



Speech, Language, and Audiology Services in Public Schools

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The prevalence of communication disorders (speech, language, and hearing) among school-age children continues to increase, making it imperative that the classroom teacher be able to identify children in need of services. This article provides information that will enable all teachers to recognize when a child is exhibiting signs of a communication disorder, describes methods of assessment, provides classroom strategies, and identifies interventions and service delivery models typically used by communication specialists.

The incidence of communication disorders continues to increase among school-age children. According to the *22nd Annual Report to Congress* (U.S. Department of Education, 2000), of the 5,541,166 children between the ages of 6 and 21 who were served under the Individuals with Disabilities Education Act (IDEA) Amendments of 1997, 1,074,548 (19.4%) received services for speech and/or language disorders. Between the 1989 to 1990 and 1998 to 1999 school years, the number of individuals receiving services for speech and language disorders increased overall by 10.3% (U.S. Department of Education, 2000). During the 1998 to 1999 school year, 70,883 (1.3%) of individuals being served under IDEA were receiving special services for hearing loss (U.S. Department of Education, 2000). These statistics include only children whose primary disabling condition was a communication disorder and do not include children with concomitant disabilities who were receiving speech, language, or hearing services as a related service.

Although speech, language, and hearing services are not reported separately when they are considered a related service, the literature does provide statistics on the prevalence of speech, language, and hearing services in individuals with two or more disabilities. For example, in a National Health Interview Survey of individuals with disabilities in 1994 to 1995 (U.S. Department of Education, 1996), 57.8% of individuals with two or more disabilities received speech–language therapy and 13.9% received audiology services. Speech–language therapy was the most common service received by individuals with two or more disabilities (U.S. Department of Education, 2000). Furthermore, learning disabilities and speech and/or language disorders have been reported to have co-occurrence rates as high as 96.2% (Gibbs & Cooper, 1989), while emotional and behavioral disorders (EBD) and language disorders have been reported to co-occur at rates from 62% to 95% (Gallagher, 1999). The findings of Gibbs and Cooper and Casby (1989) are distressing in this regard. Gibbs and Cooper found that only 6% of in-

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dividuals with learning disabilities received services from a speech–language pathologist (SLP), while Casby found that only 9% of individuals with EBD in special education programs received speech–language services.

With these statistics in mind, it is imperative that all teachers be able to recognize when to refer a student to a communication or hearing specialist—the SLP and audiologist, respectively. Speech–language pathologists and audiologists are specialists who receive intensive training in both typical and atypical communication development and pathology. The communication specialist’s purpose is to help individuals of all ages communicate to their fullest potential. The importance of these services is emphasized in the following statement:

Emotional and social adjustment and educational achievement are intimately related to each individual’s communication behavior. Persons with communication skills commensurate with their total abilities are better adjusted, possess better social skills, and are more likely to perform to their potentials in school environments and in later occupational pursuits than those who do not develop these skills to their ultimate potential. (Van Hattum, as cited in Oyer, Hall, & Haas, 1994, p. 1)

Before proceeding further, there is a need to define communication, language, and speech.

The broad term of *communication* is defined as “the process participants use to exchange information and ideas, needs and desires. The process is an active one that involves encoding, transmitting, and decoding the intended message” (Owens, 1996, p. 11). Communication encompasses language, speech, and hearing. (The term *communication disorder* will be used when referring collectively to speech, language, and hearing disorders.)

Language is “a socially shared code or conventional system for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols” (Owens, 1996, p. 8). The Committee on Language of the American Speech-Language-Hearing Association (1983) defined language as “a complex and dynamic system of conventional symbols that is used in various modes for thought and communication” (p. 44) and has at least five parameters—phonologic, morphologic, syntactic, semantic, and pragmatic.

Speech, the most specific of the three terms, is a neuromuscular act involving multiple systems that results in the verbal production of language. The sounds produced in speech are called *phonemes*. Phonemes are the smallest unit of sound that can change the meaning of a word (e.g., *cat*—change *c* to *b*—*cat* becomes *bat*; Lue, 2001). The English language contains over 40 phonemes, or speech sounds, which are combined to formulate words (Edwards, 1992). Students may qualify for speech, language, or both speech and language services, depending on their individual needs.

Language can be divided into three major components and five subcomponents, or rule systems. Form, the first component, contains three subcomponents: syntax, morphology, and phonology. The second component, content, contains one subcomponent: semantics. Finally, the third component, use, contains one subcomponent: pragmatics (Bloom & Lahey, 1978).

Syntax specifies “word order, sentence organization, and the relationships between words, word classes, and other sentence elements” (Owens, 1996, p. 18). Simply put, syntax refers to the order in which words are combined in a sentence to make sense. Therefore, someone who exhibits a syntax disorder may have difficulty organizing and producing or understanding complex sentences. They may exhibit poor rote memory and have difficulty understanding the relationship of word order to meaning (Lue, 2001).

Morphology is the rule system concerned with the internal organization of morphemes into meaningful words. A morpheme is the smallest meaningful linguistic unit and is either free or bound. A free morpheme is a linguistic unit or word that can stand on its own and have meaning, such as the word *tall*. Prefixes and suffixes are examples of bound morphemes. Bound morphemes must be attached to a free morpheme to have meaning, such as *-er* (*taller*), *-est* (*tallest*). An individual who has difficulties with the morphological system may struggle with formation of noun plurals (*-s*, *-z*, *-ez*, *-ren*) and possessives (*-’s*, *-s’*); both regular and irregular forms; formation of third-person singular of the present-tense verbs (*-s*, *-d*, *-ed*); past tense of both regular and irregular verbs (*-t*, *-d*, *-ed*); comparative and superlative forms of adjectives (*-er*, *-est*); cross-categorical use of inflectional endings (*-s*, *-’s*, *-s’*); noun derivation (*-er*); adverb derivation (*-ly*); and comprehension and use of prefixes (*pre-*, *post-*, *pro-*, *anti-*; Wiig & Semel, 1984).

Phonology is concerned with the distribution and sequencing of phonemes in words within a language (Owens, 1996). That is, each language has rules for how sounds, or phonemes, may be combined within words to make words. For example, within the English language, we know that if a word begins with the phoneme /q/, the phoneme /u/ will follow. We also know that the combination of the two phonemes /zq/ does not occur in English. Phonology is also concerned with the awareness of how words can be divided into smaller units, or individual phonemes. This is known as phonological awareness and involves being able to first notice individual sounds or phonemes in words, then think about those individual phonemes, and finally manipulate the individual sounds in words (Torgesen, 1997).

Semantics, within the content of language, governs the meaning of words and combinations of words (Owens, 1996). During the early elementary school years, a typi-

cal child's vocabulary increases on a daily basis. Children who have difficulty with the semantic system often do not experience the same vocabulary growth patterns as their typical peers. Many have difficulty with word finding, which may be characterized by the use of fillers in conversations, such as "stuff," "things," "you know." Multiple-meaning words are often a challenge, as is figurative language, such as similes, metaphors, and humor. These children tend to become attached to the most concrete meaning of words and are very literal in their interpretations and usage (Kuder, 1997).

Pragmatics—language use—is concerned with the communicative context and social function of language. This is where all of language comes together. If there is a breakdown anywhere in the systems of language, it may be reflected in the social aspect of language. For instance, a child may have difficulty understanding sarcastic remarks, such as those overheard between Josh and Amy on the way to school. Amy said, "You're not being nice; you just don't like me." Josh replied, "I do like you. Just the other day, I stood up for you. Somebody said you weren't fit to eat with the pigs, and I said you were" (Oyer et al., 1994, p. 68). The social implications of this problem become quickly apparent. Other aspects of pragmatic language difficulties include problems with turn-taking in conversation, providing irrelevant responses—too much information; not enough information; inappropriate information; difficulty with nonverbal cues, such as facial expressions, body posture, eye gaze, and so on (Paul, 2001). Problems within the system of pragmatics may not be recognized as a language disorder initially and may be mistaken for rude, disrespectful behavior.

Recognition of any language disorder in the classroom is often difficult initially. The student with language problems may seem to be just "barely" getting by in the general education curriculum, and specific difficulties may be hard to pinpoint. Language disorders can occur within any of the five rule systems in isolation or in any combination and may vary within different contexts, which adds to the difficulty of identification. Classroom teachers should refer students to the SLP for screening if they exhibit any of the previously mentioned characteristics of language disorders.

Assessment

Methods of assessment for language disorders include (a) hearing screening; (b) informal procedures such as review of existing data, questionnaires, teacher/parent/student interviews, student work samples, direct observation, and language sampling; and (c) formal procedures, primarily standardized tests. Procedures and criteria for assessing and diagnosing a communication disorder are often up to the individual school district, with the state providing broad guidelines. However, best practice on behalf of the district would include all or most methods

mentioned, depending on the age of the student and the severity of the disability.

Intervention

Kuder (1997) stated, "The ultimate goal of language intervention should always be to make the child a more effective communicator" (p. 225). With this goal in mind, we will briefly discuss two approaches to language intervention used by SLPs: traditional and functional (Owens, 1999).

Traditional language intervention usually emphasizes the learning of specific isolated language units with little attention to the integrative relationship of language (Owens, 1999). Intervention is typically delivered individually or within a small group in a controlled or artificial setting. Traditional intervention emphasizes imitation and drill and practice, with little attention given to the social aspects of language (Gullo & Gullo, as cited in Owens, 1999).

Functional intervention, on the other hand, uses an integrative and holistic approach, which involves (a) a language facilitator (SLP, teacher, parent, etc.) who is responsive and attentive to the child; (b) intervention that closely approximates natural learning by incorporating the child's natural environment and people in his or her environment; (c) utilization of guidelines for typically developing children; (d) following the child's lead; (e) active involvement of the child in the learning process; (f) utilization of events for learning that are familiar to the child; and (g) always planning and incorporating generalization in advance (Owens, 1999).

In general, research tells us that successful language intervention programs

1. consider, prior to intervention, the child's social, cognitive, motor, and language abilities;
2. provide intervention in context;
3. incorporate goals that stress natural communicative situations;
4. use interactive intervention methods; and
5. take into account the interrelatedness of the communicative, social, cognitive, and environmental systems (Bryen & Joyce, 1985).

The classroom teacher can provide an environment conducive for language learning in many ways:

- Provide a good language model.
- Draw attention to positive language examples.
- Arrange the classroom in a way that will increase the likelihood of communication—think in advance of ways that will encourage the child to communicate (e.g., put items he or she likes in sight but just out of reach; Warren & Kaiser, 1986).
- Select topics of interest (Warren & Kaiser, 1986).

- Respond to the child's initiations to communicate, providing reinforcement for communication attempts (Warren & Kaiser, 1986).
- Encourage the child to elaborate (e.g., "That's very interesting! Tell me more!").
- Take time to listen.
- Always obtain students' attention before giving directions for tasks (Mercer & Mercer, 1999); decrease the number of directions given at one time.
- Incorporate multiple modalities (e.g., auditory, visual, tactile) when introducing new concepts (Bos & Vaughn, 1988).

Speech Disorders

Articulation, phonological, voice, and fluency disorders are all considered disorders of speech. According to Adams, Hendershot, and Marano (1999), 16 in every 1,000 children under the age of 18 exhibit a chronic speech disorder. In fact, as many as 10% of children entering first grade have moderate to severe speech disorders (National Institute on Deafness and Other Communication Disorders, 1995). The speech-sound errors that result from articulation and phonological disorders account for 50% to 80% of all communicative disorders (Fein, 1983). Approximately 10% of the school-age population has a diagnosed phonological disorder (Gierut, 1998). Incidence rates for voice disorders have been reported to vary from .1% to as high as 23.4% (Deal, McClain, & Sudderth, 1976; Wetmore, Muntz, & McGill, 2000), with a general acceptance rate of 6% to 9% (Wilson, 1987). Approximately 1% of the worldwide population exhibits fluency disorders, while the prevalence rate in United States ranges from .03% to 2.1% of school-age children (Lue, 2001).

Articulation and Phonology Disorders

Articulation "is the process by which sounds, syllables, and words are formed when the tongue, jaw, teeth, lips, and palate alter the airstream coming from the vocal folds, when forming sounds, syllables, and words" (ASHA, 1996, pp. 40-41). *Phonology* "is both a form of language—is the sound system of a language and the linguistic rules that govern possible sound combinations in that language—and it is also the study of the rules for using the sounds of a language" (Lue, 2001, p. 89).

Articulatory errors are generally considered motoric in nature and are frequently classified as distortions, substitutions, omissions, and additions (Oyer et al., 1994). Distortions occur when the speech sound produced approximates the intended speech sound more closely than any other sound, yet is noticeably in error (e.g., "wabbit" for "rabbit" is an example of a distortion of the phoneme /r/). A substitution occurs when one speech sound is sub-

Table 1. Articulation and Phonological Disorders Contrasted

Articulation disorder	Phonological disorder
Few sound errors, with minimal effect on intelligibility	Multiple errors, obviously affecting intelligibility
Consistently misarticulated sounds	Inconsistent misarticulation of sounds—can produce the sound but unable to use the sound appropriately
Errors motoric in nature	Can motorically produce the sounds but not in the proper places
Co-occurring disorders may exist but not as typical as with phonological disorders	Other language delays are likely to occur

stituted for another, as in "fum" for "thumb," where /f/ was substituted for the voiceless /th/. Finally, omissions occur when a speech sound is left out of a word, as in "fo" for "for," whereas an addition occurs when a speech sound is inserted in a word where it does not belong, as in "bulue" for "blue."

Phonology errors in speech are considered the result of a breakdown in the phonologic subcomponent of language and are often very involved, especially in remediation. Phonology disorders, therefore, are typically language-based disorders that are manifested in speech as multiple speech-sound errors that form noticeable patterns. When children exhibit a phonological speech disorder, some patterns or phonological processes that emerge include (a) deletion of final consonants, such as "ba" for "bat"; (b) deletion of unstressed syllables, as in "bout" for "about"; (c) cluster reductions, as in "tove" for "stove"; and (d) fronting, as in "tool" for "cool" (Oyer et al., 1994).

Differentiation between articulation and phonological disorders is beneficial, as treatment approaches for each often differ. General indicators for differentiating an articulation disorder from a phonological disorder are listed in Table 1 (Oyer et al., 1994).

Articulation and phonology are developmental in nature. Thus, all children exhibit errors similar to those mentioned above during normal development. Concerns arise when a child continues to exhibit developmental characteristics past what appears to be typical for a child of his or her age. If a child exhibits noticeable errors, the classroom teacher should refer her or him to the SLP, who can quickly determine if the child should be assessed for an articulation or phonology disorder.

Assessment

Methods of assessment for articulation and phonology disorders typically include a hearing screening and informal and formal procedures. Informal procedures include

a review of existing data, examination of the structure and function of the oral mechanism (mouth—including tongue, teeth, lips, hard and soft palate, cheeks, etc.), direct observation, and speech sampling. Formal procedures consist primarily of administering standardized tests.

Intervention

Intervention by the SLP for articulation versus phonology disorder differs therapeutically and procedurally (Oyer et al., 1994). That is, when addressing articulation, the goals are for the child to be able to first motorically produce the sound (acquisition), then be able to produce the newly acquired sound in all contexts and situations (generalization; Oyer et al., 1994). Intervention is accomplished in stages, beginning at the point where the child's production ability breaks down and continuing until the child can produce the sound in unstructured spontaneous speech. The following example of an IEP goal with subsequent benchmarks demonstrates what these stages might look like in a child who does not have a particular speech sound in his or her repertoire:

IEP Goal: In one year, Johnny will produce the phoneme /s/ in the initial position of words in spontaneous conversation with 80% accuracy as measured through direct observation.

Note: Each subsequent benchmark will be met with 80% accuracy over three consecutive sessions.

Upon stimulus presentation (Benchmarks 1–7) by the clinician, Johnny will

- *Produce the /s/ phoneme in isolation following clinician model*
- *Produce the /s/ phoneme in isolation without clinician model*
- *Produce the /s/ phoneme in the initial position of words following clinician model*
- *Produce the /s/ phoneme in the initial position of words without clinician model*
- *Produce the /s/ phoneme in the initial position of words in sentences following clinician model*
- *Produce the /s/ phoneme in the initial position of words in sentences without clinician model*
- *Produce the /s/ phoneme in the initial position of words in directed conversational speech*
- *Produce the /s/ phoneme in the initial position of words in spontaneous conversational speech*

For phonology intervention, the goal is to eliminate the error process that is occurring (e.g., fronting, final consonant deletion) rather than focusing on each individual sound (Oyer et al., 1994). This approach to intervention is much more practical because it involves teaching underlying sound system rules of a language, rather than focusing on each individual sound error.

The classroom teacher can help students who exhibit articulation or phonology disorders by

- being sensitive to the student's speech patterns—do not draw attention to errors;
- paying attention to the student's message more than the student's speech;
- becoming aware of what the student does in therapy and work with the SLP to incorporate goals into the general education curriculum;
- reinforcing progression—let the student know you are noticing improvement;
- encouraging and expecting (not demanding) carry-over to the classroom, playground, cafeteria;
- developing a cueing system or a buddy system for accountability purposes; and
- teaching all students to respect and accept individual differences.

Voice Disorders

Oyer et al. noted, "A voice disorder exists when a speaker's voice significantly differs from 'normal' along one or more of the dimensions of pitch, loudness, and quality in relationship to his or her age, sex, size, and cultural background (e.g., a nasal twang may be acceptable in some parts of the country but not others). Such a voice draws attention away from the content of the message and to the manner in which the message is being delivered" (1994, p. 99). A voice disorder can be the first indication of a more serious medical problem and should not be taken lightly.

All too often voice disorders go unidentified because our voice is a reflection of our individual personality and, therefore, is often seen as "fitting" to the individual. Classroom teachers must increase their awareness of voice disorders, and when concerns arise, they should confer with the SLP. When considering referral to the SLP, the classroom teacher should ask the following questions (Pentz & Gilbert, as cited in Oyer et al., 1994, p. 107):

- Has the child been hoarse for more than two or three weeks?
- Does the child's pitch seem too high or too low?
- Does the child talk too loudly or too softly?
- Does the child exhibit vocal abuse behaviors?
- Does the child talk through his/her nose?
- Does the child always seem to sound congested?
- Does the child have an unpleasant voice?

Assessment

Initial assessment for voice disorders may involve a record review; direct observation; the completion of rating scales by the parents/teacher/SLP; looking at quality, pitch, and

loudness; and a hearing screening. The SLP may find it necessary to rate the child's voice several times to rule out the impact of colds, allergies, and so on. If it is determined that the child does exhibit symptoms of a voice disorder, the SLP will discuss this with the parents and refer the child to an otolaryngologist or other appropriate medical personnel to assess the need for possible medical intervention.

Intervention

Intervention by the SLP often involves cognitive awareness training, that is, making the child aware of how his or her voice sounds compared to that of other same-age children. For example, many children with voice disorders speak loudly all the time. This may occur for many reasons, but through awareness training a child can learn to monitor his or her loudness level. The child may be taught replacement behaviors that serve the same purpose as the behaviors that are adversely affecting the child's voice. As a measure of prevention, as well as intervention, the classroom teacher can practice and teach good vocal hygiene to all students. Strategies identified by Lue (2001) include learning/teaching to

- keep the yelling down;
- breathe from the stomach;
- be wary of noisy places;
- cough carefully;
- initiate speech easily rather than abruptly;
- use pitch levels that are best for an individual (not too high, like some cartoon characters);
- limit talking when an individual has a cold;
- avoid, as best as possible, inhaling toxins like tobacco smoke and aerosols;
- tape-record somebody's speech, and play the tape back for increased awareness; and
- relax when talking.



Fluency Disorders

A fluency disorder occurs when there is an interruption in the flow of speech. Such an interruption is characterized by atypical rate, rhythm, and repetitions in sounds, syllables, words, and phrases. Unusual tension and struggling behaviors (e.g., foot stamping, head jerking), as well as secondary mannerisms (e.g., eye blinking), may also accompany speech in more involved individuals (ASHA Ad Hoc Committee on Service Delivery in Schools, 1993).

In order to assist the classroom teacher in determining whether to refer a student to the SLP for a fluency problem, let's consider what "fluent" speech looks like. According to Oyer et al. (1994), fluent speech

- is relatively effortless;
- contains few irregularities, such as repetitions and prolongations;
- is relatively free of abnormal pauses or discontinuity; and
- moves forward rhythmically and with ease.

Assessment

Assessment of fluency disorders by the SLP involves review of existing data, parent/teacher/student questionnaires, direct observation in various contexts, language sampling, and use of standardized tests.

Intervention

Intervention by the SLP may involve making the child aware of specific difficulties (e.g., repetition of initial consonant /t/ when introducing self as Terry), as well as specific contexts in which increased difficulty may occur. The SLP also teaches strategies based on the individual's specific difficulties (e.g., relaxation techniques, easy onsets).

The classroom teacher's first role is to create an environment that is conducive to communication and accepting of others' differences. Practical suggestions for the classroom teacher of a student with a voice disorder include the following:

- Find time without distractions to spend with the child.
- Arrange activities that involve choral responding and unison reading.
- Make and maintain eye contact with the student.
- Give the student the time he or she needs—patiently wait.
- Teach others to patiently wait.
- Allow the student the time needed to finish words/sentences on his or her own.
- Listen to what the child is saying, not how he or she is saying it.
- Refer student early.

Hearing Disorders

The human ear consists of three parts: the outer ear, the middle ear, and the inner ear. The outer ear, the part we see, also known as the pinna, is responsible for gathering and transporting sound energy through the ear canal to the middle ear. The middle ear, an air-filled cavity where the ossicles—or bones known as the malleus (hammer), incus (anvil), and stapes (stirrup)—are housed, begins at the tympanic membrane, or eardrum. The middle ear is responsible for transporting the sound energy received from the outer ear, now transformed into vibrations via the tympanic membrane, to the inner ear via the oval window, a small opening that leads to the inner ear. The inner ear consists of four parts: the semicircular canals, the cochlea, the organ of Corti, and the vestibule. It is in the inner ear that sound energy is transformed into electrical energy and sent via the auditory nerve to the brain to be interpreted. A breakdown anywhere within the system may result in some degree of hearing loss or deafness.

Hearing loss is generally classified into three categories: conductive (involving the outer and middle ear), sensorineural (involving the inner ear), and mixed (involving both outer and middle ear; Lue, 2001). A conductive hearing loss is usually temporary and is often caused by otitis media or an ear infection in young and school-age children. A sensorineural hearing loss, on the other hand, results in permanent hearing loss and is not reversible. It may be the result of a serious bacterial or viral infection, noise exposure, drug toxicity, or trauma (Lue, 2001). Finally, a mixed hearing loss implies the combination of a conductive and sensorineural loss (Lue, 2001).

It has been reported that approximately 13 in every 1,000 children under the age of 18 years has some degree of hearing loss (Adams et al., 1999), while approximately 1 to 2 in every 1,000 children have a moderate to severe hearing loss of unknown origin in both ears (National Institute on Deafness and Other Communication Disorders, 1995). With these statistics in mind, classroom teachers should consider the following and refer students whom they may be concerned about to the school audiologist or SLP if an audiologist is not employed by the school district (Oyer et al., 1994):

- Does the student frequently ask the teacher to repeat spoken messages?
- Does the student frequently misunderstand what has been said?
- Does the student cup her ears or tilt her head in an attempt to hear what is being said?
- Does the child's facial appearance suggest inattention to what is being said?
- Does the student speak louder or softer than what the situation dictates?
- Does the student avoid or withdraw from situations that require listening?

Once referred, a student's hearing should be screened. If a student fails the hearing screening and is suspected of having a cold at the time of the procedure, it is recommended that the procedure be repeated in 10 to 14 days. If the student fails a second screening, he or she may be referred for a hearing assessment. A hearing assessment is conducted by an audiologist.

Assessment

Assessment generally includes a review of existing data, parent/teacher/student interview, examination of physical structures (outer ear to tympanic membrane), and administration of pure tone audiometry. (Much more comprehensive procedures for assessing hearing are also available but will not be discussed here. For further information, the reader is directed to ASHA's Web site at www.asha.org.)

Intervention

Intervention for temporary conductive hearing loss caused by illnesses such as otitis media is medical, in the form of decongestants, antihistamines, or antibiotics prescribed by a physician. Individuals with permanent hearing loss are usually referred to the SLP for intervention. Intervention is based on the child's needs and depends on many factors, such as age, level of language and speech development, and severity of hearing loss. Intervention may include the use of assistive listening devices, such as hearing aids and FM transmitter and receiver systems. If an assistive listening device is used, the type of device will depend on the needs of the individual. During the period of adjustment when using an assistive listening device, the student often continues to see both the audiologist and the SLP.

The classroom teacher plays a very important role in the education of a student with hearing loss. The classroom teacher will want to consider the following (Oyer et al., 1994):

- create an optimal hearing and listening environment in the classroom;
- increase use of visual stimuli;
- make sure the lighting is adequate for visual stimuli;
- minimize distance between him- or herself and the student with hearing loss;
- face the student during oral communication;
- conduct frequent equipment checks of any assistive listening devices, and make sure the student is using the equipment appropriately;
- keep in close contact with the SLP, the audiologist, and the student's parents;
- teach and promote awareness of individual differences;
- be sensitive to the emotional well-being of the student;

- check frequently to make sure the child is comprehending;
- encourage the child to ask questions frequently; and
- employ a peer buddy during academic and social times.

Service Delivery Model for Communication Disorders

Several models of service delivery exist, all with advantages and disadvantages (Kuder, 1997). The most frequently used model is the *pullout model*. The advantages to this model include the ability to focus on specific skills with minimal distractions; disadvantages include the stigma that comes with being “pulled” out of class, as well as the lack of realistic practice opportunities. *In-class therapy* provides immediate opportunities to practice and apply new skills to general education curriculum, yet the stigma of being singled out in the classroom may still exist, as well as problems with classroom distractions. The *consultation model* increases teacher involvement by providing the opportunity to share and discuss intervention goals for the student as a team; limitations include a need for plan time and some level of teacher knowledge of the disorder. The *collaboration model* utilizes the SLP as an instructional support as intervention becomes embedded in classroom activities. Limitations of this model include a possible decrease in the focus of intervention goals as they become embedded in the general education curriculum, as well as the need for planning time. Finally, the *team teaching model* provides complete integration of intervention goals and academics with no stigma for the child. Limitations include a less direct focus on language goals and, again, the need for time to sit down as a team and plan. In sum, how and where communication intervention should occur is dictated by the child’s needs and the resources (time, staff skill level, willingness of staff to work together) available.

General Recommendations for Classroom Teachers of Students with Communication Disorders

It is recommended that the classroom teacher seek the communication specialist’s valuable input when using the suggestions presented here.

First and foremost, the classroom teacher should always provide a good model. This includes considering his or her

- rate of speech,
- length and complexity of sentences,
- number of directives given at one time,
- positive to negative reinforcement ratio,

- use of precorrects, and
- voice.

The classroom teacher must always remember to set the tone of the classroom and to set the tone for the learning that takes place.

Also, consider the classroom environment. Reduce as many distractions as possible. Examine seating arrangements, desk or table arrangements, noise level, and classroom schedules and routines for ways to decrease distractions and increase instructional opportunities. Take advantage of learning opportunities within context, and provide multiple opportunities to practice needed skills.

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