Considerations in Educating Deaf and Hard-of-Hearing Students in Inclusive Settings

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This article provides an overview of key issues pertinent to an inclusive approach to the education of deaf students in order to establish a context for interpreting and integrating the articles in this issue. It discusses definitions of inclusion, integration, and mainstreaming from placement-related, philosophical, and pragmatic perspectives. The article provides demographic information pertinent to an inclusive approach. It also compares perspectives on inclusion in the general field of special education with those in the education of deaf and hard-of-hearing students. It considers the challenges of using an inclusive approach to achieve academic and social integration of students, as based on research on the learning and adjustment of deaf and hard-of-hearing students in regular classes. The article concludes with an overview of the topics addressed in the issue.

The deaf education community has recently witnessed considerable discussion about whether an inclusive approach can work successfully in educating deaf and hard-of-hearing (D/HH) students. This discussion has been driven largely by the growth in numbers of D/HH students being educated in local schools, the Individuals with Disabilities Education Act (IDEA), and the attention to inclusion within the broader field of special education. Much of this discussion has urged caution in educating D/HH students with hearing peers because of communicative, developmental, educational, and social concerns. For example, many educators think it is important to have a sufficient number of deaf peers at schools for positive communicative and social experiences (Cohen, 1994). Three monographs have recently discussed these and other concerns about an inclusive approach to educating D/HH students (Corson & Stuckless, 1994; Johnson & Cohen, 1994; Snider, 1995).

At the same time, educators have been developing interventions to promote social and academic integration, and researchers have been conducting studies to identify key factors related to integration. The purpose of this dedicated issue is to report some of this work and to further examine the concept of inclusive education for D/HH students. Although the goal of inclusive education is to promote the academic and social integration of students, regardless of hearing status, D/HH students in public schools often face social isolation and difficulties in academic participation. In this issue investigators describe some of the barriers to inclusion faced by D/HH students and also some of the possible solutions that administrators and teachers can implement to promote inclusive education. The emphasis on research and description of interventions and programs distinguishes this issue from previous works that focused on providing general discussions of issues associated with inclusion and D/HH students (Corson & Stuckless, 1994; Johnson & Cohen, 1994; Snider, 1995).

In this first article we give a three-part overview of key issues pertinent to an inclusive approach in order to provide a context for interpreting and integrating the subsequent articles of the monograph. The first

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section provides a background discussion regarding definitions of inclusion (in contrast to mainstreaming), pertinent demographic information, and treatment of inclusion by the broader field of special education. The second section reviews research pertaining to three challenges that educators must address if an inclusive approach is to be successful: (a) academic integration, (b) social integration, and (c) educating a diverse student population. The third section begins with a consideration of research, practice, and improvement of education and then describes how articles in the issue address these dimensions. It concludes with an introduction to the specific topics that the following articles examine.

Background Issues

Educating D/HH students in the public schools is not a new phenomenon; however, one can rightfully be confused about the terms that have been used to describe this practice. Such terms as *mainstreaming, inclusion,* and *integration* are often used interchangeably. In the first part of this section we clarify these terms, summarize the research findings in the area, and create a framework regarding these terms through which readers can view the articles in this issue. We then examine demographic literature about the proportion of students in different educational placements and characteristics of students most likely to be in an inclusive setting. Finally, we relate perspectives on inclusion within the broader field of special education to those within the education of D/HH students.

Definitions

For our purposes, *inclusion* and *mainstreaming* are educational practices, whereas *integration* is an outcome of these practices. We will compare mainstreaming and inclusion from three perspectives: placement, philosophy, and pragmatism.

Placement perspective. In examining the educational process from the perspective of placement, the key issue is the physical setting in which children receive their education. From this perspective, inclusion implies that children who are D/HH receive most, or all, of their education in the regular classroom. Mainstreaming implies that D/HH children receive their education in the regular public school but not necessarily within the regular classroom. Thus, children can be mainstreamed for math or art or recess but may attend a resource room or a self-contained classroom for the remaining school day. In many articles, however, "mainstream" has referred to more extensive placement in classes with hearing peers than the usual one or two classes. Thus, the term has sometimes referred to a broader range of placement options than does inclusion.

Philosophical perspective. From a philosophical perspective, inclusion is more complex than mere physical placement in the regular classroom. The philosophical perspective of inclusion derives from the Regular Education Initiative (REI), a concept that was much debated in the 1980s and early 1990s but that now appears to be subsumed under inclusion. Philosophically, inclusion implies that the regular classroom will change to accommodate all different learners and that it is desirable to offer special services to all children within the regular classroom. One major assumption is that, in an inclusive setting, the classroom teacher, rather than the special educator, has the primary responsibility for educating all children in the classroom (Jenkins, Pious, & Jewell, 1990). In order to make the classroom inclusive for all learners, teachers should work in partnership with special educators to make adaptations in the curriculum and to structure the classroom in a manner that will allow for learning by a diverse group of learners (Friend & Bursuck, 1996). Another assumption is that special services that have traditionally been offered outside of the classroom setting will be offered within the classroom.

Philosophically, the difference between mainstreaming and inclusion is that mainstreaming implies that the child adapt to the regular classroom, whereas inclusion implies that the regular classroom will adapt to the child. To successfully mainstream a child, it is necessary to evaluate the child's readiness to function within the classroom. In a mainstream setting the classroom teacher is the gatekeeper, turning away children who are unable to function within the existing classroom structure and curriculum. In contrast, in an in-

clusive setting the classroom practices are expected to change to accommodate individual children. Another philosophical division between the two concepts is classroom membership. Mainstreaming implies that the D/HH children are visitors in the regular classroom, whereas inclusion implies that the D/HH children are members of the regular classroom.

Some of the philosophical premises for advocating inclusion include preparing individuals for life, learning from typical peers, having normal life experiences, changing attitudes of individuals without disabilities, challenging societal rejection, and teaching democracy (Biklen, Lehr, Searl, & Taylor, 1987). While few would disagree with these premises, the gap between philosophy and practice can be cause for concern. Educators may wonder whether the regular classroom can accommodate the needs of the D/HH learner.

Pragmatic perspective. From a pragmatic perspective, the major question to be answered is whether accommodations can be made, or are being made, in the regular classroom in order to appropriately educate D/HH students. A pragmatic issue that needs to be resolved is whether special educators and regular classroom teachers can work in an equal partnership to provide an adequate education to D/HH students within the regular classroom. Central to this issue are concerns as to whether the practices within the regular classroom can be changed sufficiently to accommodate the D/HH child's communication needs. Another major question is whether the D/HH child can receive the appropriate intensity of services within the regular classroom.

To conclude, inclusion implies that the D/HH student is a full-time member of the regular classroom, where the classroom teacher, in partnership with the special educator, accommodates the classroom environment and curriculum to the student's needs. The ideal outcome of such an inclusive classroom (or environment) is a student who is well integrated both academically and socially. Because the gap between theory and practice, the ideal and the real is usually quite large, we need to examine carefully the process of inclusion, such as the degree to which classroom practices are modified to accommodate the D/HH child, or the kinds of classroom practices that optimize the D/HH student's academic and social integration. We also need to examine the outcomes of inclusion, or the degree to which D/HH students are academically and socially integrated.

Demography of Inclusion

The examination of these practices and outcomes is all the more critical, given the increased number of D/HH students being placed in classes with hearing students. In the past 20 years there has been a dramatic change in educational placement practices in K–12 programs.

Enrollment in different settings. Data from the Annual Survey of D/HH Children and Youth show that from 1975/1976 to 1992/1993 the percentage of students being educated in local schools and placed in academic classes with hearing students for some to all of their educational program increased from 20% to 54% (Schildroth & Hotto, 1994, 1996). It is impossible to tell from these numbers whether the educational programs had inclusive or mainstreaming approaches. There has been a decrease in enrollment in all other kinds of programs, with the greatest decrease occurring in residential programs, where the enrollment of D/HH students has declined from 42% to 21%. These numbers are based on surveys reporting data for approximately 45,000 students. Schildroth and Hotto (1996) estimate that these numbers represent approximately 60%–70% of all D/HH students receiving special services. The reader should be cautioned, however, that the children missed by the survey are likely those who receive their entire education in the regular classroom, that is, children who are "included."

The increase in placement of D/HH students in academic classes with hearing students has been a steady, gradual one. The change seems in part be due to legislation—the IDEA—and also to the increase in the proportion of students with less than profound hearing losses being served (Schildroth & Hotto, 1996). Another change has been the growth of programs with a single D/HH student in the program. The number of such programs increased from 1,797 programs in 1978 to 4,412 programs in 1986 (Schildroth, 1988). (More recent comparable statistics do not seem to be available.) These programs likely educate these stu-

dents primarily in classes with hearing students. These numbers may underestimate the actual number of programs serving individual students because such programs may be less likely to participate in the Gallaudet annual survey than programs with more students.

Student characteristics. Deaf and hard-of-hearing students who take academic classes with hearing students tend to have less severe hearing losses than do students in other settings. A recent survey reported that 38% of the mainstreamed students have profound or severe hearing losses, compared to 89% in residential settings (Schildroth & Hotto, 1994). Students who are integrated are likely to be older students. In one survey approximately 20% of the 16- and 17-year-old students with severe or profound losses were mainstreamed for at least half their classes, but only about 10% of 6- and 7-year-old students with severe or profound losses were mainstreamed (Gallaudet Research Institute, 1997). Schildroth and Hotto (1996) also examined the percentage of students mainstreamed for academic instruction from different ethnic groups and found that 60% of those with Caucasian backgrounds, 48% of those with African American backgrounds, and 54% of those with Hispanic backgrounds were integrated.

In summary, students who are primarily in classes with hearing students and who are more likely to experience an inclusive approach tend to have a moderate or severe, rather than profound, hearing loss. If the loss is severe or profound, the students are likely to be older and slightly more likely to have a Caucasian family background.

Perspectives on Inclusion in the General Field of Special Education and in the Education of D/HH Students

General special education. Other areas of special education have also seen an increase in placement of students in regular classes (Friend & Bursuck, 1996). Within both education of D/HH students and general special education, this change in enrollment patterns has generated extensive discussion. Within the general field of special education, this discussion has addressed students with high-incidence disabilities such as learning disabilities, emotional disturbance, and speech or language impairments, as well as those with severe disabilities such as mental retardation (Friend & Bursuck, 1996; Fuchs & Fuchs, 1994; Lipsky & Gartner, 1991). Part of the impetus for this emphasis stems from part B of the IDEA, which states that one of the two criteria for appropriate placement is that it occur in a setting as close as possible to students without disabilities (Fuchs, Fuchs, & Fernstrom, 1993). An array of instructional materials and media and teaching strategies has been developed with the intent of fostering learning of students with disabilities within the regular classroom. These strategies include cooperative learning (Johnson & Johnson, 1989), collaborative or co-teaching (Friend & Bursuck, 1996), curriculum-based measurement, and transenvironment planning (Fuchs et al., 1993). Some advocates of an inclusive approach have called for substantial reduction or elimination of the traditional pull-out special education service delivery model (Friend & Bursuck, 1996; Fuchs & Fuchs, 1994; Lipsky & Gartner, 1991; Zigmond et al., 1995). These advocates have noted that many students with mild disabilities have made limited progress in special education classrooms and that the teaching strategies for effective education in the regular classroom appear to be similar to those for effective instruction in the special classroom (Bunch, 1994; Zigmond et al., 1995).

As expected, several research studies have focused on the pragmatic aspects of inclusive classrooms. Classroom teachers may not make sufficient accommodations to meet the individual needs of the special education students placed in regular classes (Vaughn & Schumm, 1996; Zigmond et al., 1995). For example, recent studies of students with learning disabilities have indicated that many of their teachers make few adjustments in assignments, teaching routines, expectations, homework, or testing (Vaughn & Schumm, 1996). Partly as a result of the lack of these accommodations, as well as the lack of specialized remedial instruction, many of these students appear to be falling further behind their classmates (Zigmond et al., 1995). Hocutt (1996), in an extensive review that compared academic and social outcomes for students with various disabilities placed in regular classes with those placed in special classes, concluded that the key factor for academic progress was that instruction be specifically addressed to student needs, rather than where the in-

struction was located. Thus, there is no guarantee that special education teachers in resource or self-contained classrooms will provide specialized individualized instruction. Vaughn, Moody, and Schumm (1998), in a study of special educators, found that they used primarily whole-group instruction similar to that provided in the regular classroom and offered little individualized instruction.

A key criticism of the more radical approaches to inclusion is that it is important to maintain the continuum of special education services, programs, and environments, ranging from inclusion in the regular classroom to full-time placement in special schools. This diversity of services is necessary because different instructional approaches and settings are necessary for effective education of students with different disabilities. Furthermore, within disability classifications, there is considerable variation among students, which imply further substantial differences in educational needs (Hocutt, 1996; Kaufmann, 1993; Stinson & Lang, 1994)

Some of the issues involved with inclusion are unique to D/HH students. They may have difficulties communicating with their hearing classmates and in learning English; often these difficulties can be best addressed in special classes or schools. Even with these considerations, an inclusive approach can be appropriate for many students.

Education of D/HH students. Because deafness is a low-incidence disability, including the child in the regular classroom for all, or almost all, educational activities implies that the child will often be the only individual with a hearing loss in a classroom and, frequently, one of only a few such children in the neighborhood school (Kauffmann, 1993; Stinson & Lang, 1994). Several authors have expressed concern regarding the adequacy of learning of deaf students in such a setting (Delpit, 1988; Patrie, 1993; Stedt, 1992; Stinson & Lang, 1994). Research examining the efficacy of special schools or classes, as opposed to regular classroom placement for students with different disabilities, has suggested that frequent placement in a special setting may be more desirable for D/HH students than for those with other disabilities (Hocutt, 1996; Wang & Baker, 1985). The primary reason for the difference appeared to be the greater *social* benefits of special settings for the D/HH students. A Department of Education guidance paper (U.S. Department of Education, 1992) stated that programs for students who are D/HH should take into consideration both communicative and social needs.

In focusing on students in inclusive settings, this dedicated issue calls for devoting attention to the students currently in such settings and for development of effective strategies to support them. This attention to inclusion is a call neither for inclusion of all students who are D/HH nor for a reduction in the continuum of services for D/HH students. We hope these articles will contribute to improved quality of education for D/HH students currently in public schools through an examination of current research and practices.

Challenges to Inclusive Education

If programs are to provide quality education for D/HH students in inclusive settings, they need to provide means for these students to achieve academic and social integration. Programs also need to adapt the support that they provide in response to individual differences in communication skills, proficiency in English, other academic skills, and social behavior. This section will provide some operational definitions of academic and social integration and review the pertinent literature regarding D/HH students. Most of our knowledge in this area is derived from research on mainstreaming, rather than inclusion. Although the purpose of the issue is to examine inclusion, the current literature provides a starting point. We will conclude the section by reviewing pertinent literature on individual differences.

Academic Integration

Academic integration includes two components: *academic performance* and *classroom participation.* Academic performance can be examined through two frames of reference: classroom academic status and normative academic status (Semmel & Frick, 1985). Classroom academic status refers to the student's academic achievement in comparison to that of his or her classmates. Normative academic status refers to the student's academic standing in comparison to norms on

standardized tests. Thus, we would expect a child who is well integrated academically to achieve within the academic range of the classroom and to perform satisfactorily on standardized achievement tests when compared with an appropriate norming sample. The appropriate norming sample may be a sample of D/HH students with similar levels of hearing loss, or it may be the norming sample for the test. Because many classrooms have a wide range of student achievement, D/HH students may have satisfactory classroom academic status but unsatisfactory normative academic status. Occasionally, the opposite may occur. Either way, one would have to determine how to modify or change the setting to improve the outcome.

Classroom participation refers to the student's ability to participate in classroom activities and discussion. Because classroom participation has been found to be a good predictor of course grades (Saur, Popp, & Hurley, 1983), the inability to participate in the classroom may result in poor academic achievement. Deaf and hard-of-hearing students who are well integrated academically should be able to participate in the classroom in a manner similar to that of their classmates. This requires that the D/HH student have access to all teacher and student communication and also that discussions and other activities are structured in a manner that allows the student to participate. Thus, one may need to examine both the students' access to classroom communication (through hearing aids, optimal acoustic environments, real-time captioning, or interpreters) and how the means of access affects participation in learning activities and classroom discussion.

Research on Academic Integration of Students who are D/HH

This section reviews research on classroom academic status, normative academic status, and class participation of students who are D/HH.

Classroom academic status Few studies have examined the classroom academic status of students who are D/HH. Blair, Peterson, and Viehweg (1985) compared the academic achievement of 24 elementary-age students who had mild and moderate hearing losses with their classmates. The results of the Iowa Test of Basic Skills showed that, although the students who were HH achieved scores commensurate with the national norming sample, they scored between one and two grade levels below their hearing peers in vocabulary and reading comprehension. Moreover, the gap between the students who were HH and their hearing classmates widened with age. Early and consistent use of amplification was related to higher achievement. Roberts and Rickards (1994) studied 100 Australian students who were D/HH and who had received oral/aural preschool services. The students rated their self-perceptions of academic achievement in comparison to their peers. The majority of students (62.1%) indicated that they performed in the average range, while most of the remainder (30.5%) rated themselves as above average. However, those students who compared their achievement to that for hearing peers tended to rate their academic achievement as average, whereas students who compared their achievement to other deaf peers rated themselves as above average.

Normative academic status. Studies of normative academic achievement indicate consistently that students who are D/HH achieve below national norms for hearing peers (see Allen, 1986; Ross, Brackett, & Maxon 1991, for a complete review). Achievement scores for students who are in regular classes or local schools tend to be higher than scores of students who are in special schools (Allen, 1986). However, demographic factors related to placement are also highly related to academic achievement, and only small amounts of variance in standardized scores have been found to be due to placement factors alone (Jensema, 1975; Kluwin, 1993). Only a few studies have examined the academic standing of D/HH students in public schools relative to national norms. An early study by Reich, Hambleton, and Houldin (1977) reported that, on standardized tests, students who attended regular classes without any additional help were performing above average for their age norms by about one-half year while those who attended regular classes but received itinerant help were one-third of a year behind their age norms in reading achievement. More recently, Davis, Shepard, Stelmachowicz, and Gorga (1981) examined the files of 1,250 students for data on standardized achievement tests. They found that students with mild hearing loss

achieved at or close to the 50th percentile on national norms, but students with moderate hearing losses had scores below the 50th percentile in math, reading, and spelling.

Classroom participation. For students with hearing loss, the ability to communicate with teachers and peers can be a major component of academic success. Teacher-student communication and student-student communication are primary means of learning in the classroom. Students who have difficulty communicating in the classroom may choose not to participate in classroom activities, which may in turn affect their learning and their academic success (Long, Stinson, & Braeges, 1991).

Interviews with students and observations in classrooms indicate that barriers to classroom participation include the rapid rate of discussion, rapid turn taking, rapid change of topics, the high number of speakers involved in the discussion, and more than one student talking at a time (Saur, Layne, Hurley, & Opton, 1986; Stinson, Liu, Saur, & Long, 1996). Although students using oral communication had an easier time joining classroom discussions (Stinson et al., 1996), they may continue to have more difficulty than their hearing peers. Students who are D/HH may have difficulty locating the speaker during a classroom discussion. Average classroom noise levels may make it impossible for them to understand the communication of other students when a number of students are talking at the same time (as when students work together in small groups). In addition, they may not be able to effectively manage communication breakdowns (Caissie & Wilson, 1995). Students who use interpreters may find that the lag time between the spoken and signed message prevents them from answering questions (Stinson et al., 1996). Interpreter/ aides in classes may inadvertently isolate the D/HH child from classmates by being too helpful (Giangreco, Edelman, Luiselli, & Mcfarland, 1997).

An additional factor that may reduce participation is D/HH students' limited access to the classroom discourse relative to hearing students. Shaw and Jamieson (1997) reported on observations of a third-grade deaf student who was mainstreamed for 70% of his class time and who was supported by an interpreter. Their observations indicated that the deaf student experienced a slow pace of communication, alteration of the academic content, and reduced accessibility to the underlying messages of the classroom discourse. Gregory and Bishop (1988) noted a similar lack of access to communication for some mainstreamed students who did not use an interpreter.

Social Integration

Social integration can be defined as the ability to interact with, make friends with, and be accepted by peers. In other words, students need to be able to participate in social activities and develop close and emotionally secure relationships with peers. Social integration of students with hearing loss in public schools is a major concern for educators. Scheetz (1993) paints a vivid picture of public school students who are not socially integrated. These students may experience feelings of loneliness because they cannot easily participate in social activities with peers due to communication difficulties. They may also begin to identify themselves as helpless individuals and avoid participating in school activities. Research on students educated in public schools suggests that students with a range of hearing loss report feelings of loneliness and an absence of close friendships (Stinson & Whitmire, 1992; Tvingstedt, 1993). Several researchers report that degree of hearing loss is not a key factor in determining the extent of social relationships (Cappelli, Daniels, Durieux-Smith, McGrath, & Neuss, 1995). Studies of social integration include observational studies of peer social interaction, sociometric studies of acceptance, and studies requiring students to complete self-reports of their social relationships.

Social interaction. Public school students with all degrees of hearing loss interact infrequently with their hearing classmates and engage in less linguistic and more nonlinguistic interaction than their hearing peers (Antia, 1982; Antia, Kreimeyer, & Eldredge, 1994; McCauley, Bruininks, & Kennedy, 1976). They may have trouble with specific aspects of interaction such as repairing communication breakdowns and initiating play behavior (Caissie & Wilson, 1995; Messenheimer-Young & Kretschmer, 1994). Although most observa-

tional research on peer interaction has been conducted on students in preschool or early elementary grades, self-reports of social activity with adolescent peers indicate that these patterns persist through high school and college (Stinson & Kluwin, 1996; Stinson & Whitmire, 1992).

Social acceptance. One of the indicators of social integration is acceptance of D/HH students by their peers. Peer perspectives are crucial to identifying the degree to which students who are D/HH are socially integrated, because peers have an implicit understanding of the behavioral norms for their peer group (Coie, Dodge, & Kupersmidt, 1990). Students with hearing loss in public schools are frequently neglected or rejected by their hearing peers. Neglected students tend not to be chosen as friends, while rejected students receive frequent negative nominations (peers do not like to play with them). Tvingstedt (1993) reported that 47% of students who are HH in public schools in Sweden were not chosen as friends by any of their classmates. Cappelli et al. (1995), in a study of oral students in public schools in Australia, found that significantly more D/HH students were rejected than hearing students. Antia and Kreimeyer (1996) found that students with hearing loss were less well accepted than their hearing classmates even after an intervention designed to increase social interaction and acceptance.

However, under certain circumstances D/HH children may be well accepted by their peers. Kluwin (1994) examined a co-enrolled kindergarten classroom where 17 hearing and 7 D/HH students were team-taught by a teacher of D/HH students and a teacher of hearing students. He found that, at the end of the school year, the D/HH children were indistinguishable from the hearing children on a measure of popularity.

Self-reports of social relationships. Not surprisingly, students with hearing loss report difficulties making and keeping friends with hearing peers. Tvingstedt (1993) found that 70% of older students with mild and moderate hearing loss characterized themselves as "outsiders" and had very few friends. Many students report that although they participate in social activities with hearing peers, their relationships are short-term and casual and that they feel emotionally secure only with other friends who are D/HH, although some students are emotionally secure with hearing classmates. (Stinson, Whitmire, & Kluwin, 1996). The factors that seem to influence good social relationships are opportunities to interact with both hearing and D/HH peers (Musselman, Mootilal, & MacKay, 1996), teacher encouragement of interaction (Mertens, 1986), and the opportunities to engage with peers in extracurricular activities (Stinson & Kluwin, 1996).

In conclusion, the literature on social and academic integration indicates that regular classroom placement may more likely result in academic than in social integration. It must be remembered that these outcomes reflect students' experiences with mainstreaming, not necessarily inclusion. In truly inclusive classrooms we would predict more positive outcomes because there would be greater adaptation to promote integration.

Variety of Students in Inclusive Settings

In order to achieve academic and social integration of D/HH students in classes with hearing students, educators need to adapt support in response to the specific needs of the individual student, especially as there is considerable variation in the characteristics of students in inclusive settings. These students vary in their communication skills, in their proficiency in English, in other academic skills, and in the extent to which they demonstrate socially appropriate behaviors.

Communication skills. Students who are relatively skilled in using spoken communication may often experience greater academic success and greater social integration in classes with hearing students (Stinson et al., 1996). Data from the national survey of D/HH students indicate that most of the students whose primary placement is in regular classes have sufficient hearing to rely heavily on this modality in communicating, although the degree of success varies (Schildroth & Hotto, 1994).

The variation in communication skills is more complex than simply classifying students as proficient in spoken communication or in sign communication because various combinations of the two have implications in terms of how the D/HH student will interact with hearing peers as well as with D/HH ones. Deaf

and hard-of-hearing students communicate differently, depending on the situation. In communicating with hearing peers, for example, some students prefer using spoken communication only. Others may use both spoken communication and sign, while still others may use sign communication only. Deaf and hard-of-hearing students may use a variety of styles and strategies for communication, depending on who is doing the communicating, with whom, and the setting (Stinson et al., 1996; Newell, Stinson, Castle, Mallery-Ruganis, & Holcomb, 1990).

Kluwin and Stinson's (1993) approach to examining variation in communication preference among D/HH adolescents in local public high schools provides an example of grouping students in terms of how they respond in different communication situations. The largest group of students, 40.6%, were those who used both spoken and sign communication and chose whether to speak, sign, or use both, depending on the characteristics of their communication partner. These students seemed to be the most adept at using a variety of modalities in different communication situations. Other groups of students were those who spoke to both D/HH and hearing audiences, those who signed to D/HH and hearing audiences, and those who reported only interacting (i.e., signing) with a D/HH audience. These groups showed a complexity in variation in communication preference that went beyond the simple "oral-manual" dichotomy.

There are additional considerations that further add to the complexity of describing how effectively students can communicate in a regular classroom environment. We have noted potential difficulties in academic learning and in social interaction for students with mild hearing impairment who may be relatively proficient in spoken communication (e.g., Blair, Peterson, & Viehweg, 1985; Tvingstedt, 1993). An additional variation of students with skill in using speech for communication is the group whose speech is generally understood but who have difficulty understanding others. These students may participate more actively in class than those whose speech production is not as intelligible because it permits more direct, efficient communication than to have an interpreter voice for them.

To add to this complexity, programs support D/HH students in a variety of ways, including oral, cued-speech, and sign language interpreters, paid and volunteer notetakers, and real-time speech-to-print services (stenotype and computer assisted notetaking). There is no question that these services can enhance these students' communication access and opportunities for learning. Research on the impact of these services is, however, quite limited (e.g., Osguthorpe, Long, & Ellsworth, 1980; Stinson, Stuckless, Henderson, & Miller, 1988), and guidelines for effective use of services (e.g., Stuckless, Avery, & Hurwitz, 1989) are primarily opinions derived from experience, rather than being empirically based.

We note that much of the research has been on children who use sign as a primary or supplementary mode of communication. Given the large number of D/HH students in regular classes who use spoken communication, and the potential of many of these students to achieve integration in regular classes, there is a need for more research on inclusion of students who are oral (cf. Roberts & Rickards, 1994; Stinson & Liu, 1999).

English proficiency and academic skills. Other important variations are those concerning proficiency in English and in the academic skills for which English provides a foundation. In order for the student in the regular classroom to learn, there needs to be a match between the skill level of the student and the learning demands of the classroom environment (Conway, 1990). Students need to have sufficient command of a language, such as English, in order to process and manipulate the information presented (Winston, 1994). Deaf and hard-of-hearing students have variable proficiency in English. As students progress through higher grade levels, it may be increasingly difficult to find appropriate matches between the children's capabilities and the demands of the academic tasks they are required to complete, even though students in regular classes tend to have better academic skills than those in self-contained classrooms. In particular, more advanced classes may require greater use of independent reading skills, an area in which most D/HH students do not advance as rapidly as their hearing peers. Thus, careful monitoring of students for their academic skills and demands of classes is important for supporting learning and motivation (Conway, 1990).

Social and emotional development. Another factor that affects adjustment in the regular class is the extent to which the student is socially mature and emotionally stable. Kluwin and Stinson (1993) found that 12th grade students who were consistently mainstreamed for two or more classes had higher levels of social maturity than those in three other groups that were mainstreamed less frequently. They also found that students who had greater social maturity were more likely to have been mainstreamed in the 9th grade than students with less social maturity, and that these students were likely to continue to have greater social maturity through the 12th grade. Kluwin and Stinson have pointed out that the measurement of social maturity is based on teacher ratings and these ratings may have been influenced by teachers' judgments of their students' communication competence. In regard to emotional development, Davis (1986) noted that students with emotional difficulties are less likely to be placed in classes with hearing peers.

Because these variations have implications regarding how students can function in classes with hearing peers, it is important for readers to pay careful attention to descriptions of characteristics of participating students in research reports or in particular programs. This variation means that a program or support service appropriate for one student in a mainstream setting may not necessarily be appropriate for another student in this setting. The diversity of student characteristics challenges educators to provide the appropriate support and instruction that will enable D/HH students to function effectively in classes with hearing peers. It should also be clear that, for some D/HH students, placement in classes with hearing peers is generally not an appropriate option.

Overview of the Issue

Research, Practice, and Improvement of Education

In this article we have reviewed work on academic integration, social integration, and individual differences to help provide a realistic assessment of the limitations and possibilities of an inclusive approach and to suggest problems that inclusive programs should address. Effective use of an inclusive approach with D/HH students will occur only if there is careful analysis of the problems in educating students with this approach, if there are intelligently designed instructional programs for addressing these problems, and if there is thorough study of these programs (Kauffmann, 1993). These considerations apply regardless of the specific educational placement of the student in the continuum of options. In describing the general field of special education, Kauffman commented that little is known regarding how placement combines with instructional approaches and student characteristics result in educational outcomes, and this comment is also at least as applicable to the field of education of D/HH students. Research on effectiveness of different placement approaches is difficult to conduct with D/HH students, as with other special populations, because students placed in different types of settings are rarely similar even when researchers attempt to control for student characteristics (Hocutt, 1996; Kluwin & Stinson, 1993). In addition, the dispersion of students who are extensively mainstreamed among different local schools contributes to logistical complications that can make it difficult for researchers to collect data from a large enough sample to produce reliable results.

This issue includes several articles that primarily describe research that is pertinent to an inclusive approach. These studies include quantitative and qualitative approaches to identify strategies that may enhance, or interfere with, classroom accommodation. In one case, a study evaluates an intervention program. These studies may contribute toward achieving reliable answers regarding ways of effectively educating appropriate students with an inclusive approach. The reports attempt to achieve a balance between providing detailed descriptions of the methodology and data analyses and the drawing of implications and suggesting specific strategies for practitioners.

Several other articles in the issue primarily focus on describing specific practices or programs that may work effectively with some students in inclusive settings. Some of these articles also include results of evaluations of these programs. The descriptions of these programs may suggest to practitioners better ways of supporting their own D/HH students who are being educated with hearing students. In general, these practices have received little research attention, and we

hope that researchers will draw on these program descriptions in future research in order to add to a reliable information base regarding effective practices.

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