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PREPARING FUTURE TEACHERS AND DOCTORAL-LEVEL LEADERS IN DEAF EDUCATION: MEETING THE CHALLENGE

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HE DEAF EDUCATION PROFESSION faces a critical juncture. First, the 2006 leadership crisis that swept deaf education's flagship institution—Gallaudet University—will propel professionals to think deeply about promoting diversity, equity, and access in deaf education teacher and leadership preparation programs. Second, personnel shortages require attention: Teacher and leadership voids in university and K–12 programs loom if training efforts are not increased. Teaching and leadership needs center on three challenges: (a) understanding the *changing demographic composition* of the student, teacher, and leadership populations; (b) *developing an evolving curriculum* founded on *research-based practices*; (c) continuing to enlarge the knowledge base through *applied research in the social sciences*. Two case studies examine teacher training and leadership programs at universities that address these challenges. The importance of workplace deaf-hearing bicultural teams is examined. Implications for the preparation of teacher and leadership personnel in deaf education are discussed.

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For Deaf Education, a Critical Juncture

*The very essence of leadership is that you have to have vision.
You can't blow an uncertain trumpet.*

—THEODORE M. HESBURGH

To lead people, walk behind them.

—LAO-TZU

The profession of deaf education is at a critical juncture in the United States. For one, the 2006 leadership crisis that swept deaf education's flagship institution—Gallaudet University—will propel professionals to think deeply about promoting diversity, equity, and access in

deaf education teacher and leadership preparation programs. Second, personnel shortages must be addressed: A teacher and leadership void in university and K-12 programs will occur if training efforts are not increased. In fact, in the next decade, a third of the

teaching and administration workforce will reach retirement age (Tucker & Fischgrund, 2001). Teacher shortages and teacher retirements are increasing at a time when young people are attracted to higher-paying careers in computers, business, law, and elsewhere. There are increasing numbers of Hispanic and Asian American deaf students, with a leveling off of numbers of African American deaf students, and these student demographics do not match the teacher and leadership demographics. Standards met through competency testing for teacher certification through the No Child Left Behind legislation are barriers for minority, deaf, and minority-deaf applicants, who often do not do well on standardized tests (Mounty & Martin, 2005). Furthermore, the political climate following 9/11 has been one of a unified nationalism rather than a focus on multiculturalism. There also have been many attacks on affirmative action and diversity programs in higher education, with resulting legislation banning the use of race or ethnicity as a factor in higher education admissions (Chang, Witt, Jones, & Hakuta, 2003).¹

A disturbing trend is that program directors are opening and reopening unsuccessful searches for qualified leaders and are hiring teachers and superintendents with no experience with deaf and hard of hearing students (Tucker & Fischgrund, 2001). (In the present article, we use the term *deaf and hard of hearing* to represent students who are enrolled in special education classes and who have a hearing loss ranging from moderate to profound. Hearing loss occurs on a continuum, and many of these students will use a sign language as a primary or secondary means of communication.)

Many universities are not keeping pace in the training of additional teachers, administrators, and university fac-

ulty in deaf education, either in numbers or in diversity of student backgrounds (LaSasso & Wilson, 2000). This trend will negatively affect quality of services. If competently trained professionals are not made available, then the complex psychological, socioemotional, linguistic, and cultural needs of deaf and hard of hearing students will not be met.

Given the climate created by the No Child Left Behind Act of 2001, which mandates that all children, including those who are deaf and hard of hearing, must be included in statewide assessments, it is critical that teachers and administrators understand the complex issues that surround the testing of deaf students (Innes, 2002; Mounty & Martin, 2005). In addition, professionals in training would benefit from knowing about the National Agenda, a national effort by leaders to establish literacy-focused, communication- and language-driven educational systems for deaf and hard of hearing children (Bugen, Innes, Randall, & Siegel, 2003). Further, contemporary issues in deaf education that need direct confrontation are the high rates of sexual abuse of deaf children and youth (Vernon & Miller, 2002), the poor quality of educational interpreters and lack of standards in mainstream programs (Vernon & Finnegan, 2005; Yarger, 2001), and the increasing numbers of deaf youth and adults caught in the criminal justice system who have weak language skills (LaVigne & Vernon, 2003), along with other complex issues such as low English literacy rates, poor signing skills, and low levels of academic achievement.

We define *diversity*, broadly, to refer to students' cultural and linguistic backgrounds, to the changing etiologies of deafness, and to the changes brought about by the advances in molecular genetics, digital amplification devices, and cochlear implanta-

tion. Population growth, urbanization, immigration, the increase in non-English-speaking families, poverty, and medical advances have continued to produce a diverse set of language, cultural, and etiologic backgrounds in children with hearing loss (Frisina, 2001).

There is a lack of interested and qualified persons to assume leadership positions in deaf education, particularly such individuals who are deaf (Klopping, 2005). Many overworked teachers are discouraged from taking on the increased responsibilities associated with principal and superintendent positions because of the difficulties inherent in these jobs. The tasks of pleasing multiple constituencies such as a governing board, parents, the community, national organizations, and law enforcement and safety protection agencies, as well as meeting federal and state mandates for testing and teacher certification, are all potential minefields. The No Child Left Behind Act requirements, including the annual yearly performances targets, hold deaf students to the same standards as hearing students. This is unfair because the backgrounds of most deaf youths do not fit the backgrounds of hearing children (Klopping, 2005).

Deaf children may not do as well on standardized tests for a variety of reasons. Their etiologies may bring on additional learning disabilities (Vernon & Andrews, 1990). Delays occur in hearing loss diagnosis, initiation of family services, and the onset of early and consistent language exposure in American Sign Language (ASL) and in English. Poverty exists in the homes. Tests are typically given in English, and the deaf child's learning strengths derived from the use of vision and ASL are essentially ignored in both residential and day school programs (Gonzales, Covell, & Andrews, 2005).

Few legislators and members of the

lay public understand why support services for deaf students at residential and day schools are costly (Klopping, 2005). Deaf children are often isolated in public schools without support services, and they fail or become behavioral problems; they are then transferred to residential schools. Administrators at the Texas School for the Deaf, one of the largest state residential schools for deaf children, and at the Alabama School for the Deaf report that more than 50% of their students are older transfers who arrive at TSD or ASD with a history of unsuccessful deaf education placements in public schools (Texas School for the Deaf, Claire Bugen, personal communication, November 3, 2006; Alabama School for the Deaf, Pam Shaw, personal communication, November 3, 2006). Residential schools often are held accountable for the low performance levels of these older deaf students, when in fact these youth fail because they have received inadequate primary education in the public schools (Andrews & Nover, 2000; Campbell, 2000).

Many research studies are conducted by individuals not familiar with issues in educating deaf children, and even by people unable to communicate with deaf children (Campbell, 2000). In reality, the residential schools provide additional years of schooling, vocational training, and comprehensive programming for deaf children and youth from preschool to age 22 years (Andrews, Leigh, & Weiner, 2004). All of these issues need to be thoroughly understood by teachers and leaders if they are to work in and lead quality programs.

Another reason for the leadership void is the lack of support for administrators, particularly those who are deaf (Klopping, 2005). Deaf leaders often do not get the same kind of mentoring hearing administrators receive.

Furthermore, deaf leaders may obtain an administrative position but lack adequate preparation. When they face challenging issues, they do not have colleagues to advise them and provide them support. When a deaf leader is fired, the public often overgeneralizes that administrator's performance to all deaf people, thus jeopardizing the chances that another deaf leader will fill a similar position (Klopping, 2005).

Innovative leadership initiatives need to be used to increase the number of deaf leaders who obtain administrative positions in deaf education. The Gallaudet Leadership Institute (GLI), directed by Jay Innes, is a step in this direction. The GLI program provides training to teachers and administrators already employed in schools and programs for the deaf who need additional training in leadership and deafness-related issues. However, more university leadership programs are also needed to ease administrative shortages.

Three Challenges at the University Level

The teaching and leadership needs of deaf education center on three challenges:

1. understanding the *changing demographic composition* of the student, teacher, and leadership populations
2. developing an *evolving curriculum* founded on *research-based practices*
3. continuing to enlarge the knowledge base through *applied research in the social sciences*

Changing Demographics

Caucasian deaf and hard of hearing children are undercounted by the Gallaudet Research (GRI) relative to state counts mandated under the Individuals With Disabilities Education Act

(Mitchell, 2006). For the GRI count, directors of special programs serving deaf and hard of hearing children are sent a survey each year to document data on their students. If one looks at GRI data over the past 30 years, a complex picture unravels related to student ethnicity and numbers. For instance, enrollment of both African American and Caucasian deaf children increased from the 1973–1974 academic year to the 1983–1984 year, but has been declining ever since. African American enrollment declined 40% (from 9,337 students to 5,647) from 1983 to 2005, and it decreased every year after 1983–1984 to its current (2005) level of 15.3% of the deaf school-age population. The enrollment of Asian–Pacific Islanders, American Indians, and “others” seems relatively stable since 1993. Hispanics are the only group that consistently grew in each 10-year period. The other “minority” groups show declines (African Americans, Asian–Pacific Islanders) or slight numerical increases (American Indians) over the past 10 years.

Today, 25% of the deaf school-age population is from Hispanic homes (Gallaudet Research Institute, 2005). There has also been an influx of deaf immigrants from Mexico, South and Central America, and Southeast Asia. Many arrive in late childhood or early adulthood without having received much formal education in their home country. These minority-deaf and deaf immigrants pose a formidable challenge to the educational system, many never having had formal schooling and lacking a first language from their home country.

Data from 1993 and 2004 show that the racial/ethnic backgrounds of professionals on the job and in graduate training do not match those of K–12 deaf students (Andrews & Jordan, 1993; Simms, Andrews, & DeLana,

2006). This does not mean that race or ethnicity should be the main variable in determining who should be prepared and hired. Above all, competence in academics and job performance are important. Nevertheless, when the teaching and leadership forces are predominantly white and hearing while the deaf student population is increasingly diverse, efforts should be made toward diversity, equity, and access in higher-education training institutions (Andrews & Martin, 1998).

Deaf students and professionals in deaf education are as ethnically, culturally, and linguistically diverse as the general population (U.S. Census Bureau, 2000). They are multicultural in that they differ in more than simply skin color or ethnic heritage. They differ across a variety of dimensions: degree of hearing loss, age, extent of hearing loss, etiology of hearing loss, gender, geographic location, country of birth, communication preference, language use, use of vision, use of technology (i.e., cochlear implantation

and amplification), education level, occupation, and socioeconomic background (Andrews et al., 2004).

Members of racial/ethnic minorities make up less than 30% of the U.S. population: Hispanics, 13.0%; African Americans, 12.7%; and Asian Americans, 4.0%. However, it is predicted that by 2043 Hispanics will make up 24% of the population, non-Hispanic African Americans 15%, and Asian Americans 8% (Texeira, 2006). (In Texas, Hispanics have, in fact, already reached the percentage projected in 2043 for the United States as a whole.) In academic settings, the data on deaf children reflect the changing national picture.

Table 1 illustrates changes in relative size among racial/ethnic groups of deaf children in the United States at intervals of about 10 years, starting with the 1973–1974 academic year and ending with the 2004–2005 year. Caucasian deaf youth made up 75.8% of the population of deaf children in 1973–74 but only 50.7% in 2004–2005. Further, while the proportion of deaf

children who were African American was stable (15.6% in 1973–74 and 15.3% in 2004–2005), the proportions of deaf children in the Hispanic, Asian–Pacific Islander, and multicultural categories increased significantly. These national statistics are mirrored at the state level. For example, deaf children of color already outnumber deaf Caucasian children in Texas, California, and New York. Consequently, Hispanic deaf children, who are mostly of Mexican descent, constitute 25.0% of the deaf school-age population nationwide.

Minority deaf children and youth, especially those who are Hispanic, are overrepresented in the deaf school-age population compared to the general student population (see Table 2). Clearly, there is a critical need to meet the educational requirements of minority deaf children and youth by preparing teachers and leaders in deaf education who are aware of the impact of multiculturalism, diversity, and access to services.

The ethnic diversity of deaf school-age children does not match that of

Table 1
Racial/Ethnic Background of Deaf Children in the United States, 1974–2003

Racial/ethnic background	1973–1974 N = 43,794	1983–1984 N = 53,184	1993–1994 N = 46,099	1999–2000 N = 43,861	2000–2001 N = 43,416	2001–2002 N = 42,361	2002–2003 N = 40,282	2003–2004 N = 38,744	2004–2005 N = 37,500
Total known information	41,070	52,330	46,099	42,738	42,630	41,608	39,578	38,149	36,917
Caucasian	31,115 75.8%	35,069 67.0%	27,779 60.3%	23,384 54.7%	22,992 53.9%	21,892 52.6%	20,280 51.2%	19,640 51.5%	18,712 50.7%
Black/African American	6,407 15.6%	9,337 17.8%	7,935 17.2%	6,945 16.3%	6,757 15.9%	6,607 15.9%	6,084 15.4%	5,880 15.4%	5,647 15.3%
Hispanic	2,987 7.3%	5,720 10.9%	7,381 16.0%	8,903 20.8%	9,299 21.8%	9,489 22.8%	9,695 24.5%	9,226 24.2%	9,226 25.0%
Asian–Pacific Islander	278 0.7%	1,130 2.2%	1,760 3.8%	1,721 4.0%	1,681 3.9%	1,768 4.2%	1,698 4.3%	1,567 4.1%	1,512 4.1%
American Indian	177 0.4%	267 0.5%	312 0.7%	370 0.9%	350 0.8%	327 0.8%	329 0.8%	329 0.9%	307 0.8%
Other	106 0.3%	479 0.9%	638 1.4%	692 1.6%	727 1.7%	687 1.7%	669 1.7%	688 1.8%	708 1.9%
Multiethnic	Not reported	298 0.6%	294 0.6%	723 1.7%	797 1.9%	838 2.0%	823 2.1%	819 2.1%	805 2.2%

Note. Because of rounding, all columns may not total 100.0%.
Source. Gallaudet Research Institute (1973–1974 to 2004–2005).

Table 2

Ethnic Diversity of U.S. Students: General Student Population Compared to Deaf Children

	<i>General student population</i>	<i>Deaf students, K–12</i>
Caucasian	70.0%	50.7%
Black/African American	12.7%	15.3%
Hispanic	13.0%	25.0%
Asian–Pacific Islander	4.0%	4.1%
Native American, Multiethnic and Other	0.3%	4.9%

Sources. General student population, Cobb (2003). Deaf students, K–12, Gallaudet Research Institute (2004–2005).

teachers and administrators currently working in deaf education K–12 programs. Table 3 shows data on racial/ethnic diversity from a national survey of teachers employed in 272 schools and programs for the deaf ($N = 2,575$ teachers). Relative to teachers nationwide, teachers of the deaf were more likely to self-identify as Caucasian (Simms et al., 2006).

A 2001 survey of administrators at 27 schools for the deaf showed that since 1998, these programs had had 70 vacancies in positions for supervisors, principals, assistant superintendents, and superintendents (Kelly-King, 2001). Kelly-King's survey indicated a serious imbalance between the number of available deaf professionals with multicultural backgrounds and the number needed to meet the needs

of deaf students with such backgrounds. The Council of Educational Administrators of Schools and Programs for the Deaf has estimated that a third of the administrators in deaf education programs will be eligible for retirement in the next decade (Frisina, 2001; Simone, 2001).

Clearly, new directives are needed to prepare additional teachers and leaders from diverse backgrounds. In subsequent sections of the present article, we present two university case studies and report how each institution is addressing these critical shortages. Recruitment strategies are also outlined.

Recruitment Strategies

Successful recruitment strategies include recruiting students at deaf and minority-deaf conferences, at home-

comings and reunions for residential schools for the deaf, at Deaf community events, and through advertising in Deaf community periodicals and journals. Strategies also include the hiring of deaf, minority, and deaf-minority faculty who function as role models for university deaf students, as well as providing scholarships, mentoring opportunities, support services, and funding for candidates to go to conferences and network with practicing professionals. University campuses where such training occurs must be accessible to deaf and minority students. The campus must have appropriate support services such as certified sign language interpreters and note takers. Visual technology such as CART (Communication Access Realtime Translation, also known as realtime captioning), the Internet, Web-based courses, accessible video-phones in dormitories and classroom buildings, and opportunities to video-conference with experts around the country can be made available. Universities can hire hearing professors who sign, host Deaf culture events, and provide an accessible learning environment in libraries and student services.

Another recruitment strategy is to ask alumni and current students to recruit their colleagues, coworkers, friends, and acquaintances by sharing their "grapevine" knowledge of the program. Satisfied graduates are the best advertisements.

A training program's success can be measured in many ways, but one important criterion is how successful program faculty are at helping graduates find jobs. This also includes continuing mentoring programs after graduation, especially in the initial years of teaching or administration.

The need for Hispanic teachers and administrators in deaf education is especially critical in Texas, where 4.3

Table 3

Racial/Ethnic Diversity of U.S. Teachers: General Teacher Population Compared to K–12 Teachers of the Deaf

	<i>General teacher population ($N = 2,050,000$)</i>	<i>K–12 teachers of the deaf ($N = 2,575$)</i>
Caucasian	84.6%	91.65%
Black/African American	9.7%	3.88%
Hispanic	5.7%	3.18%
Asian–Pacific Islander	n/a	1.98%
Multiethnic	n/a	0.16%
Deaf	n/a	21.79%
Minority deaf	n/a	2.52%

Note. Because of rounding, columns may not total 100.0%.
Sources. *Elementary secondary staff information report* (1997), National Center for Education Statistics (1997), Simms et al. (2006).

million Hispanics reside (U.S. Census Bureau, 2000). In that state, 47% of deaf children in regular education settings are Hispanic; more than 50% of deaf children in deaf education programs are Hispanic. Currently, 65% of the graduate student enrollment at Lamar University, in Beaumont, TX, is deaf or minority. Deaf and minority students bring their culture, language, and experiences coping within a hearing world to the program. Such a mix of faculty and student backgrounds enhances the educational environment for all, sets a different research agenda, and provides modeling for deaf-hearing collaborative teams.

Preparing deaf, minority, and minority-deaf students does present challenges. Quality support services and mentoring programs must be made available so that these students can succeed academically. It is also important that they have a satisfying graduate school experience, in which they are accepted and nurtured and their contributions are valued.

During the past decade, Texas has seen an increase in the hiring of deaf teachers for K–12 deaf education mainstreaming programs. More deaf teachers at the master's and doctoral levels are also being hired to teach ASL and Deaf culture at the community college level, at interpreter training programs, and in high schools. But a resistance by some school districts to hiring deaf professionals at the supervisor and principal levels in K–12 programs has also been observed. This may change as more deaf adults earn their doctorates and thus obtain more leverage in competing with applicants who have less education.

Western Oregon University has applied similar strategies. The university is located in Polk County, a rural jurisdiction in Oregon's coastal mountains. Polk County has a minority population of only about 11% (U.S. Census Bureau,

2000). Specifically, the county's population is 8.8% Hispanic, 1.8% American Indian or Alaskan Native, 1.3% Asian or Pacific Islander, and 0.4% African American. (These figures add up to more than 11% because of dual reporting by people of multiracial ancestry.) In fact, the minority population of the entire state of Oregon, including urban areas, is less than 14%.

Recruitment of students representing minority categories is a challenge even in the Pacific Northwest's metropolitan areas. It is substantially more difficult to attract underrepresented individuals to a small town in a predominantly Caucasian, rural area. Nonetheless, Western Oregon University diversity statistics indicate that diversity recruiting has seen an increase in deaf and hard of hearing students who are male, deaf and hard of hearing students from multicultural backgrounds, and deaf and hard of hearing students with other disabilities since 1995.

At the university level at Lamar University and Western Oregon University, deaf education program directors work closely with their university administrators to ensure that deaf, minority, and minority-deaf students receive a quality education and good support services. This has not always been easy. Interpreters, videophones, note taking, and tutoring are all costly services. Many university administrators may question this cost in relation to the low numbers of students served relative to the overall university population. This requires the presence of faculty who can inform university administrators of the long-range benefits of educating deaf and hard of hearing graduate students in terms of their contributions to the economy, to the university culture, and to the field of deaf education. Having sizable numbers of deaf and hard of hearing graduate students enrolled also places a university in a fa-

vorable position to compete for lucrative grants and contracts that add visibility to deaf education programs.

Deaf-Hearing Bicultural Teams

In the 19th century, Thomas Gallaudet and Laurent Clerc provided the field of deaf education with its first deaf-hearing bicultural team. The power of such a great idea has never been fully tapped. Diversity within the university teacher-training program is best modeled through the creation of such deaf-hearing bicultural (or multicultural) teams. The members of a deaf-hearing bicultural team combine backgrounds, interests, talents, skills in ASL and English, Deaf culture, and hearing culture.

There are outstanding examples of deaf-hearing bilingual teams across the United States. Nover and his colleagues at the Center for ASL/English Bilingual Education and Research (CAEBER) has formed such teams in more than 15 schools for the deaf and at five universities in the United States, in the course of providing inservice and preservice teachers with a state-of-the-art ASL/English bilingual curriculum.

Self-analysis, though uncomfortable when diversity, equity, and access issues are being confronted, is vital to the long-term health and effectiveness of teacher and leader preparation in deaf education. Historically, deaf professionals have been discriminated against, and barred from participating in the education of deaf children (Andrews & Franklin, 1997; Vernon, 1970). It took more than a century for Gallaudet University to appoint its first deaf president. Deaf adults have been made to feel the "discomforts of marginality" when trying to cope in a hearing society (Emerton, 1998).

Deaf/hearing bicultural teams provide checks and balances to limit power and prevent oppression. They

develop healthy ways of relating to deaf adults in the community and deaf children in the schools. Within a learning environment that is open to discussion and new ideas, graduate students in teacher training and leadership programs can critique their assumptions about deaf people, hearing people, being Caucasian, and being multicultural, as well as dynamics such as paternalism, oppression, power, empowerment, militancy, and advocacy (Corker, 1996).

Etiology

Changing demographics also involves changing etiologies. It is important that professionals be able to recognize the ways in which various etiologies and their potential consequences may interact with the environment and produce psychological and educational outcomes for the developing child. Such understanding of etiologic factors will contribute to constructive audiologic, linguistic, and education approaches that will contribute to deaf students' psychological and educational progress.

Today, nonsyndromic genetic deafness accounts for 50% or more of cases of childhood deafness. However, there are etiologies that become present at birth, when babies have suffered prenatal insults such as birth defects, maternal substance abuse, prematurity, meningitis, genetic syndromes, jaundice (including Rh factor complications), anoxia, exposure to sexually transmitted diseases, cytomegalovirus, and maternal misuse of medications. These etiologies may result in minimal brain damage, hearing loss, and learning disabilities (Morgan & Vernon, 2002). There has also been an increase in the number of deaf youths who require hospitalization and psychiatric treatment due to organic or environmental causes. Teachers and leadership personnel must be familiar with

mental health issues surrounding the treatment of deaf youth with additional psychiatric and emotional needs who may need to be referred to specialized psychiatric facilities (Willis & Vernon, 2002).

At Lamar University, professionals in training learn about etiologies in *The Psychology of Deafness* as well as in courses on multiple disabilities. A class on multiple disabilities was added in the 1990s to address the needs of the 30% to 40% of deaf children who have other disabilities in addition to deafness (e.g. mental retardation, learning disabilities, reading disabilities, emotional disturbances, physical disabilities, visual impairments). Students have also visited and served as student-teachers at facilities, such as the National Deaf Academy in Mt. Dora, FL, that provide psychiatric care for deaf youth and adults. Students also toured and provided educational workshops at the Estelle Unit at the Huntsville State Prison, Huntsville, TX. This correctional facility incarcerates about a hundred deaf inmates (Miller, 2001). These unique field experiences expand students' knowledge of the effects of deafness in combination with other disabilities.

In the Transition Planning Program at Western Oregon University, students learn about low-incidence disabilities, including severe physical and mental impairments, and about people with such disabilities who are using alternative and augmentative communication. Students also examine current knowledge and practices in the education of deaf students with autism. In courses grouped under the heading "Autism: Issues and Strategies," they are able to identify and prioritize their educational goals, design curricula for deaf children with special needs, and develop instructional strategies and communication techniques.

Advances in Molecular Genetics and Cochlear Implantation

Changing demographics also includes the increased use of molecular genetics and prosthetic devices such as cochlear implants. Developments related to molecular genetics and cochlear implantation raise profound and complex biological, ethical, and social issues.

Scientists are making major advances in identifying and locating the genes involved in hereditary deafness. Currently, the field has access to the biochemical and molecular characteristics of the genes involved in the composition of more than 30 forms of genetic hearing loss. Genes have been located and identified for specific syndromes that include hearing loss. The recent identification of connexin 26 represents a significant development in the investigation of nonsyndromic deafness. This has resulted in better genetic counseling for deaf individuals (Andrews et al., 2004).

Gene therapy raises serious ethical issues. Should the goal be to prevent deafness by using genetic engineering to modify the structure of the gene that causes hearing loss? Could and should fetal testing in the early months of pregnancy be used to help prevent deafness? In cases of positive test results, parents could be confronted with the difficult choice between allowing the pregnancy to come to term and aborting the fetus. Such prevention techniques are highly controversial. Is genetic manipulation ethical in eliminating groups of deaf people with inherited conditions? On the other hand, are deaf people a part of human diversity? These profound questions need to be studied by professional in training in higher education (Andrews et al., 2004).

Cochlear implantation is another issue of debate. Today, many deaf children are receiving cochlear implants,

and the numbers of such children are expected to increase (Christiansen & Leigh, 2002). Cochlear implant technology has improved since its invention in the 1970s; infants are now receiving implants. However, the implant does not replace normal hearing, and the deaf child will still require services such as special education, sign language interpreters, and note takers. There are many unanswered questions in cochlear implant technology related to educational placement and training. This is a ripe area for research from educators' standpoint. Children with implants are indeed becoming more numerous in the schools, and teachers, administrators, and parents are struggling to address these children's language, communication, and psychosocial-emotional needs. Where do these children fit into the educational establishment? Alternatively, are new forms of educational placement needed within existing schools?

Many children with implants will simultaneously sign and speak, or just speak while their parents speak and sign to them. Many will sign with their deaf friends but just use speech in their communication with their families. In a study of more than 300 families with deaf children with cochlear implants, Christiansen and Leigh (2002) found that children with implants who are placed in various educational settings still need support services such as sign language interpreting and oral interpreting, the same as other deaf students in the same program.

An Evolving Curriculum Research and Best Practices in Deaf Education

Over the past 15 years, both Lamar University and Western Oregon University curricula have been revised many times based on new findings in the social sciences. Traditionally, the

Table 4

Areas Where Teacher in Training Need Additional Course Work

1. Deaf studies and Deaf culture
2. Understanding the psychology of deafness, including mental health issues
3. American Sign Language/English bilingual/bicultural approaches to language teaching and language learning
4. Assessments: ASL and English, as well as auditory, speech, psychological, behavioral, socioemotional, and academic subjects
5. Content areas (e.g., mathematics, science, social studies)
6. Current practices in English literacy
7. High-stakes assessment and accountability
8. The acquisition of conversational skills in ASL
9. Understanding the linguistics of ASL
10. Behavioral management
11. Instructional design, including integrating the use of educational technology
12. Multiple disabilities (including deaf-blindness and autism)
13. Law and deafness
14. Multicultural issues in education
15. Hearing and speech sciences
16. Educational technology
17. Visual technology: multimedia materials, videoconferencing and videophones, Internet and Web-based courses and their communication applications
18. Auditory technology: digital hearing aids, cochlear implantation, FM systems, assistive listening devices

master's-degree teacher preparation curriculum was made up of speech-and-hearing science course work. Indeed, the speech-and-hearing sciences are an important part of the preparation of teachers. But teachers need more course work in many areas, such as those listed in Table 4.

Our recommendations for master's-level training are based on the complex needs of deaf children and youth in educational settings. However, a trend in the field is to provide only bachelor's-level course work. In addition, relative to findings from a 1986 survey, the number and level of deaf education programs is declining, while the number of specializations and program length are both increasing (Jones & Ewing, 2002).

Deaf Studies and the Role of Deaf Professionals

Deaf history and heritage have existed in the United States (Groce, 1980; Lane,

2004; Lang, 2004; Padden & Humphries, 2005) and Europe (Lane & Philips, 1984) wherever deaf people have lived, gone to school, and worked. Since the first school for the deaf was established in 1817, deaf adults have wanted to be involved in the education of deaf children. In fact, deaf individuals were involved in the establishment of 24 schools for the deaf from 1817 to 1911 (Gannon, 1981). All of this came to a halt in the late 19th century with the onset of the oralism, or speech-only, movement, which resulted in many deaf teachers being fired by schools for the deaf. The removal of deaf teachers was recommended by an international deaf education conference convened in Italy in 1880, the Council of Milan. Following this conference, through the actions of hearing administrators, deaf teachers were removed from their teaching assignments and hearing teachers empha-

sizing speech-only methods were hired (Nover, 2000).

In 1970 McCay Vernon published a prescient paper, "The Role of Deaf Teachers in Deaf Education," in *The Deaf American*. The article concerned the role of Gallaudet College faculty and students in promoting the deaf professional:

A lot can be done by Gallaudet students and faculty. It requires the careful planning, effective organization, brains, work, and courage that are the backbone of any political action. . . . First, a political action committee needs to be established by Gallaudet students. Second, experienced consultation from the NAD [National Association of the Deaf], the Gallaudet faculty, and the political arena are needed. . . . Third, efforts need to be concentrated on legislators who serve on key government committees on deafness. (p. 19)

Eighteen years later, these ideas came to be. In 1988, deaf students from Gallaudet University led the Deaf President Now movement, which toppled the university's hearing board of directors and led to the hiring of the first deaf president in Gallaudet's 123-year history (Christiansen & Barnartt, 1995).

The 2006 events at Gallaudet, with the leadership crisis and protest over the selection of a deaf woman president, need further analysis and scrutiny. The fact is that most of the members of the Gallaudet Board of Trustees were deaf; also, there was significant minority representation on the Board. The president and the president-designate were deaf (<http://bot.gallaudet.edu>). So was the choice of president a deaf-hearing issue? Furthermore, the faculty, most of whose members were hearing, voted by a large majority against the deaf presi-

dent-elect. The protest was conducted by deaf students. So where did the crisis of leadership come from? What could have been done differently by the Board of Trustees, the administrators, and faculty, if anything? There are no simple answers to these complex questions. They need to be examined and studied in teacher training and leadership preparation programs using the research tools of social science to unravel the complexities of diversity, equity, and access.

Today, there are insufficient numbers of deaf professionals being trained for leadership positions. Information about the role of deaf teachers and administrators, as well as movements such as Deaf President Now, the 2006 protests at Gallaudet, and other events of deaf history and heritage, are important ingredients in a Deaf studies/deaf education curriculum for teachers and administrators in training. Inclusion of such information in the curriculum could facilitate the recruitment of additional deaf and minority teachers and school leaders.

The field of Deaf studies also has potential to affect the bicultural identity of deaf youths—a much-neglected area in educational placements in public schools, in both mainstream and deaf education classrooms. Unfortunately, society's perceptions and misperceptions of deaf people's abilities can and do create mental health problems in some deaf people. Deaf studies in the curriculum can assist deaf children and youth in acquiring a bicultural identity—a place where they can be comfortable in both worlds, deaf and hearing (Emerton, 1998; Padden, 1998).

Teacher training programs can offer course work in Deaf studies, and include content not only on Deaf history but on topics such as Deaf sport, Deaf art, Deaf literature and theater,

and ASL literature and poetry. Particularly, the study of Deaf art in the Deaf studies curriculum has been neglected in schools (Sonnenstrahl, 2004).

ASL/English Bilingual Education

Historically, the use of sign language and English (i.e., bilingualism) has been deeply embedded in deaf education (Nover, 2000). In 1975, William C. Stokoe submitted a proposal, "An Untried Experiment: Bicultural and Bilingual Education of Deaf Children," to the president of Gallaudet:

In the long history of attempts by hearing persons and by official bodies to educate or to provide education for deaf persons, many methods have been tried. The history is well enough known not to need recounting here. However, one method has not yet been tried on any but an isolated individual or two, even though many findings of current science recommend it. (Stokoe, cited by Maher, 1996, p. 125)

Stokoe's proposal was ignored. But since then, there has been a major impetus for ASL/English bilingual education in the field due to the work of Steve Nover and his colleagues at CAEBER, which is located at the New Mexico School for the Deaf, in Santa Fe. Funded multiple times by the U.S. Department of Education, CAEBER is applying current theories and strategies of bilingualism and developing ASL/English bilingual education at the preservice and in-service levels. Research and training at CAEBER have provided both Lamar University and Western Oregon University with educational programming and materials to prepare faculty and preservice teachers; CAEBER research has also provided graduate students with ideas for theses and dissertations.

Literacy, Educational Technology, Mathematics, and Science Materials

Through U.S. Department of Education, Steppingstone, and National Science Foundation grants, Lamar University has been developing dual-language multimedia literacy materials for deaf students in mathematics, science, and language arts in English and ASL. The grants bring practicing teachers to the Lamar campus each summer. Teachers work together, learn how to write multimedia and Web-based materials, then bring these materials back home to their classrooms. The grants also provide teachers with computers, desktop videoconferencing, video cameras, and digital microscopes, to enable them to continue their work at their home schools. Hispanic literacy stories, math word problems, homework help on the Web, and science materials are some of the products of these grants. Lamar University has also attempted to integrate educational technology projects across the curriculum (Andrews, Cocke, & Nichols, 2005).

In addition, Western Oregon University has experimented with using technology to provide feedback on students' instructional techniques, communication skills, behavioral management strategies, professionalism, and lesson content. Faculty are using Studio Code, a software and digital technology program marketed by SportsTec (www.sportstecinternational.com). Studio Code was initially developed for coaches to use in analyzing the movements of athletes on collegiate and professional teams. Western Oregon University has used Studio Code to capture and analyze key behaviors related to student teaching and the use of ASL. This software is a powerful tool to capture and analyze students' strengths and weaknesses

that are marked directly onto a digitized video file. Professionals in the field of interpreting are also using this software to train sign language interpreters (L. Gelineau-Bridges, personal communication, November 3, 2006).

Speech and Hearing Sciences

Lamar University is currently experimenting in the undergraduate language acquisition class and doctoral psycholinguistics seminar class with discussion of topics in both *spoken* language and *signed* languages. This provides communication disorder specialists with a broader understanding of language development in both modalities. Leadership students in audiology (Au.D., clinical doctorate level) and in Deaf studies/deaf education are enrolled in these seminars. Because of the increasing number of graduate students who wear cochlear implants, audiology professionals in training benefit from learning from deaf adults' viewpoint about their experiences with this technology. Graduate students at the master's level also study current developments in digital hearing aids and cochlear implantation, visit audiologic offices and medical faculties, and visit national cochlear implant centers.

Enlarging the Knowledge Base With Applied Research: The Future of Any Discipline

Faculty at Lamar University attempt to match students' interests with the work of various experts by inviting these experts to campus to lecture and to network with students on projects, theses, and dissertations. We have formed a *community of practice* in deaf education (Wenger, 1998). Since 1994, more than 25 researchers in deaf education and related disciplines have come to share their expertise with students. One recent visitor was E. Lynn Jacobowitz, an associate professor in

the Department of ASL and Deaf Studies at Gallaudet University, who lectured on the role of Deaf literature and ASL literature in Deaf studies. Such experts provide students with a breadth of knowledge and experiences.

When universities attract deaf, minority, and minority-deaf candidates, a predictable event occurs: The research agenda shifts to diversity issues. Topics students have chosen with the guidance of experts include designing a early reading program for African American parents and their deaf children, identity and deaf African American adults, the history of Deaf studies programs at the university level, the achievement levels of Asian deaf students, the history of deaf children's theater, comprehension of the *Miranda* warning by deaf adults, reading science texts using bilingual methodology, learning styles of graduate students in deaf education, aggression in deaf males, the crimes of deaf prisoners who have been incarcerated at Huntsville State Prison in Texas, the acquisition of ASL as a first and second language by deaf adults, the role of the certified deaf interpreter in trials involving deaf clients, and assessment of ASL.

With effort, imagination, and resources, fresh ideas can begin flowing into stale and irrelevant curricula in higher education. Students and faculty can enlarge the deaf education knowledge base through applied social science research. Of course, the field continues to face slashed budgets. Closed-mindedness is another barrier, including prejudicial and racist beliefs about deaf people. Mitchell J. Chang and his colleagues at Stanford University state that diversity (racial, ethnic, gender, and class—to which we add being deaf) serves a "compelling interest both to the institutions and to the society in which students will enter" (Chang et al., 2003, p. 2). Indeed, a

“compelling interest” exists in taking up the task of preparing additional teachers and leaders in deaf education who represent diverse backgrounds and who understand the complexities involved in educating deaf children and youth.

Notes

1. Notable case law related to diversity includes the 1978 Supreme Court case *Regents of the University of California v. Bakke*. The plaintiff challenged the University of Davis (UC Davis) medical school's practice of reserving 16 spots for African American, Latino, and Asian American students. Allan Bakke, a Caucasian applicant, sued UC Davis, claiming that the admissions process violated the Equal Protection Clause of the U.S. Constitution as well as Title VI of the Civil Rights Act of 1964. Writing for the majority, Justice Lewis Powell held that racial quotas were unconstitutional but that a university should be permitted to take into account the applicant's race as part of the admissions process. *Bakke* is regularly cited in defense of race-conscious admissions programs. The decision in *Hopwood v. Texas*, handed down in the U.S. Fifth Circuit Court in 1996, and the ballots initiatives Proposition 209 in California (1996) and Initiative 200 in Washington State (1998), have had the effect of outlawing consideration of race in higher education admissions and hiring decisions. Chang and colleagues (2003) hold that these laws, plus other initiatives in Virginia, have dramatically reduced the number of minority individuals in undergraduate programs in the United States.

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