MEETING THE NEEDS OF DEAF AND HARD OF HEARING STUDENTS WITH ADDITIONAL DISABILITIES THROUGH PROFESSIONAL TEACHER DEVELOPMENT

A significant portion of the population of children who are deaf have additional disabilities. Most teacher preparation programs do not sufficiently prepare teacher candidates for the challenges posed by these children. This article describes a professional development effort to prepare in-service educators of the deaf to work with students with additional disabilities. Over a 3-year period, teachers selected these in-service topics: etiologies, vision conditions, behavior, transition, sensory integration, seizures, alternate assessment, and instructional strategies. In-class consultation was requested for support in the areas of formal assessment instruments, behavior, and student performance. Elements of effective professional development programs, such as honoring teachers’ choices about topics and participation, responding to teachers’ immediate classroom concerns, and providing in-class follow-up support, facilitated the success of this effort.

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Children Who Are Deaf or Hard of Hearing With Additional Disabilities

Over the years, various terms have been used to describe children who are deaf with additional disabilities. These terms include multiply disabled deaf child, multihandicapped deaf child, and deaf with multiple disabilities (D’Zamko & Hampton, 1985; Vernon, 1982). These terms evolved into the current usage, children who...
are deaf or hard of hearing with additional disabilities (Moores, 2001). In the present article we use this latter term to describe these children, except when discussing children who have concomitant hearing and vision losses, whom we simply refer to as “children who are deafblind,” in keeping with the federal definition of deafblindness (Miles & Riggio, 1998).

Additional disabilities occur in tandem with deafness because the causes of deafness sometimes lead to these additional disabilities as well. Hereditary deafness is less likely to result in additional disabilities than other causes, although a third of the hereditary causes of deafness may result in additional disabilities. Usher syndrome is a hereditary cause of deafblindness that is transmitted as an autosomal recessive trait (both parents are carriers). There are three types of Usher syndrome, each associated with a somewhat different (though possibly overlapping) range of hearing loss and a different onset and progression of vision loss. Most children with Usher syndrome are congenitally deaf or hard of hearing and gradually lose their peripheral vision (Moores, 2001). Usher syndrome is not associated with intellectual disability. Waardenburg syndrome is usually transmitted as an autosomal dominant trait. There are four major forms of Waardenburg syndrome, each with different characteristics, but all types have in common a moderate to profound hearing loss (National Organization for Rare Disorders, 2003; Waardenburg’s Syndrome, 2003). Approximately two thirds of children with Down syndrome, the most common hereditary cause of intellectual disability, also have hearing loss (Roizen, 2002).

In 1982, Vernon identified the causes of what was then called multi-handicapped deafness. The following list is drawn from his work and includes the additional disability-related characteristics that may co-occur with hearing loss (listed in parentheses):

- **maternal rubella** (vision loss, heart anomalies, microcephaly, intellectual disability, behavior problems, motor problems, failure to thrive)
- **complications of Rh factor** (cerebral palsy, intellectual disability, epilepsy; behavior problems)
- **meningitis** (hydrocephalus, paralysis, cortical blindness, intellectual disability; epilepsy; cranial nerve palsy, learning disorders, psychiatric conditions)
- **prematurity** (cerebral palsy; epilepsy; intellectual disability; reading disorders, degenerative brain conditions, vision loss, behavior problems)

Cytomegalovirus, trauma, and anoxia are additional causes of deafness with additional disabilities (G. Mauk & P. Mauk, 1993; Moores, 2001; Peterson & Hittle, 2003; Silberman, Bruce, & Nelson, 2004). Moores also cited aphasia as an additional condition resulting from Rh factor incompatibility.

Current resources refer to a group of prenatal infections (also known as intrauterine or maternal infections) as the STORCH infections (an umbrella term). STORCH stands for the following infections, all of which may result in deafness with additional disabilities: syphilis, toxoplasmosis (a parasitic infection), other (such as varicella), rubella, cytomegalovirus, and herpes simplex virus. The STORCH infections are associated with hearing loss, vision loss, intellectual disability, and ongoing health challenges (Silberman et al., 2004).

Otitis media is a postnatal cause of hearing loss that is more likely to occur in children who have structural ear differences that put them at risk for ear infections. Children with cleft palates (even if repaired) may also experience hearing loss (Herer, Knightly, & Steinberg, 2002). Luckner and Carter (2001) reported the following additional disabilities as being most likely to occur in tandem with hearing loss: learning disability, intellectual disability, cerebral palsy; attention deficit disorder, and emotional/behavioral disorder. The Gallaudet Research Institute (2006) reported speech and language impairments and the combination of developmental delay and mental retardation as the two most common additional disabilities.

The estimate in the literature of the incidence of additional disabilities in children who are deaf ranges from 25% to 34% (Holden-Pitt & Diaz, 1998; Karchmer & Allen, 1999; Meadow-Orlans, Smith-Gray, & Dyssegaard, 1995; Moores, 2001; Schildroth & Hotto, 1996). In the State Summary of Data From the 2005–2006 Annual Survey of Deaf and Hard of Hearing Children and Youth, the Gallaudet Research Institute (2006) reported that only 51.1% of the surveyed individuals had hearing loss as their sole disability. This report cited the following rates for other additional disabilities in the population of deaf children:

- speech or language impairments, 19.5%
- developmental delay and mental retardation combined, 11.2%
- learning disability, 8.5%
- attention deficit disorder, 5.6%
- low vision and legal blindness combined, 4.9%
- orthopedic impairment, including cerebral palsy, 4.0%
- other health impairments, 3.1%
- emotional disturbance, 1.9%
- autism, 1.2%
- traumatic brain injury, 0.3%
- other conditions, 6.5%.
Even if one deducted the 19.5% reported to have the additional disability of speech and language impairment, the additional disability occurrence rate would be 31.6%. Schidloth and Hotto (1996) found that 9% of deaf children had two or more additional disabilities. As Reiman, Bullis, and David (1992) reported, it is difficult to estimate the incidence of deaf or hard of hearing children with additional disabilities because they may not be reported as deaf. Referral for assessment of an additional disability should only occur when the effects of deafness on language and concept development have been considered and the child’s achievement is outside the range expected of students who are deaf (Pollack, 1997).

Challenges Faced by Children Who Are Deaf With Additional Disabilities

It is important to recognize that just as hearing loss may vary in severity, the “additional disability” (or disabilities) may be mild in nature, as in a specific learning disability, or more severe in nature, such as a severe intellectual disability. Therefore, learning implications vary according to the severity of the additional disability. Of equal importance is the realization that one cannot merely add up the effects of deafness and the effects of the additional disability or disabilities to come to some meaningful insight about a child’s needs. Deafness and the additional disability or disabilities interact with each other, compounding the effect (G. Mauk & P. Mauk, 1993; Moores, 2001). For example, consider the child who is congenitally deafblind. Adding what is known of the effects of deafness and the effects of blindness does not provide a realistic picture of the needs of the child who is deafblind. It is the impact of having no intact sense for learning about things and people at a distance (due to the loss of both distance senses) that so remarkably alters the child’s experience of the world and the child’s opportunities to learn through visual or auditory forms of observation.

Luckner and Carter (2001) cited several challenges to the provision of an educational program for learners who are deaf with additional disabilities: (a) a lack of appropriate assessments; (b) a shortage of curriculum materials and methods; and (c) a shortage of well-prepared educators. Because of the complex needs of these children, no single assessment tool or curriculum can address the needs of all children who are deaf or hard of hearing with additional disabilities. Moores (2001) expressed concern that some teachers of the deaf did not expect to teach children with additional disabilities and might not want to teach them. He observed that little had changed since the 1960s: Teachers were still largely expected to gain the competencies to teach children with additional disabilities through in-service preparation.

Given the number of different additional disabilities, the varying level of severity of those additional disabilities, and the lack of appropriate assessment tools and curricula, no one teacher could possibly be prepared to work with the full range of children who are deaf or hard of hearing with additional disabilities. Identification in the preschool years and a team approach are essential (G. Mauk & P. Mauk, 1993). A team approach that strives to gain a holistic view of the child is most appropriate to understanding and addressing the complexity of needs (G. Mauk & P. Mauk, 1993; Meadow-Orlans et al., 1995). The transdisciplinary team model evolved out of the multidisciplinary and interdisciplinary team models and is most suitable for planning an individualized curriculum for learners who are deaf with additional disabilities (T. W. Jones, J. K. Jones, & Ewing, 2006). This model brings together the expertise of many professionals to address the complex needs of the child. Transdisciplinary team members educate their colleagues about their individual areas of expertise to allow for role release. This practice involves professionals assuming responsibility for delivering some of the instruction that was originally provided by another professional. Role release reduces the number of professionals who must directly interact with the child, which is particularly important for children who are young and for those who may have difficulty adjusting to many different instructors (Friend & Cook, 2003).

Improving Teacher Preparation

Preservice Preparation

“With few exceptions, teacher preparation programs do not train preservice teachers to work with students who are deaf or hard of hearing with additional disabilities” (Luckner & Carter, 2001, p. 1). One of those exceptions is Gallaudet University. D’Zamko and Hampton (1985) suggested that several content areas be added to professional preparation programs for educators of the deaf: child development theories, characteristics and needs of the multihandicapped deaf child, assessment tools appropriate for children with multiple disabilities, special materials, program development, self-help and home living skills, behavioral observation and management, social/emotional development, and communication skills (prelanguage). Kevin J. Miller (2000), a former assistant professor in deaf education who became an administrator of public school services to children who are deaf and hard hear-
ing, cited the need for greater pre-
service preparation in several areas:
individualized education programs,
parent relationships, legal issues re-
lated to special education, and mul-
tiple disabilities.

The Joint Standards Committee of
the National Council on Education of
the Deaf and the Council for Excep-
tional Children developed a set of 66
standards for deaf preparation pro-
grams (1996). These were in addition
to the 107 established standards of
practice for all special educators (and
other sets of standards developed for
other disability groups within CEC).
These standards were derived from an
extensive collaborative effort with in-
put from a variety of deaf organiza-
tions that shared a vested interest in
default education. The draft of the stan-
dards document was reviewed by
members of the same deafness organi-
zations (Easterbrooks, 1995). These
standards include a few items that are
explicitly related to children who are
default with additional disabilities and
others that may more implicitly in-
clude the population, but they do not
address the complexity of needs expe-
rienced by this population. These
standards can be combined with stan-
dards established in regard to the
child’s additional disability, though it
would be preferable to create addi-
tional deafness standards (or addenda
to current standards) to avoid mis-
leading professionals and parents into
thinking that additional disabilities are
simply additive in nature and effect.
Easterbrooks suggested that the deaf-
ness standards could serve as a guide
to developing in-service professional
development programs for educators
of the deaf.

Manual I: Standards for Programs
Preparing Teachers of Students Who
Are Deaf and Hard of Hearing was
originally developed by the Council
on Education of the Deaf in 1977,
with revisions in 1980, 1985, 1998,
2002, and 2003 (Council on Educa-
tion of the Deaf, 2003). Six organiza-
tions gave input to its development:
the Alexander Graham Bell Associa-
tion for the Deaf, the Conference of
Educational Administrators of Deaf
School and Programs for the Deaf,
the Convention of American Instruc-
tors of the Deaf, the Association of
College Educators—Deaf and Hard
of Hearing, the National Association
of the Deaf, and the American Society
for Deaf Children. Section 1.3 of this
document presents each standard
followed by a list of questions (re-
lated to each standard) to guide
the development of teacher prepara-
tion programs. The “Specialization
Component” (under the Curriculum
Components Standard) articulates
five areas of specialization that may
occur within the teacher preparation
programs: parent/infant, early child-
hood, elementary, multiple disabili-
ties, and secondary. The document
standard for the specialization com-
ponent reads, “The specialization
component for each area includes
the study of knowledge and skills to
be acquired by pupils, teaching and
learning strategies by which these
pupil competencies are developed,
and additional knowledge from allied
fields” (p. 5). The document poses
five questions related to the develop-
ment of the additional specializa-
tions. These questions focus on
evidence of teacher preparation pro-
gram content in the specialization
area and subject matter, evidence of
faculty judgment in development of
the curriculum (both in deafness and
in fields related to the specializa-
tion), evidence that the curriculum is
current, evidence of integration of
default education content with special-
ization, and evidence of connections
between economic and cultural con-
siderations.

The Professional
Development Program
The Horace Mann School for the Deaf
and Hard of Hearing was the first pub-
lc school for deaf children in the
United States. It opened in November
1869 and was formally named the
Horace Mann School for the Deaf in
1873. The school was established in
response to the conviction that deaf
children from Boston should be able
to live with their families and receive a
local education that included special-
ized instruction. From the school’s
beginning, graduates earned the same
Boston Public Schools (BPS) diploma
presented to the city’s other high
school graduates (MacGillivray, n.d.).

Today, as part of the BPS system,
the Horace Mann School for the Deaf
and Hard of Hearing serves the needs
of about 140 students from preschool
to high school. In 2006 the stu-
dent body was listed as 40% Hispanic,
35% Black, 17.92% White, and 8.62%
Asian (Boston Public Schools, 2006).

English is often not the first language
of students’ families. The school is
unique because it includes multiple
approaches to deaf education (Amerric-
an Sign Language, oralism, and Total
Communication) within one building.

Over the years, an increasing num-
ber of children with additional disabil-
ities enrolled at the Horace Mann
School. Teachers’ growing feeling that
they were ill equipped to meet the
needs of this changing population
precipitated the development of a small
learning community of teachers inter-
ested in expanding their knowledge
and skills of additional disabilities and
the initiation of the professional devel-
opment effort described below.

In 2002, the principal of the Horace
Mann School for the Deaf and Hard
of Hearing (the second author of the
present article) contacted the faculty
member in the Severe Disabilities and
Deafblind Program at Boston College
DEAF STUDENTS WITH ADDITIONAL DISABILITIES

(The lead author of the present article) to collaborate on the professional development of a group of teachers of the deaf who were teaching children with additional disabilities. The school had also opened a special classroom for children with more severe additional disabilities including deafblindness led by a teacher with university preparation in deafblindness. One of the occupational therapists had also completed the Severe and Deafblind Programs at Boston College. At that time, BPS teachers were required to complete 36 hours of in-service professional development each year.

One teacher served as the liaison between the group of teachers and the university professional. The liaison contacted the teachers both by e-mail and in person for input on in-service topics each year. Teachers were also provided an opportunity to attend annual planning meetings. These were conducted at the school during hours that were convenient for the teachers. The liaison ensured that the appropriate technology was requested at the school level for the in-service sessions. The liaison and another teacher organized all the in-service PowerPoint presentations and handouts provided by the university professional and made them available in a reading area outside their classroom. The liaison was instrumental in creating an efficient approach to this professional development effort.

Teacher development efforts were split between in-service sessions (six per year at 2 hours each) and individual support in the teachers' classrooms. With the exception of one in-service in the 3rd year (on characteristics and instructional strategies specific to intellectual disability), the topics of in-services were generated by the teachers.

Teachers were not required to attend any particular in-service session or number of in-service sessions. They selected which sessions to attend based on their need and on their readiness to learn about a particular topic, and their availability for the appropriate after-school session. The five or six teachers who formed the core additional disabilities learning group faithfully attended over the 3 years, but others attended select sessions (with up to 12 to 14 teachers, related service professionals, and occasionally paraprofessionals attending some). Several sessions drew participants from other schools within BPS. In addition to the in-service training, teachers were encouraged to request individual support in their classrooms.

In-service Topics
Year 1
The first in-service was a full day and covered five topics:

- Down syndrome (three types): Characteristics, learning implications, and instructional strategies.
- CHARGE syndrome: Characteristics, learning implications, and instructional strategies. (CHARGE is an acronym for “coloboma of the eye, heart defects... atresia of the choanae, renal anomalies and retardation of growth and/or development, genital anomalies in males... and ear abnormalities or deafness” (Stedman, 2006, p. 168).
- Functional behavioral analysis: Using ABC (antecedent, well-defined behavior, and consequence) and TASE (tangible, attention, sensory, and escape functions) to analyze the environmental conditions and potential purposes of inappropriate behavior.
- The Four Aspects of Communication Model (prelinguistic interventions based on form, function, content, and context).
- Transition (legal mandates and informal assessment for transition).

The evaluation form for this initial full-day in-service posed two questions: Would you like to explore any of these topics in greater depth? If so, please list. Are there additional professional development topics that you believe would benefit the Horace Mann teachers who are currently working with students who are deaf with additional disabilities?

Teacher responses, in combination with e-mails and personal inquiries, supported the selection of subsequent topics. Several additional in-service topics were covered in Year 1:

- Down syndrome and autism (review of characteristics from the full-day in-service, with the addition of more complex information)
- Usher syndrome (three types, plus Boys Town research)
- CHARGE syndrome (specific focus on behaviors, current research, and intervention, building on information gained in the full-day in-service)
- Seizures (types, treatment, teacher responsibilities)
- Transition (role of personal futures planning)

Subsequent Years
Through the liaison, teachers suggested numerous topics for the 2nd and 3rd years (see Tables 1 and 2).

In-Class Consultations and Meetings
Several visits were made to the newly formed deafblind classroom each year.
Table 1
Suggested In-service Topics for Year 2

<table>
<thead>
<tr>
<th>Visual Conditions in Horace Mann Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retinitis pigmentosa, retinopathy of prematurity, cortical visual impairment, optic atrophy, colobomas, acuity, field loss, terms, esotropia, exotropia, congenital cataracts. Simulators were used to approximate the vision of students in their classrooms. The development of vision and tactile skills was addressed. This session was specifically developed to address the eye conditions of current students. In this way, implications for practice could be child specific. (This necessitated document review and observation by the university faculty member.)</td>
</tr>
</tbody>
</table>

Alternate Assessment I: Basic State Requirements (in the fall)

Alternate Assessment II: Work in Progress (in the spring)

Teachers shared their actual assessments, and the group recorded what they had learned from the process on flip chart sheets. University students also attended, and benefited from learning from teachers who provided models of portfolios and candidly discussed what they had learned by doing alternate assessments.

Poster Session

The university professional brought in posters from her course on human development and disability. The posters communicated findings from a literature review on a specific disability-related topic and were donated by students who had completed the course. Examples of poster topics included Prader-Willi syndrome, attention deficit hyperactivity disorder, cortical visual impairment, specific learning disabilities, and sensory integration. The in-service participants received reference sheets on each poster of interest.

Reporting on Sessions on Deafness at the National Conference of the Council for Exceptional Children

The university professional attended sessions on deafness at the national CEC conference and then reported back to the educators of the deaf about sessions on literacy, behavior, and alternate assessment.

Sensory Integration

This was a collaborative presentation with the occupational therapist who had also been prepared as a teacher.

These consultations were very collaborative in nature because the classroom teacher was already university prepared in severe disabilities and deafblindness. The university professional reviewed assessment results with this teacher. The teacher was already familiar with commercial tools appropriate for children who are deafblind, such as the Callier-Azusa Scale (Stillman, 1974), and informal structured assessments such as van Dijk’s child-guided assessments (e.g., Nelson, van Dijk, McDonnell, & Thompson, 2002), so the focus was on translating assessment findings into daily instruction. This teacher requested classroom observations and posed questions about new assessment tools, the curriculum, and her daily lessons (such as the morning circle routine). Approaches and strategies for instruction, including how best to include her students in other classrooms at Horace Mann were discussed.

In addition to visits with the teacher of the deafblind classroom, one visit was made to the summer program that included young children who had additional disabilities of varying severity. Two additional teachers requested observations and consultation on three children. These consultations were about the learning and behavior of two children with CHARGE syndrome and one with Down syndrome. Two of the children were the lowest-functioning student in his or her particular classroom, and the teachers (prepared in deafness) were not confident about being able to meet their needs. The teachers especially needed strategies on how to differentiate instruction within group lessons. Two of the students displayed aggressive or destructive behavior that disrupted the classroom. This prompted further in-service work as well as individual classroom support regarding behavior. In both cases, behavioral supports from outside the school were also necessary to stabilize the children. One teacher also requested input on her functional literacy and math lessons. Discussions about the use of age-appropriate materials and the challenges of using calculators with students who were deaf with intellectual disability followed. Across all classroom visitations, the university professional played the role of listener, supporter, and resource provider. Classroom consultations were always initiated by the teachers (as opposed to being mandated or suggested by an administrator), making it possible for very open collaboration to occur.

In addition to providing in-services and in-classroom support, the university professional attended three team meetings, two on children with Usher syndrome (one specifically on the changing literacy needs of one child) and one on the participation of deaf students in a state-required assessment (i.e., the Massachusetts Comprehensive Assessment System).
Table 2
Suggested In-Service Topics for Year 3

<table>
<thead>
<tr>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence of health and communication frustrations, need to meet basic needs, etiological considerations, functional behavioral analysis, review of ABC and TASE, “troubleshooting” specific student behaviors, how to plan and implement a positive behavior support plan.</td>
</tr>
</tbody>
</table>

Learning Characteristics of Children With Autism and Children With Intellectual Disability

Connecting characteristics to strategies. (Although we covered Down syndrome in Year 1, teachers needed to learn more about basic practices for working with children with this condition.)

New Etiologies in Our School

Holoprosencephaly, DiGeorge syndrome, cerebellar cortical dysplasia, and Landau-Kleffner syndrome. In addition, teachers requested content on cytomegalovirus, though it was not a new etiology in their school.

Alternate Assessment (included several university students)

Poster Session

Teachers again requested this. More than 20 new posters, each on a different topic, were brought to Horace Mann for this session.

Transition

Review of Individuals With Disabilities Act requirements; emphasis on local agencies and contacts; when to contact deafness, blindness, mental disability, or mental illness organizations; contact names; local numbers; local resources. Content on specific transition assessments for children who are deaf were shared. The primary focus of this in-service was on local resources because teachers had expressed concern about how they would find the time to identify resources, given the new demands of statewide alternate assessments for children with additional disabilities.

Notes. ABC, antecedent, well-defined behavior, and consequences. TASE, tangible, attention, sensory, and escape functions.

The Professional Development Learning Community

The effort described in the present article integrated many of the effective practices from the professional development literature into the in-service preparation of teachers. This work was considerate not only of the learning needs of children but of the learning needs of the teachers, a characteristic of effective staff development (Giang, Gersten, & Morvant, 1994). Teacher choice was present in the selection of topics and in teachers’ decision to attend individual sessions. Teachers responded to in-services with enthusiasm even though the sessions were offered after school. The in-services and in-class supports incorporated theory and practical knowledge and revisited topics at higher levels over time to allow for the assimilation of knowledge. Most of the teachers who attended the in-services were interested in making changes in their teaching practice, a necessary condition for changing practice, according to Fullan (1991). Teachers most value what is immediately useful to their everyday practice, and they need interventions that fit within the demands of their classroom and their current teaching practices (Doyle & Ponder, 1977). Teachers want to take something away from staff development that they can use immediately (Giang, 1986). The availability of in-class consultation and collaboration provided teachers with yet another opportunity to gain support in integrating information from the inservices within their existing classroom structures.

This group of educators became a small learning community within the larger community of educators of the deaf. They were able to provide each other with informal support as they all struggled to meet the needs of a more complex population. Goldstein (2004) has stated that learning communities provide a collaborative and supportive environment to foster the learning of all community members. This was evident at the Horace Mann School for the Deaf and Hard of Hearing. As the 3 years of this project came to a close, the university professional no longer needed to provide ongoing in-service preparation. A library of resources (in-service handouts) stayed behind as reference materials, and the consultant remained available to provide support in response to specific requests. Recent work has involved a consultation with the evaluation unit and the provision of information about specific commercial assessment tools. Student and staff turnover may result in the need for future in-service training.

Conclusion

Educators of the deaf possess a wealth of knowledge about communication and language acquisition and intervention, and as such they are essential members of the educational teams that serve children who are deaf with additional disabilities. Deaf educators need preservice and in-service preparation to respond to the needs of these children.

Members of the deaf education profession can create professional stan-
stdards that more fully address the needs of children. This can be accomplished by consulting with professionals in other disability areas (such as blindness, intellectual disability, and autism). Such standards can serve as a guide for both preservice and in-service preparation. Disabilities that commonly co-occur with deafness can be covered at an introductory level during the preservice deafness program, with an emphasis on the interaction with deafness. Preservice programs in deafness should include preparation in functional behavior analysis and intervention. All teacher candidates should have ample experiences with multi-level instruction. Administrators of deaf education programs and services can support the changes that need to occur so that more children who are deaf with additional disabilities can have access to teachers of the deaf. With such investments, there is an increased likelihood that these children will gain access to a critical member of the education team, the educator of children who are deaf and hard of hearing, who is also well prepared to meet the needs of children with additional disabilities.

References


