Initiations of Social Interactions by Young Hearing Impaired Preschoolers

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This study examined strategies for initiating social interactions with peers, among 4 children with hearing impairment, aged 33 to 36 months, attending a special early education center or a regular kindergarten. The study investigated initiation type (related to partner’s hearing status) and rates of initiation success/failure vis-à-vis hearing and deaf partners. Results revealed (a) more initiations in the regular program than in the special program; (b) in the special program, much more successful initiations toward children with hearing impairment than toward hearing children; (c) vocalization as the most frequent strategy used with both hearing and hearing-impaired partners; and (d) referential decisions about their initiations even among young children with hearing impairment (made by changing frequencies of various strategies according to partner’s hearing status). The discussion addressed implications regarding integration of children with hearing impairment into regular educational settings.

The 1988 Israeli Special Education Law mandates that educational placement of children with special needs must give preference to regular educational settings. The Israeli law resembles U.S. PL. 94-142 in spirit, although it does not specifically mention the term least restrictive environment. Beyond the arguments about the effects of inclusion, there seems to be general agreement that regular educational settings must undertake specific measures, and the teachers must invest special efforts to improve the chances of children with various disability conditions to succeed academically, socially, and emotionally (e.g., Antia, 1998; Couse & Clawson, 2000; D’Allura, 2002).

The relevance of the special education laws to the education of deaf children has often been questioned (e.g., Bunch, 1994; Cohen, 1998; Stinson & Lang, 1994). Some researchers have argued that the least restrictive environment for deaf students is not the regular educational setting but rather an environment in which their language (i.e., sign language) is the main mode of communication. In Israel, however, preschool children have traditionally been placed in two parallel preschool programs, that is, 2 to 3 days per week attending a regular kindergarten with hearing peers and 3 days per week in a special program for children with hearing impairment (HI) (Weisel, 1989; Weisel & Zandberg, 2002). This placement allows each preschooler to experience communication and social interactions with both HI and hearing peers, therefore enabling the comparative study of the two environments, as undertaken in the current research. Such a comparison may shed light on the regular program’s suitability regarding social development of the HI population.

Children’s interactions with others begin early in life and play a significant role in the child’s social, cognitive, and linguistic development (Rodriguez & Lana, 1996). Immediately after birth, infants become involved in social interaction with an adult parent or other caregiver. Along the first year of life, as children’s social skills develop, their participation in social interactions becomes more intentional (Eckerman & Stein, 1982). In the second year of life, individual differences emerge in children’s peer interactions (Brownell & Brown, 1992). As children gradually take on more responsibility for social interactions with peers, they need to develop various communication skills.
further, such as the ability to initiate social interactions successfully (Ghuman, Peebles, & Ghuman, 1998). Any clear and distinct behavior toward a partner that is not a part of an already existing interaction can be viewed as an initiation strategy (Vandell & George, 1981). An initiation strategy is successful when the partner responds and an interaction occurs. Significant aspects of social dynamics, such as initiations and communication breakdowns, begin during early childhood and can be seen in kindergartens (Erwin, Alimaras, & Price, 1999). However, very little is known about these aspects regarding young children with disabilities, such as visual or HIs, who are integrated into regular early preschool programs. This lack of knowledge is especially pronounced because sensory disabilities often negatively affect children’s social skills and social competence (Erwin et al., 1999).

Spoken language and vocalization play a central role in social interactions of hearing children; both are used as strategies for initiating an interaction and for maintaining its continuity (Lederberg, Ryan, & Robbins, 1986). To initiate a peer interaction successfully, children may call out a targeted partner’s name, ask what the partner is doing, or say “hi.” Thus, HI children, who face difficulties in spoken language development, may be socially at risk. Indeed, Antia and Kreimeyer’s (1988b) literature review reported that HI children often experience difficulties in their social interactions with partners. Previous research on HI children’s social functioning has focused on such aspects as the number of interactions they experience, their preference for partners with the same or differing hearing status from themselves, the strategies they use to initiate interactions, and the modifications they make according to their partners’ hearing status (Levin & Antia, 1997; Spencer, Koester, & Meadow-Orlans, 1994).

Regarding the extent of interactions that HI children experience, Higginbotham and Baker (1981), for example, found that HI kindergartners spent more time playing alone in comparison to same-age hearing children. Duncan (1999) also showed that, in integrated preschools, hearing children had a higher total number of social initiations than did deaf children. Spencer et al. (1994) found that even among young children aged 28 to 36 months, language ability rather than hearing status was associated with the frequency of communications that children experienced. The relatively low number of initiations by deaf children may stem in part from adults’ strong tendency to control and take responsibility for deaf children’s initiation and maintenance of social interactions, whether with deaf partners (Weisel & Zandberg, 2002) or with hearing partners (Antia & Kreimeyer, 1988a). Adults’ overinvolvement may prevent deaf children from adequate exposure to the experience of initiating and controlling social interactions.

In terms of preferences based on partners’ hearing status, Rodriguez and Lana (1996) reported both a higher quantity and a higher quality of social interactions among 4- to 5-year-old deaf and hearing children when the partners knew each other and shared the same hearing status (rather than one hearing and one HI child). Similarly, Vandell and George (1981) found that hearing and HI preschoolers preferred to interact with partners of the same hearing status. Spencer et al. replicated this same-status preference for the social initiations of 28- to 36-month-olds.

With reference to the strategies used to initiate interactions, Duncan (1999) found that the deaf kindergartners used more physical initiation strategies (i.e., touch) than did their hearing counterparts in integrated kindergartens.

Concerning attempts to modify strategies according to the targeted partner’s hearing status, research has yielded inconclusive results for both HI and hearing children. Some studies (e.g., Rodriguez & Lana, 1996) found that HI preschoolers did not change their initiation strategies to accommodate hearing or deaf partners; however, Vandell and George (1981) reported that HI preschoolers utilized different strategies for initiating interactions with deaf than with hearing peers. When interacting with HI partners, the HI children used gestures, facial expressions, and pointing in addition to vocalizations. During interactions with hearing children, the HI children used object-related strategies (pointing or showing an object to get the partner’s attention). Vandell and George claimed that this change in strategies reveals that young children are already aware of their partners’ characteristics.

Similarly, regarding hearing children’s strategy modification for initiations of social interaction, mixed
findings emerged. Spencer et al. (1994) reported that young hearing children, aged 2–3 years, adjusted their communication modes to the hearing status of their partners, but Vandell and George (1981) found that hearing preschoolers used only vocalizations when they interacted with hearing partners and did not change their initiations to meet the HI children’s needs. It might be that the results of Spencer et al.’s study were caused by the fact that the children in this study were more frequently exposed to adults who used both speech and signs, and many of them knew signs.

Most of the research described above was conducted with 4- to 5-year-old hearing and HI children. However, already at 2–3 years of age, children develop many social skills as well as the pragmatic aspects of language communication that permit interaction with other children and adults (Ghuman et al., 1998; Shatz, 1995). Nevertheless, research on younger children’s communication has focused mainly on aspects such as vocabulary and syntax in the process of language development. Research on the pragmatic aspects of communication and the social interactions of young HI children is quite limited.

The present study aimed to examine how young HI children aged 2–3 years initiate interactions with hearing peers in comparison to their initiation of interactions with HI children. Specifically, the study investigated (a) the types of initiation strategies used by young HI children aged 2–3 years old with partners of differing hearing status, (b) participants’ attempts to change their strategies as a function of the partner’s hearing status, and (c) rates of initiation success/failure vis-à-vis hearing and deaf partners.

Table 1  Demographic information on the 4 participants

<table>
<thead>
<tr>
<th>Child</th>
<th>Age (years; months)</th>
<th>Gender</th>
<th>Degree of hearing loss (dBHL)</th>
<th>Language stage</th>
<th>Sensory aids</th>
<th>Parents’ hearing status</th>
<th>Communication at home</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3;0</td>
<td>Male</td>
<td>75 in both ears</td>
<td>One word</td>
<td>Hearing aids</td>
<td>Hearing</td>
<td>Spoken language</td>
</tr>
<tr>
<td>B</td>
<td>2;10</td>
<td>Female</td>
<td>Left ear 50, Right ear 55</td>
<td>Early grammatical</td>
<td>Hearing aids</td>
<td>Hearing</td>
<td>Spoken language</td>
</tr>
<tr>
<td>C</td>
<td>3;0</td>
<td>Female</td>
<td>Left ear 75, Right ear 90</td>
<td>One word, early grammatical</td>
<td>Hearing aids</td>
<td>Deaf</td>
<td>Spoken and sign languages</td>
</tr>
<tr>
<td>D</td>
<td>2;9</td>
<td>Male</td>
<td>Above 115 in both ears</td>
<td>One word, early grammatical</td>
<td>Cochlear implant</td>
<td>Deaf</td>
<td>Spoken and sign languages</td>
</tr>
</tbody>
</table>

Method

Participants

Table 1 presents the 4 preschool children’s demographic characteristics as they appear in each child’s school file. These files include information from the school’s professionals, such as audiologist, speech and language pathologist, teacher, and social worker. The participants were 2 boys and 2 girls aged 2–3 years, with prelingual, bilateral, sensorineural HI, ranging from moderate to profound losses (unaided thresholds). At the time of data collection, each of these children had been simultaneously attending the same two preschool programs for a period of at least 6 months: a special program with other deaf children (3 alternating days per week) and a regular program with hearing children (3 days per week). Both programs were half day. The special program was located in a special center for education of HI young children, and the general programs were located in each child’s neighborhood. There were about 8 children in the special program and about 20 children in the regular program.

In both programs, spoken language was the mode of communication. All the participants used sensory aids (hearing aids or cochlear implant) and used spoken language as their main mode of communication, either as the sole mode or in addition to signs. Child A and Child B, who had hearing parents and relatively good hearing, functioned solely through spoken language. Child C spent most afterschool hours with her hearing grandmother; thus, she used mostly spoken language during this time. Child D went through cochlear implant intervention 8 months prior to the data...
collection, and his deaf parents emphasized the use of hearing and spoken language while communicating with him.

Videotaping Instrument and Procedure

The children were videotaped during randomly selected free-play situations in both the regular and the special programs over a period of 3 weeks. Each child was videotaped for 5 minutes on each of the 3 days per week, during the 3-week period, for each educational program. Thus, altogether, each child was videotaped 45 minutes in the special program and 45 minutes in the regular program.

Coding Procedure and Reliability

Vandell and George’s (1981) list of communication behaviors was utilized to classify the initiation strategies in the videotaped material. The original list included 11 categories: vocalization (e.g., sound or speech directed to the other child), neutral touch (e.g., tapping), prosocial touch (e.g., pat, comfort, stroke), aggression (e.g., hit, push), gesture (e.g., pointing, pantomime), sign (use of sign), object-related social act (offer object, show object), large body act (e.g., jump, clap), positive affect (e.g., smile, laugh), facial expression (exaggerated change in facial expression), and head shake or nod.

The coding procedure in the present study followed the one used by Vandell and George (1981), who stated that: “Initiation was defined as any act that was clearly (in the coder’s judgment) directed to the peer and was not part of an existing interaction” (p. 629). It should be noted that the classification of an act as intentional or not intentional is based on judgment. Such judgments are not free of subjective evaluations; therefore, the judges were instructed to count only those acts that were clearly directed, in their judgment, toward another child. For example, if it was not clear that a child’s vocalization was directed toward another peer, this act was not classified as an intentional one. However, when such an act was accompanied by another behavior (e.g., gesture) signaling social intent, it was classified as an initiation. Judges analyzed each initiation for three codings: (a) its strategy category; (b) whether the initiation strategy was used alone (simple) or in combination with other strategies (combined); in these cases, the judges identified the main strategy and (c) whether the strategy was successful (eliciting a response from the targeted partner within 5 seconds) or unsuccessful (eliciting no response within 5 seconds).

In the first stage of coding, two judges who were graduate students in a program for deaf education worked together to code 1 week’s video records of 1 child (Child A) (i.e., a total of 15 minutes in the regular program and 15 minutes in the special program). At this stage, the two judges discussed their decisions to reach interjudge agreement and resolve any differences. Based on these discussions, four categories were added: head turning in search of a partner, imitations of other children’s play or movement, direct entrance into play or interactions of other children, and moving closer to playing children (this strategy was often combined with intentional look at the children). In the second stage, the remaining 2 weeks of videotape for Child A were analyzed by each judge independently using the 15 categories. Point-to-point interjudge reliability (McReynolds & Kearns, 1983) showed 84% agreement for the category coding, 93% for simple initiation versus combined initiation coding, and 93% for successful versus unsuccessful coding of initiations. One of the two judges coded the remaining 3 children’s videotapes, and her codings of the four children comprised the data used for analysis. Two categories, facial expressions and head shake/nod, were not coded and were removed from further analysis. The analysis only included those strategies that were coded more than three times in at least one of the two programs.

Results

The number of initiations using each strategy was calculated separately for the regular and the special programs for each participant as well as for all 4 participants together (see Table 2). Rounded percentages for each strategy were also calculated from each participant’s total number of initiations in that program. As seen in the table, Participants A, B, and D demonstrated more initiations in the regular program than in the special program. Findings for each child are presented first.
Child A. Half of this boy’s initiations, in both the regular and the special programs, comprised vocalization in combination with other strategies, such as gestures. Vocalization alone was used much more frequently (21%) toward hearing partners in the regular program than toward deaf partners in the special program (6%). Other strategies used differentially by Child A were object-related social act in the regular program only (10%) and head turning in search of a partner in the special program only (12%).

Child B. This girl used mainly two strategies: vocalization and object-related social act. Vocalization, whether simple or combined, comprised by far the most frequent strategy used by Child B in both the regular program (63%) and the special program (82%). Object-related social acts (simple and combined) were used in the regular program (21%) but not in the special program.

Child C. This girl, who was educated in the oral mode but exposed to sign language at home, utilized four main strategies: vocalization, neutral touch, signing, and moving closer. It seems that Child C used a larger variety of strategies compared to Participants A and B. The most frequent strategy (simple and combined) that this child employed in the special program, signing (35%), was used only twice (10%) in the regular program. Her most frequent strategy in the regular program, moving closer (simple and combined; 35%), was not used at all in the special program. She utilized vocalization (simple and combined) more frequently in the special program (30%) than in the regular program (10%). She exhibited a similar degree of (simple and combined) neutral touch in the two programs (20% vs. 21%). Thus, Child C varied her use of strategies in the two programs relatively more than did the Participants A and B.

Child D. The fourth child, who also knew both spoken and sign languages because his parents were deaf, used seven main strategies: vocalization, neutral touch, signing, object-related social act, moving closer, imitation of play, and direct entrance to play or interaction. This boy was the only participant who used the last two strategies relatively often. He employed vocalization, simple and combined, frequently in both the regular program (36%) and the special program (35%). However, more simple vocalizations were used in the regular program, and more combined vocalizations were used in the special

Table 2  Number (and rounded percentages) of initiation strategies for each participant by program

<table>
<thead>
<tr>
<th>Total (N = 4)</th>
<th>Child A</th>
<th>Child B</th>
<th>Child C</th>
<th>Child D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reg</td>
<td>Spe</td>
<td>Reg</td>
<td>Spe</td>
</tr>
<tr>
<td>Vocalization</td>
<td>S</td>
<td>40 (24)</td>
<td>9 (21)</td>
<td>16 (37)</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>43 (25)</td>
<td>21 (50)</td>
<td>12 (26)</td>
</tr>
<tr>
<td>Touch</td>
<td>S</td>
<td>8 (5)</td>
<td>2 (6)</td>
<td>2 (10)</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>4 (3)</td>
<td>7 (5)</td>
<td>2 (10)</td>
</tr>
<tr>
<td>Signing</td>
<td>S</td>
<td>3 (2)</td>
<td>17 (12)</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>2 (1)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Object related</td>
<td>S</td>
<td>21 (12)</td>
<td>5 (4)</td>
<td>8 (19)</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>2 (1)</td>
<td>2 (1)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Head turning</td>
<td>S</td>
<td>1 (5)</td>
<td>4 (12)</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>1 (1)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Moving closer</td>
<td>S</td>
<td>13 (8)</td>
<td>1 (2)</td>
<td>2 (5)</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>1 (1)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Play imitation</td>
<td>S</td>
<td>7 (4)</td>
<td>2 (6)</td>
<td>—</td>
</tr>
<tr>
<td>Direct entrance</td>
<td>S</td>
<td>8 (5)</td>
<td>11 (8)</td>
<td>2 (6)</td>
</tr>
<tr>
<td>Other</td>
<td>16 (9)</td>
<td>5 (4)</td>
<td>6 (12)</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Total number of initiations</td>
<td>168</td>
<td>136</td>
<td>42</td>
<td>34</td>
</tr>
</tbody>
</table>

Note: Reg, regular program; Spe, special program; S, simple strategy; C, a strategy combined with one or more other strategies; Other, initiation strategies that were coded less than four times by each of the 4 participants in each of the two programs: aggression, gestures, large body acts, and positive affect.
program. He signed three times (8%) in the special program and only once (2%) in the regular program. Touch (simple and combined) appeared six times (10%) in the regular program but only once (3%) in the special setting. His other main strategies were used similarly in the two programs.

Initiation Strategies for the Total of 4 Participants

Data in percentages for the total of 4 participants appear in parentheses in Table 2. Findings revealed that these young children utilized a number of different initiation strategies in each educational program. Similar strategies emerged in the two programs, although the distribution of their use differed. Vocalization either as a simple strategy or in combination with other strategies comprised the most frequent means of initiating peer interactions, comprising almost 50% of the total strategies in each program. It should be mentioned, though, that the children used preverbal vocalizations such as single vowels, single syllable, and repeated syllables. The following main differences between the two programs emerged: With hearing partners in the regular program, the deaf children more often used strategies such as moving closer, object-related social acts, and neutral touch, whereas with deaf partners they used signing, direct entrance into play or interaction, and head turning in search of a partner. In both programs, children used simple strategies more frequently than combined ones, except for vocalization, especially in the special program.

Success Rates

Table 3 presents data on each participant’s rate of success in initiating social interactions in each program. In general, more initiations appeared for interactions in the regular program than in the special program. This, however, resulted from the children’s repeated attempts to receive responses from a non-responsive partner in the regular program. In the regular program, the 4 children succeeded in only one fourth of their initiations. In the special program, however, the success rates ranged from 41% to 70%.

Table 4 presents the success rates for each participant regarding his or her preferred strategy in each of the programs. As seen in the table, vocalization (simple and combined) was the preferred strategy for 3 of the 4 children in both programs. It was used successfully 39% to 65% of the time in the special program but showed a success rate of only 20% or less in the regular program. Child C used signing as her preferred initiation strategy in the special program, achieving success 72% of the time. Her preferred strategy in the regular program—moving closer—failed 97% of the time. These results clearly indicate that the deaf children revealed greater difficulty in initiating interactions with hearing children than with deaf children, even though they used vocalization as their preferred strategy.

Discussion

The present study examined the following main questions: Which types of initiation strategies did young children with HI aged 2–3 years old use with...
partners of differing hearing status? How did participants attempt to change their strategies as a function of the partner’s hearing status? What rates of initiation success/failure did these young children achieve vis-à-vis hearing and deaf partners?

It should be noted that the 4 children differed considerably from each other in their demographic characteristics. Therefore, in the Results section, the individuals’ as well as the group’s data were presented. When discussing the group’s results, the individual differences among the 4 children should be kept in mind.

Findings revealed that the 4 participants utilized a number of different initiation strategies with both hearing and HI partners. These strategies were vocalization, touch, signing, object-related social act, head turning, moving closer, imitation of play, and direct entrance. Other strategies, such as aggression, gestures, large body acts, and positive affect, were used more rarely. Previous research has reported most of these initiation strategies as used by hearing and HI children alike (Vandell & George, 1981). Two additional strategies that were not mentioned by Vandell and George, head turning and moving closer, were identified in the present study. On the other hand, two strategies identified in previous research, head shake/nod and facial expression, did not appear in the present study.

Employing Strategies Alone or in Combination With Others

Vandell and Wilson (1982) noted that, in the context of Piagetian theory, the more complicated combination of two or more strategies simultaneously is considered more developmentally advanced than are simple strategies. In general, the current participants initiated more simple strategies than combined ones in both programs (regular program, 101 simple vs. 51 combined; special program, 75 simple vs. 56 combined). However, a few notable exceptions emerged: In the regular program, simple vocalizations occurred to a similar extent as vocalizations combined with other strategies (40 and 43 times, respectively). In the special program, children utilized vocalizations in combination with other strategies much more frequently than alone (44 vs. 20, respectively); likewise, more touch was used more often in combination with other strategies (7) than it was alone (4). It appears, therefore, that children tended to combine more strategies when initiating peer interactions with other HI children in the special program than they did with hearing peers in the regular program, especially regarding vocalizations.

The deaf participants in Vandell and George’s (1981) study tended to use more combined strategies than simple ones, whereas their hearing participants used more simple strategies. It should be noted that Vandell and George investigated children older than those included in the present study (41–64 months vs. 33–36 months, respectively). However, the two studies’ dissimilar findings cannot be attributed only to age differences because both Vandell and George’s hearing participants and the current HI participants utilized simple, single initiation strategies more frequently than they did combined ones. Vandell and George suggested that their deaf participants’ more frequent combination of multiple strategies might have been linked with this population’s higher awareness of the need to invest efforts to be understood as well as with their familiarity with the efficiency of combined strategies because of their involvement in total communication programs. These authors also noted that hearing participants’ initiations were effective and therefore did not elicit the need for multiple strategies.

Along the same explanatory lines, the very young HI children in the present study may have initiated one strategy at a time because their young age may have precluded performance of combined strategies or because they had not yet experienced the advantages of combined strategies, especially when they initiated interactions with hearing peers. It might also be suggested that, in the special program, despite the fact that it was an oral-only educational environment, the children realized the advantages of adding other strategies to vocalization and adjusted their strategies accordingly. In other words, the children in the special program were aware of the more common use of visual and motor strategies, such as touch and gestures, in addition to vocalization among HI children.

Type of Strategies

Vocalization (whether simple or combined) was by far the most frequent strategy used by 3 of these 4 HI
participants (except Child C) in both programs. These findings contrast with those of Lederberg and her colleagues (1986), who reported infrequent spoken language usage by deaf children. However, Lederberg et al.’s participants differed from the current children in two important ways: The Lederberg et al. sample had more severe hearing loss than did the current sample, and the Lederberg et al. children were educated in a total communication approach, whereas the present children were educated in an oral-only program. Clearly, when signing was not used in children’s educational environment, their most frequent strategy was to vocalize. The efficiency of this strategy is an important issue that is addressed in the section on Rate of Success.

It should be noted that Child D, who was deaf, used a cochlear implant. It seems that because of his implant he functioned as a hard-of-hearing child and thus vocalization was his preferred strategy, like Child A and Child B.

Partner’s Hearing Status

Child C showed the most pronounced distinction between the two programs in choosing her initiation strategies. She used vocalizations 13 times in the special program and only twice in the regular program. Furthermore, as the only participant whose preferred strategy was not vocalization, Child C (the daughter of deaf parents) preferred signing to her HI peers in the special program and moving closer to her hearing peers in the regular program. It seems that she used different strategies than the other 3 children in order to cope with the social interaction difficulties in the regular program. It should be noted that the total number of her initiations in the regular program was relatively small, as can be seen in Table 3. Nevertheless, her success rate was similar to the rate of the other children.

The other 3 children (A, B, and D) also used certain strategies such as vocalizations and object-related social acts more in the regular program than in the special one. Previous research has shown the tendency of deaf children to initiate interactions with hearing partners via objects (Lederberg et al., 1986; Rodriguez & Lana, 1996). Thus, it seems that even young HI children aged 2 to 3 years make referential decisions about their initiations by changing the frequencies of various strategies according to the hearing status of their partner. One possible stimulus for this differentiation in strategy use with different partners may comprise the generally low level of success that participants experienced in their initiations, as described next.

Rate of Success

The current study examined children’s rate of success in initiating social interactions with hearing and HI peers, considered a major criterion for social skills (Ghuman et al., 1998). Two pronounced findings emerged: The HI children, except Child C, made more attempts to initiate social interaction with hearing peers than with their deaf peers, but initiations toward the deaf children were more successful than those toward the hearing children. Success rates in the special program were much higher than the rates in the regular program for all 4 children. These results coincided with those of previous researchers (Rodriguez & Lana, 1996; Vandell & George, 1981), who concluded that even when hearing and HI children used similar strategies, the HI initiators failed more often, especially when attempting to initiate interactions with hearing peers. Notably, although Children A, B, and D most often vocalized when trying to initiate a social interaction, they failed in three quarters of their attempts with hearing children in the regular program. Although these 3 participants used a more appropriate strategy for communicating with hearing peers than did Child C, all 4 showed similar rates of success in their initiations. Frequent vocalizations did not ensure more social interactions. Hence, perhaps the specific strategy that children used did not comprise the main determinant of their success.

As was mentioned in the Results section, the vocalizations made by the children in the present study included mostly preverbal vocalizations. Thus, it might be that the low rate of success, especially in the regular programs, was related to the quality of these vocalizations. It is possible that the level of the vocalizations made by the children was not suitable for the partners, especially in the regular program. Systematic analysis of the quality of the vocalizations should be conducted.
in future research in addition to the quantitative approach of the present study.

These conclusions should be considered cautiously in light of the major differences between the two social environments. In the larger regular program, each child had access to many more potential partners for social interaction. Perhaps these findings for the deaf children resemble those of hearing children in that same regular program. Future research should examine rates of success for social initiations by both HI and hearing children attending the same program to determine similarities and differences.

Considering both the relatively higher number of initiations in the regular program and the lower rate of success, it can be concluded that the 3 children continued to repeat their attempted social interactions despite repeated failures. The strong motivation of the participants to interact with the hearing children was clearly evident in the video records. Similar results were reported by Messenheimer-Young and Kretschmer (1994) for a 5-year-old HI child and by Vandell and George (1981) for children aged 41 to 64 months.

Another possible explanation for the difference between the two programs regarding number of initiations would suggest that the social interactions in the regular program were shorter, therefore creating more situations that elicited the need to initiate a new interaction. Future research would do well to determine whether the amount of time that HI children spend in actual social interactions and the time they spend in initiating interactions differ between the two programs.

General Conclusions

A major trend in recent educational programs has been the integration of hearing and deaf children within a single program. Underlying these integration efforts lies the assumption that each group’s communication skills will be enhanced by exposure to the other group. The results of the present study indicated, unfortunately, that mutual exposure may be insufficient, and that interaction difficulties may prevent the groups’ effective social interaction with each other. The current outcomes raise questions regarding the negative social experiences that even very young children may encounter and the effectiveness of deaf children’s integration into regular preschools. Preschool educational programs that integrate deaf children together with their hearing peers should be aware of these social difficulties that already occur at a very young age. Previous research (e.g., Antia & Kreimeyer, 1988b; Antia, Kreimeyer, & Eldredge, 1993; Messenheimer-Young & Kretschmer, 1994; Vandell, Anderson, Ehrhardt, & Wilson, 1982) reported the efficacy of intervention programs in the area of social skills with deaf and hearing children of various age groups. Our findings imply that professionals should consider incorporating early interventions in the area of social interaction, including initiation strategies, at a very young age.

References


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