorations of Deaf ways of being in the world as ways that contribute to the cognitive, creative, and cultural diversity of the human experience.

Deaf Studies in the 21st Century: Lessons from the History of Normalization

Although 21st-century threats to the future vitality of Deaf communities and their languages are very real, they are by no means a recent development. The 19th century saw the development of the concept of *normalcy* emerge from statistical science and its application to human beings and human societies via tests of mental and physical health (Baynton, 2000; Davis, 2006). This concept of a norm replaced an earlier concept of the "classical ideal," the difference being, Davis (2006, p. 6) notes, that "the majority of the population must or should…be a part of the norm." Institutions designated for the education and treatment of deaf people embodied normalcy as a

hearing and speaking subject, with the deaf and signing person relegated to the category of "oral failures." This was a dramatic change from earlier understandings of sign language, which was understood by antebellum educators as a natural language, one that elevated its users by bringing to them the word of God (Baynton, 1996). This change in the status of sign language was paralleled by a reconceptualization of deaf bodies into potential threats to national societies. In the context of evolutionary science and the rise of fears of the infection of national bodies by "hereditary defectives," fears of a "deaf-mute race" were raised (Bell, 1883). The final decades of the 19th century saw a transatlantic debate among scientists, educators, and legislators over the purported menace of deaf people marrying other deaf people (Murray, 2002; Van Cleve & Crouch, 1989).

In both cases, international Deaf leaders responded to forces of normalcy by redefining what it meant to be normal. Nineteenth-century Deaf leaders saw much value in teaching deaf children to speak but maintained that normalcy lay in full citizenship, and this could only come through an education in sign language. At national and international meetings, deaf leaders consistently claimed sign language was the best means to educate deaf children. This was not only an end in itself, but was a means of forming deaf children into productive, tax-paying adult citizens. This argument accepted the premises of larger social debates on citizenship but pointed to an alternate path to achieving the same aims. A similar reinscription of larger social discourses to fit Deaf ways of being can be seen in the opposition to interventions in Deaf people's choice of marriage partners. Their opposition was framed partially as resisting restrictions on the rights of autonomous liberal subjects, especially male subjects. Why, asked Deaf leaders, should deaf people be discouraged from marrying one another when it was precisely Deaf to Deaf marriages that carried the greatest chance of happiness for the couple? If it was in the best interests of society to have stable families, then Deaf people should be allowed to marry one another. In both cases, normalcy was defined as the ability to participate in larger social discourses, but as sign-language-using Deaf people (Murray, 2007).

This is not to say Deaf people were always successful at resisting normalizing pressures. Oral education, if not necessarily the purely oral variant, was the dominant method of education in Western societies for decades. In addition, Finland banned the marriage of certain categories of deaf people for half

of the 20th century, with provisions made for sterilization before marriage rights would be granted (Salmi & Lakso, 2005, p. 503; Wallvik, 1997, pp. 284–288). In 1930s Germany, deaf people were also victims of a law that sought to sterilize those seen as hereditarily diseased, carried out with the complicity of teachers and administrators at schools for deaf people and Protestant pastoral workers who worked with deaf people (Biesold, 1999). Even here, however, deaf people adopted the larger rhetoric of eugenicists concerned with promoting healthy national populations. Early 20th-century Deaf Americans put forth images of themselves and their children as healthy and fit (Burch, 2002), adapting eugenic ideologies to their deaf bodies. Deaf people put forth reinterpretations of eugenic imagery that could fit their lives.

What emerges from these histories is the continuous interaction between Deaf ways of living in the world and larger social discourses, some of which seek to redefine or eliminate these ways of living. How society views deaf people may be a bellwether of how it manages difference. Deaf people are part of a small population subgroup in continuous interaction with an existing apparatus of pedagogical and medical professionals. The existence of bodies of authority ready to act upon deaf bodies makes deaf people an early target for policies of normalization. The existence of politically organized, longstanding Deaf communities in Western countries provides a space for counter-discourses to emerge. The lesson from Deaf history may be that we see deaf people as the canary in the coal mine of social engineering.

Deaf Studies in the 21st Century: Existential Threats

Despite the 20th-century advances made by Deaf Studies, the terrain is again shifting. New technologies of normalization are being applied to deaf people. Whereas the first 30 years of Deaf Studies could be summed up by the effort to redefine Deaf identity from pathology to cultural identity, the future of Deaf Studies finds itself facing the very real consequences of bio-power (Foucault, 1990). Whereas the eugenic drive to normalcy dealt with the structural dissolution of the Deaf community, the 21st-century Deaf community faces rapid advances in technologies that stand to reduce the numbers of this community.

The questions, it seems, are even more challenging for Deaf Studies than for other minority studies fields. No one discusses whether or not, for example, if women will continue to exist, or if African

Americans will continue to exist in future generations; however, the key question for Deaf Studies is the fundamental existential question—*why should deaf people and their sign languages continue to exist?*

Indeed, this is a difficult question to have to ask, and some may rightly feel offended, as if anyone had to defend their right to exist, a right that precedes all others. Yet, this question is being asked on an everyday basis, by genetic counselors and prospective parents, in the House of Commons, and on Deaf Studies blogs. For Deaf communities, the implications of technology and biomedical interventions have been taken up in theatrical productions, lectures, community forums, and video blogs globally (Burke, 2007; Frontrunners, 2005; Haualand & Otterstedt, 2007; Murray, 2006). Deaf people are acutely attuned to the shifting social conditions under which they are operating.

Within this long history of normalization, we may now see the current threats to sign language and deaf bodies in context. In following sections, we provide an overview of the current and future threats to signing Deaf communities, which take the form of rapid increase in cochlear implantation coupled with nonsigning educational settings, and advances in genetic options that allow parents to avoid having deaf babies in the first place.

The Threat to Sign Languages

Concern has been raised at the rapid decrease of early exposure to sign language (Snoddon, 2008), which could lead toward a contraction and potential endangerment of these very sign languages. This concern was echoed by science writer Michael Chorost in a recent autobiographical text revolving around the use of cochlear implants: "When twenty-second century historians write the history of cochlear implants and the end of ASL…they will not find malice. Not deliberate genocide. Only thousands of separately made rational decisions gradually accumulating into a computational tidal wave so overwhelming that even the clearest eyed observers could only stand by in helpless wonder and sorrow" (Chorost, 2005, p. 144). Chorost's concern is buttressed by the analysis presented by Trevor Johnston in his article "W(h)ither the Deaf Community" (2004/2006), which has generated considerable attention, given its dire prediction of pending language death for Australian Sign Language (Auslan). Johnston cites declining rates of deafness at birth, increased rates of cochlear implantation, increased educational placements that do not incorporate Auslan, and advances in genetic

screening that may allow parents to avoid having deaf children altogether. Johnston alerts readers that cochlear implantation rates of 75% and the systematic implementation of genetic knowledge to avoid deaf births "could effectively bring an end to the community within half a lifetime" (p. 160). While others have predicted a much slower decrease and the ultimate survival of Auslan (Carty, 2006; Hyde, Power, & Lloyd, 2006), there is a general consensus that, due to cochlear implantation and educational approaches that do not use signed languages, the early exposure to a fully developed natural sign language for deaf children is diminishing. As Johnston writes, "The 'negative' impact of the cochlear implant program, on the future growth of the signing Deaf community must be deemed to be significant, irreversible, and well under way" (Johnston 2006; p. 157–158.).

Although Johnston is clearly correct in noting the impact that implants have on the Deaf community, an important distinction must be made in that implants themselves are not the threat, but rather the educational methods that have been designed for children with cochlear implants. The discredited myth that using one language will hinder a child's ability to use another language has proven to be especially tenacious when the languages in question are signed and spoken. This belief is entrenched within certain geographical areas such as Australia, Denmark, and Ontario in Canada.

The President of the Danish Deaf Association reports near 99% infant and childhood cochlear implantation with a corresponding precipitous decline in enrollment in signing deaf schools (Bergmann, personal communication, November 16, 2008). As of 2008, the Skolen på Kastelsvej (Copenhagen Deaf School) does not have enough students for separate classes in grades 1–4, a situation reflected in another center school (Johannsen, personal communication, December 29, 2008). With such a rapid decline in sign language instruction and signing deaf peers, deaf families with deaf children have migrated to Malmo, Sweden, for sign language–based instruction.

Similarly, Ontario, Canada, has witnessed a rapid contraction of early childhood sign language–based education. Snoddon (2008, p. 583) notes that, "In Ontario, public support for learning ASL has not been available for infants and young children with cochlear implants." This significant decrease in exposure to sign language has been attributed partly to the rise of audio-verbal therapy (AVT), which emphasizes spoken language development through intensive speech therapy in conjunction with amplification (Cripps & Small 2004). According to Snoddon, "Ontario's two children's hospitals require deaf children who undergo cochlear implant surgery to enroll in AVT. According to the senior program consultant of the IHP, auditory-verbal therapists refuse to treat children who are learning signed language" (Snoddon, 2008, p. 584). Such systematic denial of signed language to deaf children is devastatingly ironic, given the concurrent explosion of interest in ASL for hearing infants.

Despite overwhelming numbers of deaf children enrolled in nonsigning educational environments early in their lives, they often do not remain there. According to Akamatsu, Musselman, and Zweibel (2000, pp. 264–266), "93% of severely to profoundly deaf children in Ontario had initially been enrolled in auditory–oral intervention programs, and 67% of deaf preschool children had been educated orally; the figures dropped to 58% for children in elementary school and 31% for students in high school." These statistics suggest that deaf individuals may gravitate toward a sign-based education and a signing community later in life. Clearly, this would have an impact on the nature of the language; with so few native users of the language, this could conceivably lead to a phenomenon similar to revitalization programs of Native American languages.

The Threat to Deaf Bodies

Research into the genetic causes of hearing loss has progressed to the point at which more than 100 genes for deafness have been mapped, with one, Connexin 26, identified as the most productive gene for causing deafness (Arnos 2003). Much current research is in the identification stage, studying which genes affect hearing and how. As with any medical technology, the ultimate aims are prevention and cure. Thus, research into genetics has the potential for the ultimate normalization of the deaf body: its elimination. Although this is not yet imminent, researchers in the field have "raised hopes that the first steps towards implementing a cure for [hearing loss] is just around the corner" (Brownstein & Avraham, 2006, p. 199). If this were to happen, it would likely start in developing countries, since access to genetic testing and abortion are less accessible in the countries of the global South. Genetic causes are responsible for an estimated 68% of cases of children born with a hearing loss in the United States (Morton & Nance, 2006), and researchers are exploring strategies to decrease the incidence of genetic hearing loss (Kochhar, Hildebrand, & Smith, 2007),

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a particular national Deaf community, and along
with it, the viability of that community and its sign
language (Carty, 2006; Johnston, 2006, p. 165).

A definition of normalcy based on genetic
manipulation would preclude deafness from being
an acceptable lifestyle choice. In this view, it would
not be socially acceptable for a person to choose to
have a deaf child. We can see this in strident reac-
tions in the global mediascape and among members
of the general public whenever stories appear of deaf
people wanting deaf children (Gray, 2008, Mundy,
2002). We already see this attitude being read
into legislation in Clause 14(4) of the United
Kingdom's Human Fertilisation and Embryology
Act (HFEA). The HFEA can be interpreted to pro-
hibit the selection of a deaf embryo over a non-deaf
one. The clause reads

(9) Persons or embryos that are known to have a
gene, chromosome, or mitochondrion abnormality
involving a significant risk that a person with the
abnormality will have or develop—(a) a serious
physical or mental disability, (b) a serious illness, or
(c) any other serious medical condition, must not be
preferred to those that are not known to have such an
abnormality (Office of Public Sector Information,
The National Archives, 2008)

When the HFEA was submitted as a bill to Parliament,
language in the explanatory notes and a debate in
the House of Lords made it clear that the idea of
deaf embryos was an important inspiration for the
clause. A Lord commented, "I hope that your
Lordships will be pleased that the deliberate choice
of an embryo that is, for example, likely to be deaf
will be prevented by Clause 14" (Bryan, 2007).
Academics and community activists in and outside of

within himself or herself the potential to have a deaf
child. In this case, we see a glimpse of a time when
the concept of normalcy is projected into the future:
one's potential genetic legacy can determine whether
or not one is allowed to exist (Burke, 2006; Noble,
2003). How the case of genetics and deafness plays
out in the coming *years* will gives us insight into the
coming· *decades*, when social policy, popular opin-
ion, and genetic technology will reshape standards
of normalcy for all human beings.

In this and other existential debates, Deaf Studies
has a role to play that goes beyond those issues
immediately confronting deaf people. Science writer
Michael Chorost refers to himself as a cyborg,
because his cochlear implant mediates between his
being and the world, and he suggests his experience
will become common as technology supplements
the organic functions of the human body (Chorost,
2005). The genetics of deafness will not be determi-
native of how humanity confronts genetic engineer-
ing, but the strategies and discourses used in the
contestations of normalcy that are emerging in this
case may very well reappear when applied to other
instances of genetic diversity.

Deaf-gain: Cognitive, Cultural, and Creative Diversity

Given the threats posed to the signing Deaf com-
munity by the medical and educational institutions
of normalization, the Deaf community and Deaf
Studies scholars find themselves cornered into the
fundamental existential question: Why should deaf
people continue to exist? Indeed, on what grounds
can one argue for the preservation of what most
consider a disability? As Burke (2006) notes, such
bioethical arguments hinge on the demonstration of
the intrinsic and extrinsic value of Deaf communi-
ties and their languages. Intrinsic arguments seek to
prove the worth of deaf people and sign languages
for their own good, whereas extrinsic arguments
demonstrate the useful contributions of deaf people

defensive. However, scholars are beginning to recognize that the most vigorous response would be to cease arguing against medical and educational institutions of normalization, and instead, go on the offensive by reframing representations of deafness from sensory lack to a form of sensory and cognitive diversity that offers vital contributions to human diversity. Within the frame of human diversity, Deaf Studies scholars are inquiring into the insights that may be gleaned from deaf people whose highly visual, spatial, and kinetic structures of thought and language may shed light into the blindspots of hearing ways of knowing.

The overarching extrinsic value of Deaf communities and their languages, then, may best be explained by the emerging discipline of biocultural diversity, a field that has arisen as an area of transdisciplinary research concerned with investigating the links between the world's linguistic, cultural, and biological diversity as manifestations of the diversity of life. The impetus for the emergence of this field came from the observation that all three diversities are under threat by some of the same forces, and from the perception that loss of diversity at all levels spells dramatic consequences for humanity and the earth (Maffi, 2005). A body of research has begun to link the decreases in biocultural and linguistic diversity, noting that when an indigenous language dies, the unique knowledge of the local environment, developed over centuries, dies with it (Harmon, 2002; Maffi, 2005; Skutnabb-Kangas, 2000). Most predictions suggest that within the next century, half of the world's 6,000 spoken languages will disappear, which is at the rate of a language death every two weeks (Crystal, 2002). There are currently no statistics about the number of signed languages in the world, and clearly, when a signed language dies, there may not be the same amount of biological and environmental knowledge lost with it. However, in the same vein, Deaf Studies scholars may begin to add to the notions of linguistic and biodiversity new categories of diversity foregrounded by signed languages—namely, cognitive, cultural, and creative diversity.

Once we place Deaf communities and their languages within the framework of biocultural diversity, a new frame emerges. The task of Deaf Studies in the new century is to ask a fundamental question: How does being Deaf reorganize what it means to be human? Indeed, what dramatic consequences would arise from the (neo)eugenic drive toward normalization? Embracing deaf people and their languages will invariably lead toward a deeper understanding of the human proclivity for adaptation. In the face of sensory loss, we may better appreciate the dynamic and pliable nature of the mind and the human will to communicate and to form community. In this light, deafness is not so much defined by a fundamental lack, as in *hearing loss*, but as its opposite, as a means to understand the plenitude of human being, as *Deaf-gain*.[1]

Deaf-gain, as we explore later, is the notion that the unique sensory orientation of Deaf people leads to a sophisticated form of visual-spatial language that provides opportunities for exploration into the human character. In this spirit, the Gallaudet University's Vision Statement commits to promoting "the recognition that deaf people and their sign languages are vast resources with significant contributions to the cognitive, creative, and cultural dimensions of human diversity" (http://www.gallaudet.edu/mission.xml). In what follows, contemporary and future directions for each of these forms of human diversity and "Deaf-gain" will be discussed as emerging and future trajectories of the field of Deaf Studies that collectively demonstrate the value of Deaf Studies to the academy and Deaf communities to humanity.

Cognitive Diversity and Deaf-gain: Redefining the Nature of Language

The prime example of the extrinsic value of deaf people and their languages is the wholesale redefinition of language that has come about as a result of sign language studies. Just as we once thought the flat Earth to be at the center of the universe, we once assumed that language could only take the form of speech. Now that we know the brain may just as easily develop a signed as a spoken language, we must reconfigure our understanding of language, in all its complexities. Four decades of sign language research has now deepened our awareness of the nature of language—from language acquisition, structure, and more. We now know that the fundamental character of the brain is plasticity and flexibility (Petitto, Zatorre, Gauna, Nikelski, Dostie, & Evans, 2000). This redefining would not have come about without the study of signed languages, and may be seen as the initial instance of Deaf-gain. Due to the existence of signing communities, linguists and anthropologists have been able to peer into the development of language, revealing insights into the debates over the innateness or social origins of language acquisition (Sandler, Meir, Padden, & Aronoff, 2005). In addition, sign languages have also provided insight into new and revived theories of the origins of language (Armstrong, 2002;

Armstrong & Wilcox, 2007; Armstrong, Wilcox, & Stokoe, 1995; Corballis, 2003; Stokoe, 2001). The implications of these discoveries extend into the core of what it means to be human, but have yet to be applied to Deaf education. As Stokoe (2001, p. 16) wrote, "the status of deaf people, their education, their opportunities in life, and the utilization of their potential—all these could be much enhanced if we understood the way deaf people still make language may be the way the whole human race became human." As a result of the natural human proclivity to sign, hearing parents are increasingly using sign language, with results that suggest increased linguistic, cognitive, and social development.

Cognitive Diversity and Deaf-Gain: Visual Language/Visual Learning

Another significant area of future research in the area of Deaf-gain is the particular, highly developed visual ways of being in the world brought about by the unique sensory orientation of deaf individuals and communities (Bahan, 2008; Marschark, 2003). The link between enhanced visuospatial abilities and use of sign languages has been documented in studies of speed in generating mental images (Emmorey & Kosslyn, 1996; Emmorey, Kosslyn, & Bellugi, 1993), mental rotation skills (Emmorey, Klima, & Hicock, 1998), increased facial recognition skills (Bettger, Emmorey, McCullough, & Bellugi, 1997), increased peripheral recognition skills (Bavelier, Tomann, Hutton, Mitchell, Corina, Liu, & Neville, 2000), and increased spatial cognition (Bellugi, O'Grady, Lillio-Martin, O'Grady Hynes, Van Hoek, & Corina, 1989; see also Chapter 30, this volume). We may take these indications of increased visual-spatial cognition and develop them into future research into practices of visual learning for all sighted individuals. The benefits may be far reaching, for as Stokoe recognized, "vision may have an advantage, for it is neurologically a richer and more complex physiological system than hearing. Sight makes use of much more of the brain's capacity than does hearing" (p. 20). Given the drive to diversify education along the lines of "multiple intelligences" (Gardner, 1993), it would only make sense that the most visually oriented of all humans would take the lead toward future experimentation in visual learning.

As testimony to the promises of the field of visual language and visual learning, the National Science Foundation recently funded a Science of Learning Center at Gallaudet University to "gain a greater understanding of the biological, cognitive, linguistic, sociocultural, and pedagogical conditions that influence the acquisition of language and knowledge through the visual modality" (VL2, 2008; http://vl2.gallaudet.edu/). Given the immense amount of information processed visually[2] (for sighted people), it is not surprising that learning may be enhanced when pedagogies focus on transmitting visual information (Gardner, 1993; Moore & Dwyer, 1994). This project goes beyond the Deaf education model of addressing alternative (read: remedial) ways of teaching deaf people, to ask how deaf people's visual orientation to the world may be able to offer hearing people new ways of learning, even in fields traditionally dominated by an auditory/phonetic orientation, such as literacy development. Indeed, as textuality in the 21st century is becoming increasingly visual and digital, there is a trend away from traditional print-based texts to video and multimedia texts. Insights from the world's most visually acute people may provide insights on how we may all process information visually.

If this is the case, then future directions of Deaf Studies and Deaf education may have less to do with audiological loss than Deaf-gain—that is, a bilingual, visual learning environment could be so rich in processing information in multiple channels that hearing parents would want their children to go to sign language schools. In this scenario, Deaf education would give way to dual-language education, open to all who desire such a learning environment. Two examples of these types of bilingual sign language schools are P.S. 47: The ASL-English Bilingual School in New York City and The Cassato School, near Torino, Italy. Indeed, before such a paradigm shift were to take root in a systematic way, the status of sign languages as academic languages would have to be reconceived.

Cognitive Diversity and Deaf-gain: Sign Languages and Academic Discourse

Traditionally, signed languages have been seen as essentially "oral" languages as they have no written form.[3] Common wisdom holds that writing is an essential element to the development of literacy, as essential as water is to swimming. The word "literacy," after all, derives from the Greek *littere*, or "written letter." However, as Kuntze (2008) has suggested, just as definitions of language have changed in the wake of the validation of sign languages, so may the definition of literacy. Kuntze shows how one may demonstrate characteristics of literate thought in written, signed, and visual modalities. One such characteristic, notes Kuntze, is inference

making. Whether the information that an individual receives "is expressed in written language or in a different language such as ASL or in a different mode like film, the act of inference making will be necessary if one is to achieve a richer interpretation of the content" (p. 150). Clearly, one may exercise inference and other critical thinking strategies using a nonwritten language such as ASL or through watching silent films.

Evolving definitions of literacy are happening in tandem with emerging video technologies that allow greater ease of producing academic texts in ASL. Once video journals such as the *Deaf Studies Digital Journal* (dsdj.gallaudet.edu) mature, standards for academic publishing in signed languages will develop. The significance of academic discourse in ASL may be most prominent if the visual, spatial, and kinetic dimensions of the language are explored for their greatest rhetorical power. For example, imagine how precisely an ASL-fluent biology professor would describe the process of cell mitosis, using ASL's rich classifier system to indicate pairs of chromosomes splitting and cell walls dividing, so that students may witness the linguistic reenactment of a physical process, or the precise description of the French philosopher Michel Foucault's notion of the "microphysics of power," which would be shown as a dispersion of multiple sites of power throughout society, rather than a more traditional top-down model of power. The point here is that sign languages are rich in what Taub (2001) calls "metaphoric iconicity," in which complex ideas are demonstrated through visual-spatial metaphors. Such a language does not lack in abstraction, but gains in clarity of the concrete representation of complex ideas.

This unique advantage of sign languages was originally articulated by the early 19th-century teacher of the deaf, Auguste Bebian, who believed that "sign language has a superior capacity for expressing mental operations" (1984, p. 151). The difference, Bebian explains, is that spoken language is fundamentally arbitrary, but discourse in sign language, would "frequently acquire a self-evident certainty or become a manifest absurdity to all" (p. 151). Indeed, the speaking biology student could say, "the chromosomes split," whereas the signing biology student would reveal the internal mental images of her conception of how the chromosomes split visually and spatially. Similarly, the philosophy student would reveal the degree of precision of his understanding of Foucault's unique conception of "power" through the spatial arrangement of his description. Clearly, the validity of such observations

about the unique qualities of intellectual discourse in sign language now lay before the fields of Deaf education, Deaf Studies, and linguistics to explore this vein of potential Deaf-gain.

Creative Diversity and Deaf-gain: Film Language/Sign Language

Comparisons have often been made between the film language and sign languages (Bahan, 2006; Bauman, 2006; Sacks, 1990). In addition to a traditional linguistic means of describing sign languages through phonology, morphology, and syntax, one may also see fluent signers as everyday filmmakers, a skill that is heightened in the literary and dramatic uses of sign language. Indeed, when seen through lens of film grammar (Arijon, 1991), sign languages present a constant tableau of close-up and distant shots, replete with camera movements and editing techniques. Given such an intimate, cognitive relationship with cinematic grammar, we must wonder what innovations might emerge if we were to invest in the cinematic education of the next generation of deaf children. Again, no research has been conducted to this point about the potential innovations that would emerge from Deaf filmmakers, but such exploration is clearly an important trajectory for Deaf Studies to explore the potential of Deaf-gain in this area. A rigorous educational film program in deaf schools would have the added benefit of inserting a deaf public voice into popular media.

Creative Diversity and Deaf-gain: Deaf Space and the Built Environment

Although Deaf Studies is inherently interdisciplinary, one may not immediately think of architecture as an important area of creative exchange. However, in 2005, Gallaudet University hosted a two-day "Deaf Space" workshop, which resulted in what has grown into a series of Deaf Studies courses, the Gallaudet University Deaf Space Design Guide (H. Bauman, in press), and the incorporation of some key Deaf Space principles in the Sorenson Language and Communication Center at Gallaudet.

The Deaf Space project does not focus on issues of accommodation, but rather on Deaf cultural aesthetics that are embodied in the built environment. In the original workshop in 2005, a common aesthetic emerged that was described as organic, curvilinear, and bathed in light. Since that time, students and faculty have researched core issues, such as the qualities of lighting, proxemics of signers, and the tension between open, visually accessible spaces and privacy. Although the notion of Deaf space generates

from designing the optimal environment for Deaf signers, the basic precept is that Deaf space principles would create exceptional buildings for everyone, regardless of audiological status.

Further study of Deaf space and planning in the future of Deaf Studies may also lead toward an understanding of the urgency that Deaf communities may be strengthened by gaining control over the spaces where deaf individuals live. As deaf individuals are born into a dispersion among hearing families, they are subject to a diasporic condition from the onset (Allen, 2007). Indeed, one of the primary differences between the linguistic minority of sign language users and other language groups is that deaf people have never occupied a homeland. They may have congregated at residential schools, but these spaces were designed on 19th-century asylum architecture—hardly the autochthonous creation of a group with deep ties to the land. From schools to Deaf clubs, Deaf spaces have generally reflected the design of hearing architects. On a personal level, however, deaf people have a long tradition of home renovations that bear similarities—such as increasing the visual reach throughout a house—that permit greater visual communication, as well as a sense of connection (Malzkuhn, 2007). The cultural significance of home renovations and the deaf relationship to place cannot be underestimated, for as Findley (2005, p. 5) notes, "not having control of the space one is occupying is in some way demoralizing." For this reason, Deaf people have always felt the need to dream of a homeland, from Jacob Flournoy's 19th-century proposals for a Deaf state (Krentz, 2000) to the recent proposal for Laurent, South Dakota (Willard, n.d.) as just such a homeland. Indeed, as Le Corbousier wrote, "the occupation of space is the first proof of existence" (Findley, 2005, p. 5). As such, Deaf people may find architecture and community planning an integral element to linguistic and cultural revitalization. Such a future exploration would result in diversity of the design and qualities of living spaces.

Deaf-gain and Creative Diversity: Sign Language Literature

Just as the validation of sign language revolutionized the study of language, so too must the nature of literature be reconsidered from the ground up. The unique visual and spatial properties of sign language make it a particularly rich medium for poetic image and metaphor (Bauman, 2008; Bauman, Nelson, & Rose, 2006; Davidson, 2008; Taub, 2001; Wilcox, 2000). For centuries, writers have been seeking to extend both the visual and performative aspects of literature, resulting in various experimental forms, from the unity of painting and poetry in the works of William Blake to concrete poetry, slam, and performance poetry. Sign poetry extends both the performative and visual traditions of literature into new forms. Sign language poetic practice has become increasingly innovative in its use of visual textual forms, as sign language poets have experimented with the interaction of the components of film language—camera movement, editing, visual prosody, *mise en scene*—and sign language. Ella Mae Lentz's collaboration with Lynette Taylor (Lentz, 1996), and Dutch poets Wim Emmerik and Giselle Meyer's collaboration with Anja Hiddinga and Lendeert Pot (Hiddinga et al., 2005) represent the creative potential of a blending cinematic techniques with sign language poetry. In addition to experimentation with visual textuality, sign language poetry extends the embodied, performative tradition, exemplified by the Beat generation's spoken word poetry. Allen Ginsberg, for one, recognized the enormous potential of sign language performance when he participated in a gathering of Deaf and hearing poets in Rochester, New York. When he asked Deaf poets to translate the phrase "hydrogen jukebox" from his poem, "Howl," Patrick Graybill responded with a translation that led Ginsberg to exclaim, "that is exactly it, what I have been trying to convey, the hard clear image of it" (Cohn, 1999; Cook, 2006).

Similarly, the history of theater reveals an enduring human desire for nonverbal, visual spectacle. The history of mime and theatrical tableau, and explorations in experimental visual theater by directors and writers like Antonin Artaud and Robert Wilson, indicate that theater yearns to draw particular attention to the spatial and kinetic modalities. Golden (2009) suggests that Deaf/sign language theater and the practice of visual theater engage in an exchange to the mutual benefit of each practice. Clearly, the highly visual nature of Deaf theater, Golden suggests, may enhance the genre of visual theater.

Cultural Diversity and Deaf-gain: Transnational Deaf Community

The tools of cultural studies that have served Deaf Studies so well in earlier eras have now also changed. Scholars have called into question the old anthropology of culture, with its language of bounded cultural entities, cultural contact, and cross-cultural communication. The dangers of essentialism have

gained increasing urgency, especially among scholars of South Asia, who see the results of religious essentialism in the violent clashes on the Indian subcontinent (Appadurai, 2006). Deaf Studies has begun to encompass a cosmopolitan, transnational perspective that moves outside the phase of legitimization of the category of Deaf and into a critical inquiry into the nature of being deaf, how ways of understanding and living as deaf have shaped the material and ideological worlds of Deaf and hearing people. In fact, the very trope of "Deaf worlds" and "hearing worlds" is being understood as a product of a particular set of historical conditions (Murray, 2007).

There is a small, but growing, body of work that explores how deaf people interact across national boundaries (Breivik, Haualand, & Solvang, 2002; Murray, 2007; Nakamura, 2006). Transnational contact between deaf people existed since the early 19th century, emerging at a series of Parisian Deaf-mute banquets, and a transnational Deaf public sphere developed alongside a series of international congresses of Deaf people from 1873 onward (Ladd, 2003; Murray, 2007). This sphere created a shared discursive field in which deaf people could articulate common strategies on living as visual minorities in societies governed by auditory principles. Taking a transnational orientation to deaf people's lives foregrounds the commonality of Deaf ways of being, but paradoxically also heightens our understanding of deaf people as intimately tied to local discursive constructions of nation and society. The physical assemblage of large numbers of deaf people often brings with it a reorganization of physical space according to Deaf norms, as deaf people temporarily colonize portions of a city at large-scale quadrennial events such as World Federation of the Deaf Congresses or Deaflympic sporting competitions. A complete understanding of the spatial reorganization that occurs and its implication in terms of "Deaf-gain" have yet to be realized. However, by viewing deaf peoples' lives in different national contexts, we also understand how integrated deaf people are into their national and social contexts. There are many ways to be Deaf, because deaf people are not isolated from the societies in which they live (Monaghan, Schmaling, Nakamura, & Turner, 2003).

An expanded frame of reference will naturally include the global South, which will have an increasingly prominent role in transnational Deaf communities of the future, especially if current demographic analyses regarding developed countries trend as predicted (Johnston, 2006). Economic disparities between the North and South have resulted in lesser rates of cochlear implantation, less use of genetic testing, and hindrances in the prevention of childhood illnesses, all of which have the result of expanding the population of deaf children and potential native signers. These factors will likely not persist, but what they mean for the present generation of deaf people is that the demographic imbalance between deaf people in developing and developed countries will likely become even more prominent, with the rate of sign language use presumably shifting to developing countries as well. The central loci of Deaf Studies may well shift from Western countries to the global South, from discretely bounded national communities to a more fluid array of affinitive networks of various sizes and forms, existing in both physical and virtual space (Breivik, 2007; Kusters, 2007).

Cultural Diversity and Deaf-Gain: International Sign and Signed Languages

Communication at international meetings of Deaf individuals often occurs in International Sign (IS), a form of cross-national communication that emerges when signers from different signed languages come into contact. Most research on IS to date has studied its linguistic properties. Although this research is still developing, early conclusions indicate that IS has more language-like properties than pidgins, another form of communication that emerges when two or more languages come into contact (Supalla & Webb, 1995). There is evidence of IS being used as far back as the early 19th century (Ladd, 2003), when it was used for political discourse at international meetings, as well as in informal interactions between Deaf travelers (Murray, 2007). The ability of signing deaf people to meet and interact across linguistic boundaries—without sharing a common language beforehand—has existed for at least two centuries. Some of this is no doubt due to the common experience of being Deaf in nondeaf societies. One author attributes this ease of understanding to a shared theory of mind among Deaf people, the term referring to the ability to "inhabit and intuit" another person's consciousness (Fox, 2008, pp. 80–81). Fox notes that semantically related signs for mental processes (think, decide, believe) are located at or near the head in ASL and European signed languages (Fox, 2008, p. 82), thus possibly assisting users of one signed language in understanding another signed language. The study of IS is still in its early stages and questions remain. If international

signed communication has existed for two centuries, has there been continuity in lexical or other structural properties of IS in this period? Can we characterize "it" as an "it," or were there many versions of IS throughout the decades? A community of users has existed, but was there generational transmission and if so, what does this tell us about the language-like properties of IS? Beyond a focus on IS as a distinct entity are questions IS raises by its very existence. At the very least, IS calls into question the inevitability of linguistic dissimilarities, with its apparatus of interpretation, and raises larger questions on the histories and modalities of communication between linguistically distinct groups of people.

The study of IS is part of a body of work going beyond the study of sign languages under national markers—ASL, Danish Sign Language—to a realization that signing exists in a diverse array of situations and communities. Scholars have seen a sign language being born in Nicaragua (Senghas, 1995, 2003) and are studying the use of signing among a Bedouin community in Israel (Fox, 2007 Sandler et al., 2005), one of many communities around the world where both hearing and deaf people sign (Groce, 1985; Johnson, 1994; Marsaja, 2008; see Chapter 18, this volume). There are obvious benefits to scholars in seeing linguistic phenomena take place in the field: scholars have never witnessed a spoken language being created, and the study of Nicaraguan sign language allows linguists the opportunity to see if their theories are correct. Think of astrophysicists being able to witness the Big Bang. Beyond this, the existence—and persistence—of sign languages allows us to understand the diversity of human ways of being and communicating, and offers a direct challenge to conceptions of normalcy that would peg all humans into a phonocentric square hole.

Cultural Diversity and Deaf-gain: Deaf Collectivist Culture and the Future of Community

A growing body of research points toward the dissolution of a sense of community and civic engagement. Robert Putnam's *Bowling Alone: The Collapse and Revival of American Community* points to the factors of work, television, computers, suburban life, and family structures as having contributed to this decline. Other studies confirm Putnam's observations, noting that social networks and people's sense of connectedness have taken a precipitous decline in the past three decades (McPherson, Smith-Lovin, & Brashears, 2006). As a culture that

exhibits a high degree of collectivism (Mindess, 2006), Deaf cultural relations may offer insights and examples to understand, if not emulate. The circular proxemics of deaf people as they align themselves to be seen are the structural embodiment of nonhierarchical relations. Although Derrida (1973) has highlighted the significance of "hearing oneself speak" as a prime source of deriving a sense of presence, deaf individuals can neither hear themselves speak nor fully see themselves sign (Bauman, January, 2008). Granted that signers may see their own hand movements from their vantage, they will never be able to see their own faces, which are so vital to the linguistic and emotional content of sign language expression. The sense of presence conveyed through the system of hearing oneself speak is radically altered through the self-awareness of one's own signing. The sense of presence for signers, then, is derived through the presence of the *other*. This constant confirmation of presence through the face of the other may partially explain the prevalence of collectivism of Deaf cultures. Although the significance of prolonged face-to-face engagement and eye contact over a lifetime cannot be underestimated, little research has been done to understand the psychological implications of Deaf ways of being together.

One study is currently under way to examine the nature of human contact in the example of the "Deaf walk" as opposed to the hearing walk (Sirvage, forthcoming). As two hearing individuals engage in discussion while walking, they simply need to ensure that they are close enough and speak loudly enough for the other to hear. There is no need for eye contact. Significantly, when deaf people walk, however, they engage in constant eye contact, and more significantly, they must take care of the other person, extending their peripheral vision to ensure that the other person does not walk into any objects. Although this may seem a minor point, there is a larger lesson about the nature of Deaf collectivist relations. Signers take care of each other, whether strangers or intimate friends, when engaged in a peripatetic conversation. Future studies should inquire into expanding the notion of the Deaf walk to larger cultural ways of being that may have lessons for an increasingly isolated society.

Summary and Conclusions: Media Production and the Deaf Public Voice

This brief discussion of human diversity and Deaf-gain has little to do with a critique of audism, or any other defensive posture that has largely characterized

late 20th-century and early 21st-century Deaf Studies. The critique of power relations that forms a principal activity of all cultural studies is implicit in pointing out what has been lost in the oversight of sign languages and Deaf communities as having intrinsic and extrinsic value to human diversity. By taking advantage of the unique Deaf ways of being, forms of cultural production may provide new areas of experimentation and insight, left hidden in the phonocentric blindspots within the ways that cultural practices and disciplines have evolved.

Commerson (2008) suggested that such a reframing of human diversity and Deaf Studies would be more likely to take place if there is a strong visual presence in media. If deafness is reframed from lack to gain, then the sense of gain may be embodied through characters in film, television, video, Internet sites, newspapers, and other forms of public discourse. Given the existential threats to Deaf communities and their languages, the 21st-century practice of Deaf Studies must move from a defensive posture to one that actively seeks to redefine public perception— and do so quickly.

As 21st-century Deaf Studies argues for both intrinsic and extrinsic value, it must be careful to make the point that this argument is not simply for the preservation of deaf people and sign languages for the sake of scientific exploration of the human character. Instead, Deaf Studies may want to take the counterintuitive position that all individuals would be enriched by become a bit more Deaf. By that we mean society would do well to become more acutely aware of the nuances of communication, more engaged with eye contact and tactile relations, more fluent in a language rich in embodied metaphor, more aware of the role of being a member of close-knit communities, and if nothing else, more appreciative of human diversity, so that we are constantly reminded that the bedrock of reality may be just as diaphanous as any other social construction. As Sandel (2007) argues in *The Case Against Perfection*, human diversity teaches us the value of moving from an ethic of molding individuals to beholding them in their extraordinarily rich ways of being.

[1] The notion of "Deaf-gain" was originally articulated by the British performance artist, Aaron Williamson, who, when presenting to Dirksen Bauman's graduate class, "Enforcing Normalcy," stated that while all his doctors told him that he was losing his hearing, not one told him that he was gaining his deafness.

[2] As Stokoe (2001) described, "The nerves connecting eyes and brain outnumber by far all the brain connections to the other sensory organs, the ears included. Visual processing involves so much of the brain that a visual field may convey an enormous amount of information simultaneously, whereas language sounds have to reach the ear sequentially, one by one, until the whole message is received and can be interpreted."

[3] Despite no widely accepted written form, there have been many attempts throughout history. One of the earliest is August Bebian's Mimography (Renard, 2004), the most well-known is probably SignWriting (http://www.signwriting.org/), and a promising new form is being developed by Arnold (2007).

References

Akamatsu, C.T., Musselman, C., & Zweibel, A. (2000). Nature versus nurture in the development of cognition in deaf people. In P. Spencer, C. Erting, & M. Marschark (Eds.), *The deaf child in the family and at school.* (pp. 255–274). Mahwah, NJ: Lawrence Erlbaum Associates.

Allen, S. (2007). *A deaf diaspora: Exploring underlying cultural yearnings for a deaf home.* Master's thesis, Gallaudet University, Washington, DC.

Appadurai, A. (2006). *Fear of small numbers: An essay on the geography of anger.* Durham, NC: Duke University Press.

Arijon, D. (1991). *Grammar of the film language.* Los Angeles: Silman-James Press.

Armstrong, D. (2002). *Original signs: Gesture, sign, and the sources of language.* Washington, DC: Gallaudet University Press.

Armstrong, D., & Wilcox, S. (2007). *The gestural origins of language.* Cambridge: Cambridge University Press.

Armstrong, D., Wilcox S., & Stokoe, W. (1995). *Gesture and the nature of language.* Cambridge: Cambridge University Press.

Arnold, R. (2007). *Proposal for a written form of American Sign Language.* Unpublished master's thesis, Gallaudet University, Washington, DC, United States of America.

Arnos, K. (2003). The implications of genetic testing for deafness. *Ear and Hearing, 24,* 324–331.

Bahan, B. (2006). Face-to-face tradition in the American deaf community: Dynamics of the teller, the tale and the audience. In Bauman, H-D., Nelson, J., & Rose, H. (2006). *Signing the body poetic: Essays on American Sign Language literature.* (pp. 21–50). Berkeley: University of California Press.

Bahan, B. (2008). On the formation of a visual variety of the human race. In Bauman, H-D., ed (2008). *Open your eyes: Deaf studies talking.* (pp. 83–99). Minneapolis: University of Minnesota Press.

Bauman, H. (in press). *Gallaudet university deaf and diverse campus design guide.* Washington, DC: Gallaudet University institutional document.

Bauman, H-D. (2006). Getting out of line: Toward a visual and cinematic poetics of ASL. In Bauman, H-D., Nelson, J., & Rose, H. (2006). *Signing the body poetic: Essays on American Sign Language literature.* (pp. 95–117). Berkeley: University of California Press.

Bauman, H-D. (2008). Body/text: Sign language poetics and spatial form in literature. In K. Lindgren, D. DeLuca, & D. J. Napoli (Eds.), *Signs and voices: Deaf culture, language, identity, and arts.* (pp. 163–176). Washington, DC: Gallaudet University Press.

Bauman, H-D. (2008). Listening to phonocentrism with deaf eyes: Derrida's mute philosophy of (sign) language. *Essays in Philosophy, 9*(1). Retrieved October 22, 2009 from http://www.humboldt.edu/~essays/bauman.html

Bauman, H-D., Nelson, J., & Rose, H. (2006). *Signing the body poetic: Essays on American Sign Language literature.* Berkeley: University of California Press.

Bavelier, D., Tomann, A., Hutton, C., Mitchell, T. V., Corina, D. P., Liu, G., & Neville, H. J. (2000). Visual attention to the periphery is enhanced in congenitally deaf individuals. *Journal of Neuroscience, 20*, 1-6.

Baynton, D. C. (1996). *Forbidden signs: American culture and the campaign against sign language.* Chicago: University of Chicago Press.

Baynton, D. C. (2000). Disability and the justification of inequality in American history. In P. Longmore & L. Umansky (Eds.), *The new disability history: American perspectives.* (pp. 33–57). New York: New York University Press.

Bebian, A. (1984). Essay on the deaf and natural language, or introduction to a natural classification of ideas with their proper signs. In H. Lane (Ed.), *The Deaf experience: classics in language and education.* [Trans. Philip, F.] Cambridge, MA: Harvard University Press.

Bell, A. G. (1883). *Memoir upon the formation of a deaf variety of the human race.* Washington, DC: Volta Bureau.

Bellugi, U., O'Grady, L., Lillio-Martin, D., O'Grady Hynes, M., Van Hoek, K., & Corina, D. (1989). In V. Volterra & C. Erting (Eds.), *Enhancement of spatial cognition in deaf children. Gesture to language in hearing children.* (pp. 278-298). New York: Springer-Verlag.

Bettger, J. G., Emmorey, K., McCullough, S. H., & Bellugi U. (1997). Enhanced facial discrimination: Effects of experience with American Sign Language. *Journal of Deaf Studies and Deaf Education, 2*, 223-233.

Biesold, H. (1999). *Crying hands: Eugenics and deaf people in Nazi Germany.* Washington, DC: Gallaudet University Press.

Breivik, J. K. (2007). *Døv identitet i endring–lokale liv–globale bevegelser.* Oslo: Universitetsforlaget.

Breivik, J. K., Haualand, H., & Solvang, P. (2002). *Rome—a temporary deaf city!* Deaflympics 2001. Bergen, Norway: Rokkansentret Working Paper 2-2003.

Brownstein, Z., & Avraham, K. B. (2006). Future trends and potential for treatment of sensorineural hearing loss. *Seminars in Hearing, Genetics and Hearing Loss, 27*(3), 193–204.

Bryan, A. (November 22, 2007). Parliament: Deaf embryo selection to be made illegal. [Blog entry]. Retrieved November 20, 2008, from http://www.grumpyoldeafies.com/2007/11/parliament_deaf_embroyo_select.html

Burch, S. (2002). *Signs of Resistance: American Deaf Cultural History, 1900 to World War II.* New York: New York University Press.

Burke, T. B. (2006). Bioethics and the deaf community. In K. Lindgren, D. DeLuca, & D. J. Napoli (Eds.), *Signs and voices: Deaf culture, identity, language, and arts.* (pp. 63–74). Washington, DC: Gallaudet University Press.

Burke, T. B. (December 5, 2007). British bioethics and the human fertilisation and embryology bill. [Blog entry]. Retrieved November 20, 2008, from http://www.deafdc.com/blog/teresa-blankmeyer-burke/2007-12-05/british-bioethics-and-the-human-fertilisation-and-embryology-bill/

Carty, B. (2006). Comments on "w(h)ither the deaf community?" *Sign Language Studies 6*(2), 181–189.

Chorost, M. (2005). *Rebuilt: How becoming part computer made me more human.* Boston. MA: Houghton Mifflin Harcourt.

Cohn, J. (1999). *Sign mind: Studies in American Sign Language poetics.* Boulder, CO: Museum of American Poetics Publications.

Commerson, R. (2008). *Media, power and ideology: Re-presenting DEAF.* Master's thesis, Gallaudet University, Washington, DC. Retrieved from http://mosinternational.com/

Cook, P. (Author and Signer). (2006). Hydrogen jukebox [ASL story on DVD]. In Bauman, H-D., Nelson, J., & Rose, H. *Signing the body poetic: Essays in American sign language literature.* Berkeley: University of California Press.

Corballis, M. (2003). *From hand to mouth: On the origins of language.* Princeton, NJ: Princeton University Press.

Cripps, J., & Small, A. (2004). *Case report re: Provincial service delivery gaps for deaf children 0–5 years of age.* Mississauga, ON: Ontario Cultural Society of the Deaf.

Crystal, D. (2002). *Language death.* Cambridge: Cambridge University Press.

Davidson, M. (2008). Tree-tangled in tree: Re-siting poetry through ASL. In K. Lindgren, D. DeLuca, & D. J. Napoli (Eds.), *Signs and voices: Deaf culture, identity, language and arts.* (pp. 177-188). Washington, DC: Gallaudet University Press.

Davis, L. (1995). *Enforcing normalcy: Deafness, disability and the body.* London: Verso Press.

Davis, L. (2006). Constructing normalcy: The bell curve, the novel, and the invention of the disabled body in the nineteenth century. In L. Davis (Ed.), *The disability studies reader.* (pp. 3–16). New York: Taylor and Francis.

Derrida, J. (1973). Of grammatology. Trans. Spivak, G. Baltimore: Johns Hopkins University Press.

Emmorey, K., Klima, S. L., & Hickok, G. (1998) Mental rotation within linguistic and nonlinguistic domains in users of American Sign Language. *Cognition, 68*, 221–226.

Emmorey, K., & Kosslyn, S. (1996). Enhanced image generation abilities in deaf signers: A right hemisphere effect. *Brain and Cognition, 32*, 28-44.

Emmorey, K., Kosslyn, S., & Bellugi, U. (1993). Visual imagery and visual-spatial language: Enhanced visual imagery abilities in deaf and hearing ASL signers. *Cognition, 46*, 139-181.

Erting, C. J., Johnson, R. C., Smith, D. L., & Snider, B. C. (1993). *The deaf way: Perspectives from the international conference on deaf culture.* Washington DC: Gallaudet University Press.

Findley, L. (2005). *Building change: Architecture, politics and cultural agency.* New York: Routledge.

Foucault, M. (1990). *History of sexuality Vol. 1. The Will to Knowledge.* New York: Vintage Press.

Fox, M. (2008). *Talking hands: What sign language reveals about the mind.* New York: Simon & Schuster.

Frontrunners Weekly Reports. (2005, September 30). Interviews on genocide. *Frontrunners.* Retrieved November 29, 2008, from http://fr1.frontrunners.dk/Weekly%20Reports/weeklyreports.htm

Furman, N., Goldberg, D., & Lusin, N. (November 13, 2007). Foreign language enrollments in united states institutions of higher education, fall 2006. *Modern Language Association.* Retrieved November 23, 2009, from http://www.mla.org/2006_flenrollmentsurvey

Gardner, H. (1993). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Genetic Evaluation of Congenital Hearing Loss Expert Panel. (2002). Genetics evaluation guidelines for the etiologic diagnosis of congenital hearing loss. *Genetics of Medicine, 4*(3), 162–171.

Golden, J. (2009). *Deaf/ASL and visual theatre: Connections and opportunities.* Unpublished master's thesis, Gallaudet University, Washington, DC.

Gray, R. (2008, April 13). Couples could win right to select deaf baby. *Telegraph.co.uk.* Retrieved (November 29, 2008, from

http://www.telegraph.co.uk/news/uknews/1584948/Couples-could-win-right-to-select-deaf-baby.html (Reader comments at: http://www.telegraph.co.uk/news/yourview/1584973/How-far-should-embryo-selection-go.html)

Groce, N. (1985). *Everyone here spoke sign language: Hereditary deafness on Martha's Vineyard*. Cambridge, MA: Harvard University Press.

Hall, S. (1973). *Encoding and decoding in television discourse*. Birmingham, AL: Birmingham Centre for Cultural Studies.

Harmon, D. (2002). *In light of our differences: How diversity in nature and culture makes us human*. Washington, DC: Smithsonian Institution Press.

Haualand, H. (Writer), & Otterstedt, L. (Director). (2007). *Arven etter frankenstein*. [Theatrical Production]. Oslo, Norway: Theater Manu.

Hiddinga, A., Pot, L. (Filmmakers); Emmerik, W., & Meyer, G. (Poets). (2005). *Motioning*. Amsterdam, Holland: Geelprodukt Productions.

Hoggart, R. (1957). *The uses of literacy in everyday life*. London: Chatto & Windus.

Hyde, M., Power, D. J., & Lloyd, K. (2006). Comments on "W(h)ither the deaf community?" *Sign Language Studies, 6*(2), 190–201.

Johannsen, K. (2008). Electronic mail communication received December 29, 2008.

Johnson, R. (1994). *Sign language and the concept of deafness in a traditional Yucatec Mayan village*. In C. Erting, R. Johnson, D. Smith, & B. Sniden (Eds.), *The deaf way: Perspectives from the international conference on deaf culture*. (pp. 102–109). Washington, DC: Gallaudet University Press.

Johnston, T. (2004). W(h)ither the deaf community? Population, genetics, and the future of Australian Sign Language. *American Annals of the Deaf, 148*(5). Reprinted in (2006) *Sign Language Studies, 6*(2), 137–173.

Kochhar, A., Hildebrand, M. S., & Smith, R. J. (2007). Clinical aspects of hereditary hearing loss. *Genetics in Medicine, 9*(7), 393–408.

Krentz, C. (2000). *A mighty change: An anthology of deaf American writing, 1816–1864*. Washington DC: Gallaudet University Press.

Kuntze, M. (2008). Turning literacy on its head. In H.-D. Bauman (Ed.), *Open your eyes: Deaf studies talking*. Minneapolis: University of Minnesota Press.

Kusters, A. (2007). *"Reserved for the handicapped?" Deafhood on the lifeline of Mumbai*. Unpublished master's thesis, University of Bristol.

Ladd, P. (2003). *Understanding deaf culture: In search of deafhood*. Clevedon, UK: Multicultural Matters.

Lane, H. (1984). *When the mind hears: A history of the deaf*. New York: Random House.

Lane, H. (1992). *The mask of benevolence: Disabling the deaf community*. New York: Alfred A. Knopf.

Lane, H., & Fischer, R. (1993). *Looking back: A reader on the history of deaf communities and their sign languages. International Studies on Sign Language and Communication of the Deaf, 20*. Hamburg: Signum Verlag.

Lane, H., Hoffmeister, R., & Bahan, B. (1996). *Journey into the deaf world*. San Diego: DawnSign Press.

Lentz, E. (Poet), & Taylor, L. (Filmmaker). (1996). *The treasure* [Signed Poetry]. Berkeley, California: InMotion Press.

Maffi, L. (2005). Linguistic, cultural, and biological diversity. *Annual review of anthropology, 34*, 599–617.

Malzkuhn, M. (2007). *Home customization: Understanding deaf ways of being*. Unpublished master's thesis, Gallaudet University, Washington, DC.

Marsaja, I. G. (2008). *Desa Kolok: A deaf village and its sign language in Bali, Indonesia*. Nijmegen, the Netherlands: Ishara Press.

Marschark, M. (2003). Cognitive functioning in deaf adults and children. in Marschark M. and Spencer, P. Eds. *Oxford handbook of deaf studies, language, and education*. Oxford: Oxford University Press.

McPherson, M., Smith-Lovin, L., & Brashears, M. E. (2006). Social isolation in America: Changes in core ciscussion networks over two decades. *American Sociological Review, 71*, 353–375.

Mindess, A. (2006). *Reading between the signs. Intercultural communication for sign language interpreters*, 2nd edition. Boston: Intercultural Press.

Monaghan, L., Schmaling, C., Nakamura, K., & Turner, G. H. (2003). *Many ways to be deaf: International variation in deaf communities*. Washington, DC: Gallaudet University Press.

Moore, D., & Dwyer, F. (1994). *Visual literacy: A spectrum of visual learning*. Englewood Cliffs, NJ: Educational Technology Publications.

Morton, C. C., & Nance, W. E. (2006). Newborn hearing screening–a silent revolution. *New England Journal of Medicine, 354*(20), 2151–2164.

Mundy, L. (2002, March 31). A world of their own. *The Washington Post*, pp. W22.

Murray, J. (2002). True love and sympathy: The deaf-deaf marriages debate in transatlantic perspective. In J. V. Van Cleve (Ed.), *Genetics, disability, and deafness*. (pp. 42–71). Washington, DC: Gallaudet University Press.

Murray, J. (2006). Genetics: A future peril facing the global deaf community. In H. Goodstein (Ed.). *The Deaf way II reader: Perspectives from the Second International Conference on Deaf Culture*. (pp. 351–356). Washington, DC: Gallaudet University Press.

Murray, J. (2007). *A touch of nature makes the whole world kin: The transnational lives of deaf Americans*. Unpublished doctoral dissertation, University of Iowa.

Nakamura, K. (2006). *Deaf in Japan: Signing and the politics of identity*. Ithaca, NY: Cornell University Press.

Noble, T. (2003, July 11). Deafness-test embryo fails to take. *The Age*. Retrieved November 23, 2009, from http://www.theage.com.au/articles/2003/07/10/1057783282446.html

Office of Public Sector Information. (2008). *The National Archives*. Retrieved January 2009, from http://www.opsi.gov.uk/acts/acts2008/ukpga_20080022_en_2#pt1-pb5-l1g14

Padden, C., & Humphries, T. (1988). *Deaf In America: Voices from a culture*. Cambridge, MA: Harvard University Press.

Petitto, L. A., Zatorre, R., Gauna, K., Nikelski, E. J., Dostie, D., & Evans, A. (December 5, 2000). Speech-like cerebral activity in profoundly deaf people while processing signed languages: Implications for the neural basis of human language. *Proceedings of the National Academy of Sciences, 97*(25), 13961–13966.

Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.

Renard, M. (2004). *Écrire les signes. La mimographie d'Auguste Bébian et les notations contemporaines. [Escribir las señas. La Mimografia de Auguste Bébian y las notaciones contemporáneas]*. París: Éditions du Fox.

Sacks, O. (1990). *Seeing voices: Journey into the deaf world*. Berkeley: University of California Press.

Salmi, E., & Laakso, M. (2005). *Maahan lämpimäänn: Suomen viittomakielisten historia*. Helsinki: Kuurojen Liittory.

Sandel, M. (2007). *The case against perfection: Ethics in the age of genetic engineering*. Cambridge, MA: Harvard University Press.

Sandler, W., Meir, I., Padden, C., & Aronoff, M. (2005). The emergence of grammar in a new sign language. *Proceedings of the National Academy of Sciences, 102*(7), 2661–2665.

Senghas, A. (1995). Conventionalization in the first generation: a community acquires a language. *USD Journal of Contemporary Legal Issues, 6*, Spring, 1995.

Senghas, A. (2003). Intergenerational influence and ontogenetic development in the emergence of spatial grammar in Nicaraguan Sign Language. *Cognitive Development, 18*, 511–531.

Sirvage, R. (forthcoming). *Walking signers: An investigation on proxemics*. Unpublished master's thesis. Gallaudet University, Washington, DC.

Skutnabb-Kangas, T. (2000). *Linguistic genocide in education—or worldwide diversity and human rights?* Mahwah, NJ: Lawrence Erlbaum Associates.

Snoddon, K. (2008). "American Sign Language and early intervention." *Canadian Modern Language Review". 64*(4). June (pp. 581–604).

Stokoe, W. (2001). *Language in hand: Why sign came before speech*. Washington, DC: Gallaudet University Press.

Supalla, T., & Webb, R. (1995). The grammar of international sign: A new look at pidgin languages. In K. Emmorey & J. S. Reilly (Eds.), *Language, gesture, and space*. (pp. 333–351). Hillsdale, NJ: Lawrence Erlbaum Associates.

Sutton, V. (2008). Retrieved November 20, 2008 from www.signwriting.org

Taub, S. (2001). *Language from the body: Iconicity and metaphor in American sign language*. Cambridge: University of Cambridge Press.

Van Cleve, J. V. (1993). *Deaf history unveiled: Interpretations from the new scholarship*. Washington, DC: Gallaudet University Press.

Van Cleve, J. V., & Crouch, B. A. (1989). *A place of their own: Creating the deaf community in America*. Washington, DC: Gallaudet University Press.

VL2. (2008). Visual language and visual learning website introduction. Retrieved November 20, 2008, from http://vl2.gallaudet.edu/

Wallvik, B. (1997).... *ett folk uten land* ... Borgå: Finland: Döva och hörselskadade barns stödforening r.f.

Welles, E. B. (2004). Foreign language enrollments in United States institutions of higher education. *ADFL Bulletin, 35*(2-3).

Wilcox, P. (2000). *Metaphor in American Sign Language*. Washington, DC: Gallaudet University Press.

Willard, T. (n.d.). Special Report: Laurent, SD in Deafweekly. Deafweekly electronic mailing list. Retrieved November 20, 2008, from http://www.deafweekly.com/backissues/laurent.htm

Williams, R. (1958). *Culture and society, 1780–1950*. London and New York: Columbia University Press.

Williams, R. (1961). *The long revolution*. London and New York: Columbia University Press.
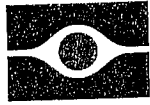
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