U. S. Deaf Education Teacher Preparation Programs: A Look at the Present and a Vision for the Future

Prepared for the Center on Personnel Studies in Special Education

by
Harold A. Johnson
Kent State University

June 2003

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In addition to our authors and reviewers, many individuals and organizations have contributed substantially to our efforts, including Drs. Erling Boe of the University of Pennsylvania and Elaine Carlson of WESTAT. We also have benefited greatly from collaboration with the National Clearinghouse for the Professions in Special Education, the Policymakers Partnership, and their parent organizations, the Council for Exceptional Children and the National Association of State Directors of Special Education.

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COPSSE Project
P.O. Box 117050
University of Florida
Gainesville, FL 32611
352-392-0701
352-392-2655 (Fax)

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ABSTRACT

Numerous reports identify critical learning needs of deaf or hard-of-hearing (D/HH) students, but there is a growing recognition that their ability to achieve academic success is tied to the instructional effectiveness of teachers. Developments in D/HH education include: (a) a shift toward educating students in local public schools, (b) a conceptual reorientation toward establishing effective learning environments, and (c) a critical, nationwide shortage of qualified teachers. The result has been a growing acceptance of the need to examine and redesign the way we prepare teachers to educate deaf or hard-of-hearing students. This paper is an examination of key redesign issues.

INTRODUCTION

The field of deaf education is better known for its controversies than its successes (Easterbrooks, 2001). Historic disagreements about the most appropriate way to communicate with deaf/hard-of-hearing (D/HH) students have served to divert attention from one underlying reality: in spite of our efforts, the majority of D/HH students graduate from high school substantially undereducated (Bowe, 1988). While most D/HH students possess normal intelligence, their average reading grade level remains consistently and substantially below that of their hearing peers (Traxler, 2000). Given this level of performance, it is not surprising that 60% of D/HH high school graduates are considered inadequately prepared for college (Bowe, 1988). In 1998, the Northern California Center on Deafness (as cited in Siegel, 2000) found that 90% of D/HH adults were underemployed.

The sad reality is that this inadequate level of performance has occurred over such a long time that it has come to be accepted, and even expected, by a majority of educators. Although many reports have identified the critical learning needs of D/HH students (e.g., Bowe, 1988; Mackie, 1956), there is also a growing recognition that the ability of D/HH students to achieve academic success is inexorably tied to the instructional effectiveness of their teachers (Easterbrooks & Baker-Hawkins, 1995). This recognition—combined with (a) a demographic shift in the education of D/HH students from residential schools to local public schools (Holden-Pitt & Diaz, 1998), (b) a conceptual reorientation from a search for the best communication system to the establishment of effective learning environments for D/HH students (Siegel, 2000), and (c) a critical, nationwide shortage of qualified teachers of D/HH students (Bradfield & Seagrest, 2001)—has resulted in a growing acceptance of the need to first examine, and then redesign, both the way we prepare teachers and the way we educate D/HH students (Bugen, Innes, Randall, & Siegel, 2001). This paper examines the key issues in redesigning the way we educate D/HH students. The examination addresses four questions:

- What are the key concepts that can be used to guide the redesign of deaf education?

- How many teachers of D/HH students are needed and what are the instructional demands those teachers must be prepared to address?

- To what extent can state and national certification/licensure standards be used to provide guidance and oversight for the preparation of effective teachers of D/HH students?

- How are individuals now prepared to become teachers of D/HH students and how can that preparation be enhanced?

CRITICAL CONCEPTS

The redesign of deaf education is an incredibly complex task involving thousands of individuals throughout the nation who represent diverse, often conflicting, conceptual orientations. Although the details of the redesign will necessarily be complex, the essential concepts that drive the redesign must be straightforward and readily acceptable by most individuals involved. Given this preamble, two basic concepts as guides of the redesign of deaf education are proposed—critical mass and teachers/students as learners.

Critical Mass

Helen Keller is quoted to have said that "blindness cuts people off from things, deafness cuts people off from people" (Dolnick, 1993). This perspective has been repeated throughout the deafness-related literature (e.g., Lane, 1984; Lane, Hoffmeister, & Bahan, 1996; Van Cleve, 1993). It can be argued that the essential problem of deafness is not a lack of hearing, but an abundance of isolation. Given this position, the most effective way to address problems of deafness would be to increase the critical mass of interpersonal and informational opportunities that are available to D/HH individuals.

Educators of D/HH students have traditionally attempted to establish school settings with a critical mass of students, teachers, instructional resources, and learning opportunities. Historically, such settings were at state/private, residential/day schools for D/HH students (Moores, 2001). Gradually, large public school programs clustered significant numbers of D/HH students from several school systems into one (Easterbrooks, 2001). Unfortunately, this educational design was disrupted by an unforeseen impact of the 1991 reauthorization of the Individuals with Disabilities Act (IDEA) (Ramsey, 1997). The common IDEA interpretation essentially required proof that individuals with disabilities could not receive an adequate education with their non-disabled peers before a more restrictive placement (i.e., other than the general education classroom) could be considered (Siegel, 2000). This interpretation substantially accelerated a trend that had already begun within the field of deaf education—a shift from the residential, day, or public school cluster program to inclusive placements within neighborhood schools (Holden-Pitt & Diaz, 1998).

This new reality requires two responses from the field of deaf education. First, the field must find new strategies to maintain and strengthen the settings in which D/HH students have been educated traditionally. Such settings are required to meet the legally mandated array of educational options. In addition, these settings are necessary to provide the instructional support and professional development assistance needed by school systems and teachers who work with only a few D/HH students each year. Second, the field must find new strategies to achieve critical masses of D/HH students, teachers, instructional resources, and learning opportunities. This requirement acknowledges that: (a) Inclusive settings may very well become the placement of choice for most parents of D/HH students, and (b) Educators of D/HH students have faced historic and chronic difficulties in designing and providing effective instruction for a diverse student population, including students who have yet to be well served—gifted, ethnically diverse, and multi-handicapped (MH) D/HH students.

The need for new strategies has occurred at a time of unprecedented technological opportunities for education (Carroll, 2000). Virtual critical mass (e.g., computer-based, Internet-linked learning communities) is technically possible within the nation's schools (Johnson, 1995, 1997). The field of deaf education could use such virtual learning communities: (a) to enable D/HH students, teachers, and parents to interact effectively and efficiently with peers, (b) to share resources, (c) to increase learning opportunities, and (d) to offer unique educational programs for subpopulations of D/HH students. The virtual learning communities could enhance the preparation of new teachers of D/HH students by: (a) grounding preparation in the proven instructional strategies of practicing teachers and (b) providing additional professional development opportunities for practicing teachers. As Larry Cuban (Carlson, 2001) and others (Zhao & Cziko, 2001) have so often noted, technological advancements do not necessarily translate into educational applications. Although the computer-based, Internet-linked technologies have the potential to achieve a virtual critical mass of D/HH students, teachers, instructional resources, and learning opportunities, such technologies are only part of the concepts needed for a redesign of deaf education.

Teachers and Students as Learners

Teachers teach and students learn. This simple formula has served as the basic mantra of U. S. schools for centuries. Within this model, teachers direct and evaluate students' work as they progress through a linear array of curricular materials allocated to each grade level. Teachers are expected to cover a large amount of information. The use of state-mandated competency tests to verify the accomplishments of students, teachers, and schools is increasing. The process has been compared to a factory assembly line (Carroll, 2001) that focuses on the quantity of work completed rather than the quality of knowledge gained. Although the appropriateness of this model of teaching and learning can be argued, one fact is inescapable for the field of deaf education—in spite of our efforts, we must finally accept that it is impossible to teach our D/HH students everything that they need to know. This reality is reflected by the fact that most teachers of D/HH students frequently experience the frustration of teaching the same information or skill to their students over and over. Equally common, teachers find that they must spend a tremendous amount of time teaching basic, background information to their students. In fact, so much time is spent filling in gaps in students' knowledge that teachers rarely have time to complete a planned lesson or curricular unit. Many teachers become frustrated and their students become bored as they repeat the same material, and students lag further behind the academic achievements of their hearing peers. Although the situation is indeed bleak for many teachers and their D/HH students, it does not have to remain so.

In an alternative to the teachers-teach/students-learn model (Carroll, 2001), teachers function as master learners who help their students move from novice learners to mature learners. A critical component of this model involves teachers and students collaboratively working as part of a larger community of learners to construct new knowledge. This knowledge is shared with other members of the networked learning community, adding value to the students' work and increasing the resources available to the community. During this process, teachers use the resources of the networked learning community to: (a) build on their students' interests, (b) match their students with both actual and virtual peers sharing their interests, (c) provide students with authentic learning opportunities that give them reasons to learn what school/society expects

of them, (d) model and explain how their students can become more independent and effective learners, and (e) give their students increasing responsibility to track and present their growing knowledge base and learning competence. The same network can be used effectively and efficiently to enhance the preparation of new teachers, while supporting the professional development of practicing teachers. In this scenario, D/HH students have both the opportunity and the rationale for learning what society expects of them. This model bridges the realities gap between institutions of higher education (IHEs) that prepare teachers of D/HH students and the instructional settings in which graduates must teach. (Johnson & Dilka, 2000). Although Carroll (2001) has characterized this alternative model of teaching and learning as knowledge generation, many other researchers have simply described it as *effective teaching* (Easterbrooks & Baker, 2002; Orlich, Harder, Callahan, & Gibson, 2001; Stewart & Kluwin, 2001). Regardless of the term used, this paper proposes that deaf education redesign should focus on the establishment and use of a collaborative network in which students and teachers become increasingly effective learners.

Summary

Two concepts have been presented as foundational to the redesign of deaf education: (a) critical mass and (b) teachers and students as increasingly effective members of a networked community of learners. It is proposed that these two concepts serve as basic guidelines for the work of redesign. For example, does *X* serve to increase actual or virtual critical mass and/or to enhance the learning skills of teachers and students. **Table 1** shows important research questions for deaf education research.

Table 1. Outline of Critical Questions for Deaf Education

1. Critical Mass

   a. What constitutes actual and virtual critical mass in deaf education?
   b. What impact does the presence or absence of actual or virtual critical mass have on the achievement of D/HH students, the professional activities of the students' teachers, the educational involvement of the students' parents, and/or the preparation of teachers of D/HH students?

2. Teachers and Students as Learners

   a. What constitutes effective instructional strategies in deaf education?
   b. What impact does the use of a knowledge-generation instructional model have on the achievement of D/HH students, the professional activities of the students' teachers, the educational involvement of the students' parents, and/or the preparation of teachers of D/HH students?

3. Critical Mass and Teachers and Students as Learners

   a. What impacts do the lack of critical mass and a knowledge-generation instructional model have on the achievement of D/HH students, the professional activities of the students' teachers, the educational involvement of the students' parents, and/or the preparation of teachers of D/HH students?

   b. What impact does the presence of critical mass and a knowledge-generation instructional model have on the achievement of D/HH students, the professional activities of the students' teachers, the educational involvement of the students' parents, and/or the preparation of teachers of D/HH students?

SUPPLY AND DEMAND

How many teachers of D/HH students are needed, and what are the essential instructional demands that those teachers should be prepared to meet? This straightforward question is surprisingly difficult to answer, because it requires knowledge of (a) the number of D/HH students in the nation's schools, (b) their basic demographic characteristics, and (c) the current demand for teachers of D/HH students.

Number of D/HH Students

During the 1990-1991 school year, 59,211 D/HH students, aged 6-21, were identified as receiving educational services in the nation's K-12 schools (U. S. Department of Education [USDOE], 2002). This number grew to 65,039 in 1993-1994 and to 71,671 in 1999-2000. Thus, during the identified 10-year period, there was an increase of 12,460 D/HH students, aged 6-21, receiving educational services in K-12 schools. Even this significant increase may fail to capture the actual number of D/HH students who are now receiving educational services.

To date, 32 states have passed legislation that requires hospitals to conduct newborn hearing screening tests, and legislation is pending in other states (*ASHA Applauds House Passage of H.R. 4365*, 2000). Services for early-identified children (i.e., younger than 6 months) have included effective family services, appropriate amplification (including cochlear implants), and dynamic language stimulation (both spoken and signed). Although the positive impact of finding and providing appropriate services to families and their newborn D/HH infants has been clearly established in the literature (Yoshinaga-Itano & Sedey, 2000), the children who have benefited from this early identification and services are now beginning to enter the nation's schools in significant numbers.   It is very likely that more D/HH children will begin their educations with a language skill level at or near that of their hearing peers. This may require a dramatic change in the type of educational programming characteristically provided to D/HH students and the preparation/professional development of the students' teachers.

Demographic Characteristics of D/HH Students

Demographic characteristics of D/HH students are provided by an annual survey of D/HH children and youth that is carried out by the Gallaudet Research Institute. Summary data are published each year in the April issue of the American Annals of the Deaf [AAOD]. While all of the residential schools and most of the day schools for D/HH students respond to the survey's request for demographic data on their students, only 60% of the nation's K-12 public schools that provide educational services to D/HH students reply to the survey (Holden-Pitt & Diaz, 1998). Given that most D/HH students now receive their education in public schools, the current demographic data unfortunately fail to account for a substantial part of the K-12 D/HH student population.

Holden-Pitt and Diaz (1998) analyzed 20 years (1977-1997) of demographic data from the annual survey to provide a profile of the D/HH students who are now or who will shortly be in our nation's schools. A summary of Holden-Pitt and Diaz's (1998) findings is shown in **Table 2**.

Table 2. Demographic Changes in the U. S. D/HH Student Population: 1977-1997

CATEGORY	CHANGE?	COMMENTS
1. Geographic distribution	No change	Highest in the South (35%) and lowest in the Northeast (20%)
2. Gender	No change	Slightly more males than females
3. Racial/ethnic background	Change	Whites from 71% to 58%
		Hispanics from 9% to 18%
		Asian from 1% to 4%
	No change	Incidence of Blacks (17%) & American Indians (<1%)
4. Causes of hearing loss	Change	Maternal Rubella: from 21% to 1%
	No change	Other causes
5. Degree of hearing loss	Change	<27db from 4% to 12%
		Mild from 5% to 11%
		Moderate from 9% to 13%
		Mod. Severe from 13% to 12%
		Severe from 25% to 17%
		Profound from 44% to 35%
6. School type	Change	Residential schools from 36% to 20%
		Day schools from 15% to 8%
		Local schools from 46% to 69%
7. Academic integration with hearing students	Change	Not integrated from 66% to 38%
		Part-time from 16% to 22%
		Full time from 18% to 40%
8. Communication method	Change	Sign + Speech from 60% to 51%
		Speech from 39% to 44%
		Sign from 0% to 4%
		Cued <1% to 1%
9. Multi-handicapped	No change	20% to 40%

[*Deaf children with multiple disabilities*, 2001]

Between 1977 and 1997, six of the nine demographic characteristics noted in the annual survey changed. Given this information, the following predictions can be made concerning D/HH students in the nation's schools:

1. Students will continue to be predominantly male, while the primary ethnicity of students will no longer be White.

2. *Unknown* will continue to be recorded as the most common cause of the students' hearing loss. Most hearing losses will be classified as having occurred at birth or shortly thereafter, and between 20% and 40% of the students will display a secondary disability.

3. The number of students who receive their education in residential or day schools will continue to decline, while the number of students who receive their education in their local public schools will continue to increase.

4. As more students with mild to moderate hearing loss are identified and provided educational services, speech alone—rather than speech and sign—will become the predominant communication modality.

5. The use of sign alone will continue to increase, but it will never be used with more than a small minority of students at a dwindling number of residential and day schools.

Current Demand for Teachers of D/HH Students

There is a persistent, nationwide shortage of teachers who are prepared to teach D/HH students (USDOE, 2002; LaSasso & Wilson, 2000). While the shortage is most pronounced in western and southern states, the need for teachers of D/HH students outstrips the available supply in virtually every state (American Association for Employment in Education, 2000). The extent of this shortage is provided in two data sources: (a) the increase of 12,461 D/HH students, aged 6-21 from 1990-1991 to 1999-2000 (USDOE, 2002) and (b) the 791 deaf education teacher graduates in 1990-1991 (AAOD, 1991). Eleven years later (2001-2002), 788 graduates from teacher preparation programs were reported (AAOD, 2002). Although there has been a significant increase in the number of D/HH students in the nation's schools, the number of teachers being prepared to teach D/HH students has remained the same.

The shortage of teachers for D/HH students is one of both quantity and diversity. The results of several studies (Andrews & Jordan, 1993; Corbett & Jensema, 1981; Moores, 1995), as summarized by Moores (2001), indicate that teachers of D/HH students are predominantly White, hearing, and female. The studies also indicate that only 5% to 10% of the teachers are members of an ethnic minority, and only 15% of the teachers classified themselves as deaf. Andrews and Jordan (1993) indicate that minority-deaf teachers of D/HH students tend to work at residential schools for the deaf. Further, the researchers found that Texas and New Mexico had the highest concentration of Hispanic teachers of D/HH students, although the highest concentration of Hispanic D/HH students was in New York, California, and Florida.

It is not known how many individuals are teaching D/HH students without the appropriate certification of licensure. Although the overall figure for individuals teaching in special education without appropriate preparation is 10% (USDOE, 2002), the figure for deaf education appears to be substantially higher. For one thing, 18 states and territories do not offer a deaf education teacher preparation program. In one of those states (West Virginia), 20 of 76 teachers for the deaf were "on permit or out of field certification" in 2000-2001 (A. Carey, personal communication, September 21, 2001). The West Virginia data suggest that a higher percentage of individuals in deaf education are teaching without appropriate certification or licensure than in the general special education pool. This premise is supported by the practice in Georgia of granting provisional D/HH certification to individuals who have just begun their teacher preparation (Easterbrooks, personal communication, 2001). The premise is also supported by data from Ohio, a state with four deaf education teacher preparation programs, which reported an 82% shortfall in the number of teachers of D/HH students needed for 2000-2001 (State Superintendent's Task Force, 2002).

The critical and ongoing shortage of teachers of D/HH students and the prevalence of individuals teaching D/HH students without appropriate certification or licensure have caused six southern states to enter into a unique collaborative agreement. State department representatives from Arkansas, Florida, Georgia, Louisiana, Mississippi, and Texas, with the guidance and assistance of professionals from the Southeast Regional Resource Center (SERRC), have signed a formal Memorandum of Agreement about the preparation of teachers of D/HH students (B. Beal, personal communication, September 24, 2001). These states have agreed to collaborate in the design, funding, implementation, and evaluation of regional, rather than state-specific, deaf education teacher preparation. Critical elements of the collaborative effort call for the states to establish: (a) common certification requirements, (b) course requirements and descriptions, (c) shared recruitment and admission programs, (d) shared supervision strategies and resources, and (e) shared web-based resources to support and enhance the initial and ongoing professional development of teachers of D/HH students. This developing regional model of deaf education teacher preparation, if successful, may provide an efficient and effective model for national strategy to prepare and to support the large number of teachers of D/HH students needed throughout the nation.

Summary

The shortage of teachers in deaf education occurs at a time of substantial demographic changes in the nation's D/HH student population. D/HH students are increasingly more likely to be: (a) ethnically diverse, (b) have more hearing, (c) communicate via speech, and (d) be educated with their hearing peers. Notwithstanding this, teachers of D/HH students continue to be White, female, and hearing. The relative scarcity of deaf education teacher preparation programs appears to be forcing some states to place unqualified individuals as teachers of D/HH students. However, the emergence of regional collaborative agreements is entirely consistent with the concepts of virtual critical mass and a networked learning community, which this discussion has proposed. It is increasingly difficult to gather sufficient educational resources to meet the needs of widely dispersed, ethnically diverse, frequently mentally handicapped D/HH students; however, it is technologically possible to link students and their teachers to a networked learning community. This community, in turn, collaborates in the development and sharing of learning resources and opportunities for both D/HH students and their teachers. Regardless of physical location, students and teachers can access: (a) a community of learners who share the experiences of deaf education and collaborate to improve academic performance, and (b) instructional expertise through a common focus of becoming increasingly effective learners.

The following questions can serve as the starting point for gathering information and developing strategies:

- Where are the nation's D/HH students being educated, and what are their demographic characteristics?

- What are the qualifications of the individuals who are teaching the nation's D/HH students?

- What are the particular abilities, interests, and instructional needs of those teachers and students?

- How can the abilities, interests, and instructional needs of existing teachers and D/HH students be used to enhance the preparation of new teachers, to support the ongoing professional development of existing teachers, and to contribute to the academic success of their D/HH students?

- How can more teachers of D/HH students be recruited?

- How can recruitment decrease the mismatch of teacher/student ethnicity by providing more teachers to parts of the country with the greatest needs?

- How can the needs of an increasing number of D/HH students in general education settings be met and at the same time maintain placement options provided by residential, day, and center-based public school programs for D/HH students?

Answers to these questions would improve the match between how teachers of D/HH students are prepared and the teaching tasks they are asked to perform. Answers would also help us to recruit the teachers that we need rather than simply accepting the students who indicate an interest in becoming teachers of D/HH students, as is now the case (Johnson, 2000). Finally, answers would serve to document the characteristics of our D/HH students: some are gifted, some are home-schooled, some use languages other than English or American Sign Language, and all can be successfully educated if the focus is on learning and sharing.

CERTIFICATION AND LICENSURE

Although a comprehensive, state-by-state analysis of U. S. deaf education teacher certification/licensure standards has not been published, a surprising number of federally sponsored reports, research studies, and position papers concerning the needed knowledge, competencies, and skills of teachers of D/HH students are available.

Recommendations, Guidelines, and Standards for Deaf Education

The 1965 Babbidge report is frequently referred to as the first comprehensive examination of U. S. educational services for D/HH students; however, its findings are best used as a baseline against which future progress can be measured. Twenty-three years later, *Toward Equality: Education of the Deaf* (Bowe, 1988) found that the "present status of education for persons who are deaf in the U. S. is unsatisfactory" (p. 8). The report went on to outline 52 recommendations to enhance deaf education. Eight recommendations concerned professional standards and training for teachers of D/HH students. Analysis of the recommendations suggests that USDOE work with state agencies to:

- Establish standards for the preparation of individuals to work with D/HH infants/toddlers and their families. (#29)

- Have individuals knowledgeable about deafness on decision-making councils. (#30)

- Offer personnel preparation grants for deaf education parent/infant specialists. (#31)

- Insure that Council on the Education of the Deaf (CED) standards are used to guide the preparation of new teachers of D/HH students. (#33)

- Provide technical assistance to regular education teachers who have D/HH students in their classes. (#34)

- Recruit qualified individuals, especially minority and deaf individuals, to enter the field of deaf education. (#35)

- Increase the number of traineeships available in the field of deaf education. (#39)

These recommendations offer guidance on a system of professional development but do not indicate what those professionals should know or be able to do. However, seven years later, the National Association of State Directors of Special Education (NASDSE) published a comprehensive set of guidelines that were designed to fill this informational void (Easterbrooks & Baker-Hawkins, 1995). NASDSE guidelines provide 44 issues and literally hundreds of goal-like statements about the following major categories: (a) foundations for educating students who are D/HH, (b) supportive structures and administration, (c) assessment, (d) placement and program options, and (e) personnel. The basic intent of the NASDSE document was to provide state departments of education and educational program with guidelines related to essential characteristics of effective educational programming for D/HH students. The document also

provided guidelines for colleges and universities that prepare teachers of D/HH students. Critical elements of the teacher preparation guidelines were that CED standards should guide teacher preparation and professional development and "teachers should meet the standards to teach regular education students at the same age and developmental stage at which they are teaching students who have a hearing loss" (p. 59). An analysis of the match between NASDSE personnel preparation guidelines and CED standards has not been published, but CED did publish revisions of their standards in 1996 (Joint Standards Committee, 1996). Sixty-six standards were listed. A breakdown of the major categories into which the standards were organized is shown in **Table 3**.

Table 3. CED Standards Categories

CED STANDARDS	NUMBER	PERCENTAGE
Philosophical, Historical, and Legal Foundations of Special Education	9	13.6%
Characteristics of Learners	10	15.2%
Assessment, Diagnosis, and Evaluation	7	10.6%
Instructional Content and Practice	18	27.3%
Managing Student Behavior and Social Interaction Skills	3	4.5%
Communication and Collaborative Partnerships	7	10.6%
Professionalism and Ethical Practices	6	9.1%

Lytle and Rovins (1997) and Luft (2001) acknowledged the importance and depth of the CED standards but also noted that the standards (with the exception of speech, language, and literacy) did not address what or how D/HH students should be taught. In fact, further analysis of the CED standards for "Instructional Content & Practice" confirms this position. Of the 18 CED standards, 12 focus on language and literacy. In contrast, only 2 focus on general education methods, and only 1 on general education content. (Another focuses on specialized curriculum for deaf education.) Thus, although CED standards are recognized as the model that states should follow in determining the certification/licensure requirements for teachers of D/HH students, the standards do not indicate what D/HH students should learn or how they should be taught. In fact, this lack of curricular content and pedagogy has been cited by Lytle and Rovins as the root cause of deaf education's failure to educate the nation's D/HH students adequately. The lack of curricular content in deaf education (Moores, Kluwin, & Mertens, 1985) and the critical importance of such curricular knowledge and pedagogical skills (Everston, Hawley, & Zlotnik, 1985) have been noted repeatedly by researchers. Samples findings are listed below:

- Luckner (1991) found a large difference between the curricular knowledge teachers needed and what they received during their teacher preparation programs.

- Lytle (1992) found that the vast majority of deaf education teacher educators felt that subject matter competence should be included in certification requirements.

- Shroyer and Compton (1992) proposed a redesign of deaf education teacher preparation with a significant increase in regular education curricular content.

- Easterbrooks (1999) noted that new teachers of D/HH students might have an opinion about communication methods that should be used but not a set of teaching tools.

- The inescapable conclusion of these reports is that existing CED standards are sadly lacking in relation to regular education curricular content and pedagogy.

Many studies of the competencies that new teachers of D/HH students should demonstrate are available. One of the earliest and most extensive studies was a 3-year investigation by USDOE (Mackie, 1956). In that study, 100 "superior" teachers of D/HH students were asked to both rank and note their preparation to carry out 92 competencies. The competencies were identified by USDOE in cooperation with experts from the field of deaf education. The results of the study provide an interesting insight into the historical grounding of current teacher competencies. The top ten competencies noted by the teachers were:

1. Teach language development

2. Teach speech…voice development *

3. Recognize and respond to individual differences of students

4. Help deaf children develop socially

5. Recognize causes and effective responses to maladjusted behaviors *

6. Enunciate clearly and pronounce distinctly

7. Knowledgeable…understanding the significance of the amount of residual hearing

8. Organize and develop curriculum based on individual student's needs *

9. Help parents deal with problems associated with deafness *

10. Counsel deaf children regarding emotional problems and attitudes toward their handicap. *

An asterisk (*) indicates a competency that teachers questioned their ability to meet. A quick review of these competencies indicates a focus on speech, language, and behavior, with no mention of regular education curricula or pedagogy. A sampling of the remaining competencies reveals additional insight into the historical foundations of the current deaf education instructional model:

- Competency #19: Provide deaf children with "opportunities in the curriculum for experiences in health education curriculum." (Note that the emphasis of the competency is on experiences vs. knowledge or skill.)

- Competency #43: Operate filmstrip projector, motion picture projector, and visual aids. (This is the first mention of the use of any type of instructional technology.)

- Competency #45: Methods and models for teaching hearing students. (This is the first mention of regular education instructional methods.)

- Competency #60: "Knowledge or understanding of the findings of research studies which have bearing on the education, psychology, and social status of the deaf." (Indication of the limited value that teachers place on research studies as a source of pertinent information.)

- Competency #62: Teach deaf students with multiple disabilities. (This is the first mention of the instruction of MH D/HH students.)

- Competency #92: To use sign language in teaching. (The current ranking of this competency would very likely be very different than this 1956 ranking.)

The preceding report indicates that in 1956, 100 of the nation's best teachers of D/HH students felt that their most important competencies concerned speech, language, and behavior management. Experiences with selected components of the regular education curriculum were substantially less important, as was the use of instructional technologies, the use of regular education instructional strategies, working with D/HH MH students, reading research journals, and the use of sign language. Unfortunately, while much has changed in the field of deaf education, much has also remained the same, particularly teachers' curricular, instructional, and informational focus, and technology use.

An examination of the competencies that are now expected of teachers of D/HH students is provided by Rittenhouse and Kenyon-Rittenhouse (1997). Their study used a series of surveys and interviews to determine the most important competencies that new teachers of D/HH students should demonstrate. The competencies were ranked on a scale of 1 to 10 from most to least important; competency ranks are shown in parentheses:

- human relations….getting along with others (rank: 7.5)

- subject matter knowledge (rank: 6.8)

- ASL skills (rank: 6.5)

- classroom management skills (rank: 6.5)

- development of teaching materials (rank: 6.3)

- ability to plan instruction (rank: 6.2)

- written English competence, e.g., writing IEPs (rank: 5.2)

- signed English competence (rank: 5.2)

- speaking competence (ranks: 4.1)

- cued speech (rank 1.7)

Although an analysis of these competences with the CED standards has not been made, the high ranking of subject matter knowledge and the relative lack of parallel CED standards appears to indicate an area of needed improvement. Unfortunately, a study by Johnson (2001), which analyzed the job description requirements of 297 deaf education teaching positions, presented a different picture of needed competencies. A semantic analysis of requirements in the posted job descriptions revealed the most frequently mentioned:

- ASL skills (39%)

- collaboration skills (25%)

- assessment skills (24%)

- IEP writing ability (19%)

- maintain records (15%)

- effective oral communication (14%)

- effective parent communications (14%)

- preparation of daily lesson plans (13%)

- total communication skills (12%)

- academic instruction of subjects (12%).

The differences in the results of the Rittenhouse and Kenyon-Rittenhouse (1997) and Johnson (2001) studies could be due to a number of factors (e.g., the use of surveys vs. job announcements). However, they do point out the need for well-constructed, longitudinal investigation of the match or mismatch between existing state standards, CED standards, and actual teaching requirements in the field of deaf education. Design of that investigation should take into consideration the following deaf education teacher preparation issues: (a) the ability to work with an increasingly ethnically diverse student population (Easterbrooks, 1999); (b) the adequacy of preparation to teach mathematics effectively (Pagliaro, 1998); (c) the adequacy of preparation to teach D/HH MH students effectively (Luckner & Carter, 2001; Powers & Elliott,

1990); (d) need to differentiate in the preparation of teachers to work with elementary and secondary D/HH students (Luckner, 1991, 1992); (e) competencies needed to use technologies effectively to enhance teaching and learning (International Society for Technology in Education [ISTE], 2000) and the lack of such competencies in deaf education teacher preparation programs (Roberson, 2001); (f) unintended impact of including more courses on ASL in reducing the number of course credits available for pertinent competencies (Miller, 2000); and (g) the need for teachers to establish effective learning environments for their students and to serve as master learners within that environment (Carroll, 2000, 2001).

Fortunately, the need for additional investigation occurs when an increasing number of individuals and national grass roots groups support or are working to achieve substantive changes in the competencies, preparation, and ongoing professional development of new and existing teachers of D/HH students (Beal, personal communication, September 24, 2001; Bugen, Innes, Cowan, & Curran, personal communication, November 15, 2001; Easterbrooks, Harper, Owens, & Nichols, 2000; Randall, & Siegel, personal communication, February 20, 2001; Siegel, 2000).

Summary

Teacher competencies, as reflected by state and national certification/licensure requirements, should insure that newly prepared teachers are ready to address the essential learning needs of their students. Although CED standards have been routinely recommended to serve as the standard by which all teachers of D/HH students should be prepared, no information is available on state compliance with this recommendation. Information is not available about the extent to which the CED standards effectively reflect the essential recommendations of the NASDSE report or the extent to which states have complied with the NASDSE recommendations. This appears to substantiate Easterbrooks' position (1999) that we have sufficient information to enhance the education of D/HH students substantially, we just do not use it.

The lack of focus on general education best practices and resources is illogical, because most D/HH students have the same learning potential as their hearing peers, spend part or all of their school day in general education classes, and will have to compete with their hearing peers for employment opportunities. In addition, the conflicting information about the competencies that new teachers of D/HH students should be able to demonstrate, as compared to stated job requirements, suggests that the field of deaf education has yet to develop a profile of the ideal teacher of D/HH students. This lack of development may be grounded in confusion over which students the teachers should be prepared to teach. The conflicting settings in which previous versus current versus future D/HH students are educated, the increasing ethnic diversity of the D/HH student population, and the consistent prevalence of additional disabilities among D/HH students all combine to present a daunting, if not impossible, array of needed competencies. The complexity of the task is further increased when the age factor is considered. Most states certify teachers of D/HH students to teach not at the early childhood, elementary, or secondary level specifically, but at all levels (K-12th grades). Given the long- standing focus on how to communicate with D/HH students relative to what to teach or how to create effective learning environments, it should not be surprising that education of D/HH students continues to be unsatisfactory, as was the case 25 years ago (Bowe, 1988).

Considering these deaf education realities, it is important to remember that licensure and certification standards, research studies, and recommendations simply reflect an attempt to capture the present with the expectation that these sources of information can be used to prepare for the future. In fact, it is impossible to predict all of the information and skills that teachers of D/HH students will need during the course of their professional careers. Given this dilemma, dynamic learning opportunities that reflect teachers' actual and changing needs for knowledge, instructional strategies, and curricular resources must be provided. Given the increasing geographic dispersal of D/HH students and their teachers, combined with the uneven geographic availability of deaf education teacher preparation programs, traditional face-to-face learning opportunities (e.g., college/university courses, summer institutes, workshops, conferences) are not a viable option for many of the nation's teachers of D/HH students. In the design of enhanced licensure and certification standards and protocols for the field of deaf education, virtual learning opportunities (i.e., distance education) must be established. In this way, a virtual critical mass of teachers and resources may be achieved. Once established, the networked learning community of deaf education teachers can be used to: (a) share information and develop expertise, (b) dynamically and collaboratively address the day-to-day learning needs of D/HH students, and (c) simultaneously recognize and share teachers' proven instructional skills and resources. The network would serve the needs of inservice and preservice teachers alike. While the current tradition of poorly conducted deafness-related research will not solve the problems of deaf education, additional research will serve to provide needed information. Specific questions for which answers are needed:

- What literature was used to develop the current CED standards?

- To what extent do current state certification standards for teachers of D/HH students incorporate CED standards and NASDSE goals?

- To what extent do state competencies, NASDSE goals, and CED standards reflect the knowledge, skills, and experiences identified by school administrators searching for new teachers of D/HH students?

- Who are the nation's best teachers of D/HH students, and how can their instructional profiles be used to determine the competencies that should be required of new teachers?

- What differences would these factors have on the educational performance of D/HH students: (a) differentiated grade-level certification (i.e., early childhood, elementary, and secondary vs. K-12), (b) general education content knowledge and best practices, (c) MH preparation, (d) multicultural preparation, and (e) a focus on teachers as master learners?

Before any additional research is carried out, the one question that must be answered is: *How long will we blame the failure of deaf education on the students rather than the adequacy of the educational environments?* Given that teachers are the most important component of that environment, the question could be restated to read: *What are the profiles of our most successful teachers of D/HH students and how can we insure that all D/HH students have adequate access to such teachers?*

PROFESSIONAL PREPARATION

Current Design

Programs. Seventy U. S. IHEs, located in 34 states, offer either undergraduate or graduate programs that prepare teachers of D/HH students (American Annals of the Deaf, 2002). Graduates from 62% of the programs are eligible to receive both state and CED licensure. Graduates from 38% of those programs are eligible only to receive their single state K-12 license to teach D/HH students. In contrast to state licensure, CED specifies the particular age/grade level and type of D/HH student that an individual is licensed to teach. CED licensure analysis indicates that the vast majority (95%) of deaf education teacher preparation programs prepare their graduates to work with elementary D/HH students, followed by secondary (57%), early childhood (45%), multiple handicapped (18%), and early intervention/parent-infant (9%) students (deafed.net, n.d.). Most CED-endorsed programs offer one (25%), two (30%), or three (35%) levels of endorsement; only a few programs offer either four (9%) or all five (2%) levels of CED endorsement.

Faculty. Data are now being collected on the full- and part-time faculty who are teaching in the nation's deaf education teacher preparation programs and their geographic distributions. Two recent studies provide a profile of that faculty. In 1995-1996, Bodner-Johnson and Martin (1999) surveyed the 95 full-time, tenure-track faculty who were known to prepare teachers of D/HH students. Fifty-nine (62%) responded to the survey. The faculty was primarily made up of women (66%) with tenure (68%), averaging 10 years of teaching experience with D/HH students, and 13 years working at the university level. Their average age was 43. The most common reason they sought a doctorate and a university position was to pursue "research activities and an academic, scholarly life" (p. 237). Additional commonly cited reasons included "greater intellectual and professional stimulation," and to have "greater influence on more deaf and hard of hearing children and on deaf education programs in general" (p. 237). Survey respondents also indicated that they spent more time on teaching than on service and scholarship combined. As a group, the faculty averaged four to five refereed publications over 5 years, and they found their university life to provide more autonomy, flexibility, and opportunities than they had experienced as K-12 teachers of D/HH students.

Three years later, LaSasso and Wilson (2000) surveyed the directors of the nation's 70 deaf education teacher preparation programs. The surveys focused on the current availability and projected need of deaf education teacher preparation program faculty. Thirty-eight (54%) of the directors responded to the survey. These directors indicated 82% had attempted to find new faculty for their programs in the previous 3 years. Unfortunately, 97% were not satisfied with the resulting applicant pool, and 86% considered there was a shortage of candidates. In relation to the programs' current staffing levels, the data indicated that, although most of the programs were staffed by one or two faculty (58%), a minority of programs had three (24%) or four (9%) faculty, with the remaining programs having five or more faculty (9%). Unfortunately, the survey also indicated that within the next 10 years (1999-2008), 44% of the respondents planned to retire. Given the critical lack of qualified individuals available to accept positions in university deaf education teacher preparation programs and the preponderance of one- and two-

faculty programs, this retirement data appear to predict the possible demise of a substantial number of programs.

Preservice Teachers. Data are not available on the number or characteristics of individuals who are now in preparation to become teachers of D/HH students. Given the demographic data for existing teachers of D/HH students, it is very likely that the preservice teachers are predominantly White, hearing, and female (Moores, 2001). Unfortunately, data are also unavailable on how many of the graduates go on to teach D/HH students, how long they stay in the field of deaf education, and how effective they are at enhancing the educational performance of their students. Until such questions can be effectively addressed, the teacher preparation programs that prepare them will not have the feedback needed to evaluate program success or failure.

Call for Reform

The call for reform in the field of deaf education has been consistent (Babbidge, 1965; Bowe, 1988; Easterbrooks & Baker-Hawkins, 1995; Easterbrooks et al., 2000) and largely unheeded (Easterbrooks, 1999; Lytle & Rovins, 1997). Significant redesign efforts are once again being carried out on the state (Bradfield & Seagrest, 2001), regional (Beal, personal communication, September 24, 2001), and national (Bugen, et al., 2001) levels. Although the difficulties of education redesign have been well documented (Goodlad, 1990), a pattern of recommendations has begun to emerge in relation to the preparation of individuals to become teachers of D/HH students. Those recommendations are based on a growing consensus that many beginning teachers of the D/HH lack sufficient curricular knowledge and instructional skills to implement new instructional designs (Easterbrooks, 1999; Pagliaro, 1998; Lytle & Rovins, 1997). Surprisingly, the root cause for this lack of knowledge and skills may not simply be due to an insufficient number or diversity of teacher preparation courses.

Current Deficiencies

Research has already been cited about the need for additional course work in general education curricular areas and instructional strategies (Easterbrooks, 1999; Everston, et al., 1985; Johnson, Griffith, & Barton, 1988; Luckner, 1992; Lytle, 1992; Lytle & Rovins, 1997; Martin & Lytle, 2000; Moores, et al., 1985; Shroyer & Compton, 1992). Research was also cited about the need for the field to: (a) better prepare preservice teachers to work with increasingly ethnically diverse D/HH students (Easterbrooks, 1999); (b) differentiate the preparation of elementary and secondary teachers (Luckner, 1991; 1992); (c) incorporate the effective use of technologies to enhance teaching and learning (ISTE, 2000; Roberson, 2001); and (d) prepare teachers for work with students who have additional disabilities (Luckner & Carter, 2001; Powers & Elliott, 1990). Finally, the literature suggests that efforts to enhance ASL skills of new teachers may have resulted in inadequate preparation for the increasing number of hard-of-hearing students (Miller, 2000). Demographic trends of the last 20 years (Holden-Pitt & Diaz, 1998) suggest that the number of hard-of-hearing students in educational programs for D/HH students may increase due to the greater prevalence of infant screening (*ASHA Applauds*, 2000), and the success of early intervention programs (Yoshinaga-Itano & Sedey, 2000). This suggests that additional or revised course work in speech and audition may be needed. However, the reality for most

teacher preparation programs is that more courses may not be possible due to either limited faculty or restrictions regarding the number of hours required for a degree. Fortunately, other alternatives may be available.

An Alternative Model for Teacher Preparation Reform

Teacher preparation programs are essentially organized into three basic parts according to what they provide: (a) prerequisite courses for background knowledge, (b) major courses of instructional skills and curricular knowledge, and (c) student teaching as an opportunity for the preservice teacher's initial mastery of expected skills. As Goodlad (1990) pointed out, faculty quickly learn that the rewards of academia (e.g., tenure, promotion, and merit) are not given for preparing teachers but rather research and publication. As a result, it is not uncommon for faculty to focus on teaching their courses and publishing their articles rather than supervising student teachers. Thus, preservice teachers are more likely to teach like their cooperating teachers than to teach as they were taught in courses (Browne & Hoover, 1990; Goodlad, 1990). Browne and Hoover explained this situation by stating "student teachers attempting to survive a rather hectic and emotionally-trying period use familiar instructional strategies and ones modeled by cooperating teachers in order to reduce the shock of their new surroundings and responsibilities" (p. 23). Therefore, the better the match between what pre-service teachers learn in their courses and what their cooperating teachers model during student teaching, the more likely the teacher preparation program will graduate innovative novice teachers. If such a match does not occur, then preservice teachers are much more likely to replicate proven strategies of their cooperating teacher than attempt to use the innovative strategies discussed in their courses.

Given the historic and well-documented failure of deaf education to enable D/HH students to achieve their learning potential, it can be argued that availability has often won out over instructional excellence when student teaching placement decisions are made (Israelite & Hammermeister, 1986). In reality, the low incidence of deafness necessarily means there will be a very limited number of placements available to a deaf education teacher preparation program. During the past decade, placement has declined further due to the increasing use of general education placements for D/HH students. As a result, a redesign of deaf education teacher preparation must include not only an examination of what preservice teachers are expected to learn, but also the establishment of a student teacher placement support system enabling faculty to place preservice teachers with the nation's most effective innovative teachers of D/HH students.

At the beginning of this paper, two critical concepts to guide the redesign of deaf education—critical mass and teachers and students as learners—were proposed. These concepts were expanded to include the idea of a knowledge-generation model of education (Carroll, 2001). Teachers in this model actively assist their students to progress from novice to mature learners via the use of a worldwide virtual learning community that gives students additional resources, reasons to learn, and opportunities to share. In this model, teachers assign their students authentic learning tasks that add value to the students' work as it is shared with and used by other individuals in a virtual learning community. In this way, students serve as information workers who add to the knowledge base of the community while simultaneously being required to take increasing responsibility for the documentation of their own learning. Such a model may sound

like a pipe dream; however, it is in fact a current reality in many of the nation's deaf education teacher preparation programs.

In May 2000, a $2.1 million grant (Preparing Tomorrow's Teachers to Use Technology [PT3] Catalyst Grant) was awarded to the Association of College Educators–Deaf/Hard-of-Hearing (ACE-D/HH) (Johnson & Dilka, 2000). As of March 31, 2002, 145 deaf education teacher preparation program faculty in 58 of 71 programs across 32 of 34 possible states have made 462 choices to enhance their instructional programming by either learning, using, and/or assigning their preservice teachers to use computer-based, Internet-linked technologies and resources. As a result of those choices, the Deaf Education Web site (www.deafed.net) was established. As of July 19, 2002, more than 6,500 individuals (i.e., preservice and existing teachers, parents, deaf adults, administrators, faculty) have become registered users of the site. The basic design of the ACE-D/HH grant was to create a virtual community of learners in which preservice teachers serve as information workers for existing teachers, students, and parents of D/HH children. The design facilitates collaboration between faculties at different teacher preparation programs through the exchange of course syllabi, the assignment of cross-program student tasks, and the development and sharing of course modules. In addition, the grant is piloting enhanced program resources through the establishment of Internet-based topical teams of experts. The teams use bulletin boards to address a growing list of "Frequently Asked Questions," many relating to the most pressing issues facing the field of deaf education. Finally, the grant is piloting an investigation of Internet-based videoconferencing technologies to create a virtual professional development network in which the nation's best teachers of D/HH students can serve as clinical faculty who model and explain the use of innovative and effective instructional strategies with D/HH students (Martin, Johnson, Atwah, & McNeal, 2001). If this pilot investigation proves successful, the same technology will be used to supervise student-teacher placements at locations that would otherwise be too distant from the referring deaf education teacher preparation program. In this way, technology has the potential to move student-teacher placements from local teachers of D/HH students to the most innovative and effective teachers of D/HH students nationwide. Therefore, the ACE-D/HH Catalyst Grant—through the use of faculty choices, technologically facilitated collaborative activities, preservice teachers as information workers, and a nationwide virtual learning community—has the potential to enhance deaf education teacher preparation by recognizing, sharing, and building on the best work of our faculty, preservice teachers, existing teachers, parents, administrators, adults who are deaf or hard-of-hearing, and support personnel.

Summary

Dr. Tom Carroll, former director of the "Preparing Tomorrow's Teachers to Use Technology" (PT3) Federal initiative, repeatedly asked the question, "If we didn't have the schools we have today, would we create the schools we have today?" (2000, p. 118). Generalizing this question to the current design of deaf education teacher preparation programs allows us to ask: Would we design such programs to: (a) continue the use of instructional strategies that consistently undereducate D/HH students; (b) offer no teacher preparation in 18 states, Guam, the Virgin Islands, or Puerto Rico; (c) primarily prepare teachers to work with elementary grade students but certify them to work with all grades; (d) graduate substantially fewer teachers than needed each year; (e) be administered by one or two faculty members who are so busy teaching that they

have little time to generate and share new information; and (f) self-destruct when new faculty cannot be found to replace retiring faculty?

While the obvious way to answer each of these questions is the negative, the current reality is that these questions are being answered affirmatively. The ACE – D/HH PT3 Catalyst Grant has initiated significant changes in the array of resources, technologies, and collaborative activities used to prepare the next generation of teachers of D/HH students. Information is being collected on the impact that such changes have on the curricular design, instructional activities, and pre-service teacher products produced by the nation's deaf education teacher preparation programs. These data will be used to determine the grant's effectiveness and to identify future areas of work (i.e., the design, implementation, evaluation, and support of an entirely different model of deaf education teacher preparation). Regardless of enhancements, the current system is simply unable to produce a sufficient number of ethnically diverse, instructionally effective teachers of D/HH students. Given this reality, the following questions need to be addressed:

- Are deaf education teacher preparation programs preparing individuals to teach the students who used to be in K-12 programs for D/HH students or the students who are either in those programs now or soon will be?

- What is the retirement status of current faculty in the nation's deaf education teacher preparation programs, and are there a sufficient number of well-qualified individuals to replace those individuals when they retire?

- Given that the existing design of deaf education teacher preparation is insufficient to graduate an adequate number of well-qualified teachers of D/HH students, how can existing and emerging technologies (e.g., synchronous and asynchronous distance learning systems) be effectively used? The goal is to create and sustain regional collaborative efforts that would use traditional on-line and summer institute designs to prepare new teachers and to support the professional development of existing teachers of D/HH students.

- If student teacher placements have a greater impact than courses on the instructional practices of newly graduated teachers, how can the nation's best teachers of D/HH students be identified and incorporated into the student teaching placement design of deaf education teacher preparation programs?

- How can time and resources put into deaf education reform movements (e.g., National Agenda, Deaf Ed. PT3 grant, Southeast Regional Resource Center memorandum of agreement) be used to provide both the direction and the support necessary to enhance the preparation of teachers and the achievement of D/HH students?

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