

IDENTIFICATION, ASSESSMENT, AND INTERVENTION STRATEGIES FOR DEAF AND HARD OF HEARING STUDENTS WITH LEARNING DISABILITIES

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HE PURPOSE of the study was to ascertain methods of identification used by teachers of the deaf and hard of hearing who were working with students with learning disabilities, the training these teachers had received, and the accommodations and modifications they had implemented for their students. A 10-item survey was designed to solicit opinions and implementation procedures. Surveys went to teachers in a four-state region of the Midwest; 91 responded. Teachers indicated the use of various criteria to identify deaf and hard of hearing students with learning disabilities, and indicated that they incorporated a variety of accommodations to meet these students' needs. The survey showed that 50% of respondents did not feel adequately prepared to teach deaf and hard of hearing students with learning disabilities. Teachers expressed a desire for more training in identification, assessment, and intervention.

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State and federal governments have recognized that a learning disability is a neurological disorder that creates personal, educational, social, and career challenges that occur throughout the lifetime of an individual and necessitate the development of special accommodations and services (Samar, 1999). However, many states do not recognize that individuals who are deaf or hard of hearing can also have learning disabilities. The exclusion clause of the definition of learning disabilities in the Individuals With Disabilities Education Act Amendments of 2004 (IDEA 2004) has been interpreted by many states to mean that the learning difficulties of individuals

who are deaf or hard of hearing can only be the result of hearing loss and not a neurological dysfunction (20 U.S.C. § 1401[30]). As a result, deaf and hard of hearing individuals with learning disabilities may not be receiving comprehensive accommodations and services (Samar, 1999).

According to IDEA 2004, an individual's learning disability may be partially determined by a discrepancy between an individual's potential and academic achievement in the areas of oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, and mathematical abilities, in addition to an individual's

inability to respond to research-based interventions that have been provided by a teacher in a regular education classroom with the assistance of a special educator or school psychologist (Cortiella, 2006). However, it is more difficult to apply this measurement to individuals who are deaf or hard of hearing because a variety of factors can positively influence the achievement of deaf and hard of hearing students. These factors can include early intervention, effective communication strategies in the home and school environments, a supportive family, and healthy exposure to the events in one's environment. Deaf and hard of hearing children who have learning disabilities will experience difficulties with achievement mostly as the result of a processing problem. According to Stewart and Kluwin (2001), a processing problem, such as learning disability, occurs when the brain does not organize incoming information adequately. Deaf and hard of hearing children who do not have learning disabilities may also experience difficulties with achievement, but their difficulties may be the result of a perception problem. A perception problem occurs when a particular sensory function, such as hearing, is inadequate. It is important to determine whether the achievement difficulties are the result of a processing problem (learning disabilities) or a perception problem (hearing loss), because that determination will help to identify those deaf and hard of hearing children who have learning disabilities.

Hearing loss affects the language acquisition and academic progress of students, but a student with a hearing loss should follow typical patterns of growth and achievement (Pollack, 1997). Hearing loss is usually not accompanied by characteristics of the processing problems of learning disability such as visual-perceptual prob-

lems, attention deficits, perceptual-motor difficulties, severe inability to learn vocabulary and English-language structures, consistent retention and memory problems, or consistent distractive behaviors or emotional factors.

Although identification of deaf and hard of hearing children with learning disabilities is difficult, it is important (Moore, 2001). Most of the primary causes of hearing loss are also primary causes of neurological dysfunction such as prematurity, meningitis, prenatal rubella, anoxia, maternal use of teratogenic medications, and certain genetic syndromes (G. W. Mauk & P. P. Mauk, 1993; Morgan & Vernon, 1994). Therefore, a child who is deaf or hard of hearing is more likely to have a learning disability than a hearing child.

Determining the causes of individual instances of hearing loss is important to the process of identifying deaf or hard of hearing individuals who are at a greater risk of having a learning disability. Once a deaf or hard of hearing child is identified with a learning disability, appropriate intervention strategies can be developed. Various studies and reports have demonstrated that hearing loss makes it difficult to achieve academically and linguistically. However, when an individual who is deaf or hard of hearing has a learning disability, there is even greater impairment to that individual's ability to achieve academically and linguistically (Pollack, 1997). It is also important to identify deaf and hard of hearing students who have learning disabilities so that these students can receive guidance in making appropriate career choices and understanding their disability, as well as support from teachers, administrators, and family (Morgan & Vernon, 1994).

One means of identifying a deaf or hard of hearing student with a learning disability is to compare his or her function to that of other students who

are deaf or hard of hearing (Stewart & Kluwin, 2001). Based on results from educational test standardization studies conducted by the Gallaudet Research Institute (2003), the average grade equivalent score for reading comprehension for deaf and hard of hearing students 17 and 18 years old is fourth grade. In addition, the average grade equivalent score in reading comprehension for deaf and hard of hearing students is third grade for 13-year-olds and second grade for 9-year-olds (Gallaudet Research Institute, 2003, as cited in Morgan & Vernon, 1994). A deaf or hard of hearing student who consistently scores lower than his deaf or hard of hearing peers could be referred for further evaluation to confirm an additional learning problem.

Many teachers of students who are deaf or hard of hearing have reported that they can identify which students have atypical language behaviors (Samar, 1999). Samar, Paranis, and Berent (1998, as cited in Samar, 1999) reported the results of a study that was done by surveying teachers of students who were deaf or hard of hearing. These teachers were asked to identify the areas of difficulty that distinguished the deaf and hard of hearing students with learning disabilities from their deaf and hard of hearing peers. Areas of difficulty included spelling, discourse, spatial/temporal relations, vocabulary, expressive and receptive comprehension of questions, and comprehension of pronouns.

Eighty percent of individuals who are hearing and have a learning disability have a specific type of learning disability known as dyslexia. Dyslexia is a learning disability in which an individual is unable to read. Brain imaging studies show that individuals with this specific type of learning disability exhibit difficulty processing information that is rapidly presented (Samar, 1999).

Samar and colleagues (1998, as cited in Samar, 1999) conducted a brain wave study of 11 students who were deaf or hard of hearing. Seven of these students were considered good readers, while four were considered poor readers. The brain electrical voltage responses of these students were recorded as they viewed a checkerboard pattern. The results of this study demonstrated that the good readers were able to detect the low-contrast patterns more rapidly than the poor readers. The findings from this study provided evidence that the dyslexia of students who are deaf or hard of hearing is the result of a neurological dysfunction.

Deaf and hard of hearing students who are diagnosed with learning disabilities are typically found to have average or above-average intelligence (Pollack, 1997). They have skills in certain areas, while displaying specific learning difficulties in other areas. Laughton (1989, as cited in Samar et al., 1998) proposed a definition to describe deaf and hard of hearing individuals with learning disabilities:

Learning disabled, hearing impaired individuals have significant difficulty with acquisition, integration, and use of language and/or nonlinguistic abilities. These disorders are presumed to be caused by the coexisting conditions of central nervous system dysfunction and peripheral sensorineural hearing impairment, and not by either condition exclusively. The condition can vary in its manifestations and degrees of severity and can affect education, communication, self-esteem, socialization, and/or daily living activities throughout life (p. 205).

In a study conducted by Van Vuuren (1995), a group of deaf and hard of hearing children between the ages of 8 to 12 years were examined to deter-

mine specific characteristics that would distinguish deaf and hard of hearing children with learning disabilities from those without learning disabilities. Ten characteristics were found in deaf and hard of hearing children with learning disabilities:

1. They were more likely to be boys.
2. They were older than their peers.
3. They had more medical problems, with possible negative effects on the central nervous system.
4. They exhibited poor visual perception and visual integration skills.
5. They demonstrated difficulty achieving academically.
6. They were unmotivated.
7. They were passive and did not attend well.
8. They needed sign language because they were not able to get enough information when only the auditory or speechreading modes of communication were used.
9. Even though they needed sign language to obtain access to information through communication, they did not sign as well as their peers.
10. Often they did not receive support from their family.

Van Vuuren's study is one of only a few to examine the specific characteristics of deaf and hard of hearing children with learning disabilities. In another study, by Elliot, Powers, and Funderberg (1998, as cited in Samar et al., 1998), teachers were asked to rank common behavioral and academic characteristics of their deaf and hard of hearing students with learning disabilities. Teachers listed several characteristics (beginning with the most

frequently cited): memory problems, visual perception problems, attention problems, inconsistent performance, poor organizational skills, discrepancies between achievement and potential, atypical language for deaf or hard of hearing students, behavior problems, and unusual learning styles.

Even though these studies by Van Vuuren (1995) and others revealed that teachers of students who are deaf or hard of hearing are able to identify their students with learning disabilities by noting certain atypical characteristics, there is a scarcity of information to describe the needs of deaf and hard of hearing students with additional learning problems (Luckner & Carter, 2001). In addition, there are few personnel who are trained to work with deaf and hard of hearing students who have additional learning problems, and few teacher preparation programs that train preservice teachers to work with deaf and hard of hearing students who have secondary disabilities. When teachers are not adequately prepared to work with such students, the demands of doing so become overwhelming, and it is difficult to maintain motivation. It is important for preservice and experienced teachers to have the knowledge, attitude, and skills to work with deaf and hard of hearing students who have additional disabilities, since approximately 40% of the deaf and hard of hearing population has additional disabilities (Gallaudet Research Institute, 2005). Considering this statistic, teachers who work with students who are deaf or hard of hearing will more than likely work with such students who have additional disabilities.

When deaf children have additional disabilities, teachers also have a greater challenge in developing an appropriate educational plan (G. W. Mauk & P. P. Mauk, 1993). An appropriate educational plan can be developed by using

appropriate evaluation techniques and assessment instruments, a curriculum that is developed to meet these children's educational needs, and appropriate instructional strategies.

After a student has been identified, further assessment must be conducted to confirm a learning disability, determine specific skills that need to be addressed, and make recommendations for appropriate intervention strategies. Morgan and Vernon (1994) say that assessment of a deaf or hard of hearing student for learning disabilities should include eight categories of data:

1. a case history of the student's type and degree of hearing loss, age at onset, cause of hearing loss, birth and medical history, ages at which developmental milestones were achieved, family history, and other disabilities
2. an educational history to include number of years in school, grades in which the student was retained, and school reports
3. results from administration of two measures of intellectual functioning, such as the Test of Nonverbal Intelligence and the Wechsler Intelligence Scale for Children
4. results from administration of a measure of educational achievement such as the Stanford Achievement Test (10th ed.), the Kaufman Test of Educational Achievement, Key Math-Revised, the Peabody Individual Achievement Test, the Wechsler Individual Achievement Test, or the Woodcock-Johnson Psycho-Educational Battery
5. results from administration of neuropsychological screening instruments to evaluate visual-motor integration skills, such as the Bender Visual-Motor Gestalt

Test and the Developmental Test of Visual-Motor Integration

6. results from assessment of adaptive behavior functioning or classroom behavior with instruments such as the Vineland Adaptive Behavior Scale, the AAMD Adaptive Behavior Scale, or Connors's Rating Scales
7. an audiologic evaluation and vision screening
8. an assessment of the student's communication and language skills

When the deaf or hard of hearing student has been diagnosed with a learning disability, appropriate intervention strategies must be developed (Luckner & Carter, 2001; Stewart and Kluwin, 2001). Stewart and Kluwin (2001) recommend four strategies a teacher should implement in order to effectively teach deaf students with learning disabilities:

1. Teachers need to develop an understanding that these students will progress at a slower pace than their peers.
2. Teachers need to use modeling, prompting, and shaping when teaching new skills.
3. Teachers need to provide opportunities to practice, review, and use previously learned skills in a variety of settings.
4. Teachers need to support students and provide them with encouragement.

Teachers can also assist their students who have learning disabilities by incorporating technology into their instructional plans (Kimmel, 2000). There are word processor programs such as Spell Check and Grammar Check that assist students with written assignments. Also, there are software programs and Internet sites that assist students with

various skill areas such as spelling, math, reading, and English. These technology tools give students opportunities to practice skills in these areas at a pace that is appropriate to their ability.

Since many experienced and pre-service teachers do not have the training or knowledge to work with deaf and hard of hearing students with learning disabilities, teachers should consult with experts in the field of special education (Stewart & Kluwin, 2001). Teachers could also stipulate on a student's individualized education program that the student must be seen by a teacher consultant who has expertise in the area of learning disability.

Purpose of the Study

A survey was conducted of teachers of the deaf and hard of hearing who were working with students with learning disabilities. The purpose of the study was to ascertain the methods of identification these teachers used, the teacher training they had received, and the accommodations and modifications they had implemented for their deaf and hard of hearing students with learning disabilities.

Method

Participants in the study included K-12 teachers in a four-state region of the Midwest. Programs were selected from the reference issue of the *American Annals of the Deaf*. Participation was voluntary. A total of 250 surveys were sent and 91 were returned, for a return rate of 36%. Fifty-eight percent of respondents were K-8 teachers, 21% taught in grades 9-12, and 21% were K-12 teachers. More than half of the respondents (53%) had been teaching for more than 10 years, and only 2% were in their first year of teaching.

A 10-question survey was designed to solicit opinions and information on

implementation procedures related to various aspects of the teachers' work with deaf and hard of hearing students with learning disabilities. The teachers were asked to read and respond to each item on the survey. Respondents completed the survey by checking appropriate responses and by responding with comments.

Results

The most commonly cited criteria teachers used in the classroom to identify a learning disability in students who were deaf or hard of hearing were "visual perception problems" (65%) and "behavior problems" (60%; see Table 1). Interestingly, of those who identified a learning disability, 72% used five or more criteria to identify a learning disability.

The means of assessment most frequently employed to identify a learning disability was "assessment of communication and language skills" (71%). "Neuropsychological screening," the least used method, was far behind the other seven methods, at 24%.

Clinical professionals have been found to play a key role in the assessment process when a learning disability is being identified. School psychologists, classroom teachers, and speech/language pathologists were each called upon by about three quarters of respondents. Physical therapists and occupational therapists were each called upon by only a quarter or less of respondents in identifying a learning disability (see Table 3).

The teachers were asked to check off all the types of training they had received to better prepare them to work with deaf and hard of hearing students with learning disabilities. More than half of respondents (57%) indicated that they had received such training in workshops. Twenty percent indicated that they had received

Table 1
Criteria Teachers Used to Identify a Learning Disability

<i>Criterion</i>	<i>Percentage of teachers who selected this criterion</i>
Visual perception problems	65%
Behavior problems	60%
Retention difficulties	59%
Consistent attention problems	57%
Inconsistent performance	55%
Difficulty learning vocabulary and English-language structures	54%
Poor organizational skills	53%
Unusual learning style	48%
Discrepancy between achievement and potential	46%
Atypical language for a deaf or hard of hearing student	40%
<i>N = 91.</i>	

Table 2
Assessment Tools Used to Identify a Learning Disability

<i>Assessment tool</i>	<i>Percentage of teachers who selected this assessment tool</i>
Assessment of communication and language skills	71%
Case history	68%
Educational history	67%
Achievement test	65%
Social skill/behavior functioning	46%
Audiologic evaluation and vision screening	42%
IQ test	40%
Neuropsychological screening	24%
<i>N = 91.</i>	

Table 3
Professionals Involved in the Assessment Process

<i>Professionals</i>	<i>Percentage of teachers who indicated that these professionals were involved in the assessment process</i>
Classroom teachers	79%
School psychologists	75%
Speech/language pathologists	73%
Audiologists	46%
Medical personnel	38%
Occupational therapists	25%
Physical therapists	21%
<i>N = 91.</i>	

no training to work with deaf and hard of hearing students with learning disabilities (see Table 4).

The teachers were asked to check off areas in which they had received

training relating to deaf and hard of hearing children with learning disabilities. No area of training was checked off by a majority of the teachers; the closest was instructional strategies, at

47%. Only 24% of teachers reported receiving training in appropriate assessments (see Table 5).

The overwhelming majority of teachers indicated that they were implementing accommodations to improve academic performance by students with learning disabilities, with “practice and review,” “slower pace,” “modeling, prompting, shaping,” and “positive feedback and reinforcement” all cited by about three quarters of the respondents. The only specific type of accommodation that fell below 70% was “incorporating technology,” at 46%.

The next question on the survey examined teachers’ perceptions of their preparedness to teach deaf and hard of hearing students with a learning disability. Choices were restricted to forced-response items on a 4-point Likert-type scale ranging from “very prepared” to “unprepared.” Only 9% rated themselves “very prepared”. Fifty percent rated themselves toward the lower end of the continuum, as “somewhat prepared” or “unprepared” (see Table 7).

In the final portion of the survey, teachers were asked to comment on what they needed to better serve deaf and hard of hearing students with learning disabilities. An overwhelming number of teachers identified the need for more training in the form of conferences or workshops. Teachers indicated that the greatest need for training was in the areas of instructional strategies and assessment. Teachers commented on their frustration in regard to receiving training to meet the needs of deaf and hard of hearing children with learning disabilities. As one teacher commented, “I have had deaf education classes and I have had classes in Learning Disabilities. The two did not deal with each other. Once I asked in a class in Learning Disabilities how a deaf child with

Table 4
Types of Training Teachers Had Received Regarding Deaf and Hard of Hearing Children and Learning Disabilities

<i>Type of training</i>	<i>Percentage of teachers who had received this type of training</i>
Workshops	57%
Conferences	47%
College graduate courses	40%
Teacher in-service	38%
College undergraduate courses	24%
None	20%
Other	13%
N = 91.	

Table 5
Areas in Which Teachers Had Received Training Regarding Deaf and Hard of Hearing Children and Learning Disabilities

<i>Area of training</i>	<i>Percentage of teachers who had received training in this area</i>
Instructional strategies	47%
Identifying students with a learning disability	31%
Appropriate intervention	30%
None	27%
Appropriate assessments	24%
N = 91.	

Table 6
Types of Accommodations Teachers Had Made to Improve the Academic Performance of Students With Learning Disabilities

<i>Accommodation</i>	<i>Percentage of teachers who had included the accommodation</i>
Practice and review	79%
Modeling, prompting, shaping	74%
Slower pace	74%
Positive feedback and reinforcement	72%
Incorporating technology	46%
Other	21%
N = 91.	

Table 7
Teachers’ Self-Evaluation of Preparedness to Teach Deaf and Hard of Hearing Students With Learning Disabilities

<i>Level of teacher preparedness</i>	<i>Percentage of teachers who chose this level of preparedness</i>
Very prepared	9%
Prepared	24%
Somewhat prepared	38%
Unprepared	12%
N = 91.	

learning disabilities would be identified. I was told, 'We're waiting for deaf education to decide that.'%" Teachers also commented on their frustration with the interpretation of the IDEA mandate. As one teacher stated, "I would appreciate more support for students whom we are very certain have a learning disability along with a hearing loss. Right now, even if a student's hearing is only mildly impaired and they exhibit severe learning challenges, we have to list the primary disability as deafness."

Conclusions

The survey's relatively low return rate, 36%, poses a potential limitation in generalizing the results of the present study to the experiences and perceptions of all teachers who work with deaf and hard of hearing students with learning disabilities. Three general conclusions emerged from the literature review and study results:

1. The classroom teacher played a pivotal role in identifying learning disabilities in students who were deaf or hard of hearing. Recommendations by the classroom teacher for assessment were the result of multiple methods of classroom observation and the collection of student work. Teachers were able to differentiate between students who were strictly deaf or hard of hear-

ing and those with an additional learning disability.

2. IDEA is ambiguous concerning the ability of teachers to categorize deaf and hard of hearing students as having a learning disability. Teachers commented on their frustration concerning their inability to identify these students due to their state's interpretation of IDEA.
3. Half of the classroom teachers felt unprepared to meet the academic needs of students with learning disabilities in their deaf and hard of hearing classes. Teachers expressed a desire to have more training in this area. Of special significance was the perceived lack of preparation at the undergraduate level, with only 24% of the teachers' college programs having provided preparation in these areas.

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