

Peer Interactions and the Development of Handicapped Children's Social and Communicative Competence

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INTRODUCTION

The preschool years signal for most young children a major transition to a world in which relationships with peers begin to assume a prominent role in their social development. Even with extensive experience with peers as infants and toddlers in day care or in playgroups, the rapid development of cognitive and linguistic structures that occurs between three and five years of age provides the foundation for the establishment of the more extensive and elaborate peer relations that characterize the preschool period (Guralnick, 1986).

The rather remarkable array of research that has been carried out in the field of peer relations in the last 15 years has suggested strongly that these child-child social and communicative interactions have important implications for young children's development (Hartup, 1983). Many researchers and theorists have suggested that child-child interactions foster socialization of aggressive tendencies, contribute to moral development, promote language and communication, and facilitate the development of prosocial behaviours and social-cognitive processes (Bates, 1975; Garvey, 1986; Hartup, 1978, 1983; Rubin

and Lollis, 1988). Although much of the evidence pertaining to the influence of peers on development is correlational and circumstantial, the fact remains that failure to establish effective peer relationships is predictive of future adjustment problems (Parker and Asher, 1987). Moreover, the nature of peer relationships during the preschool years appears to be a sensitive index of developmental difficulties (Guralnick, 1989).

Fortunately, the vast majority of young children are able to resolve satisfactorily problems encountered in approaching essential peer-related social tasks, such as conflict resolution, entry into a peer group, responding to aggression, and negotiating and sharing. However, this does not appear to be the case for children with handicaps, especially those with general (cognitive) delays (e.g. Guralnick and Groom, 1985, 1987a; Guralnick and Weinhouse, 1984). As will be seen, not only do children with a wide range of disabilities exhibit a disproportionately high rate of peer interaction problems in comparison with appropriate non-handicapped groups, but the difficulties these children experience appear to be unusual in the sense that the magnitude of their problems far exceeds that which would be expected on the basis of their progress in other developmental domains, particularly cognitive development.

The origins of these peer interaction difficulties for young handicapped children are quite complex and not fully understood, but the foundations for these deficits are likely to be in place well before children reach preschool age. Certainly, a cognitive component is implicated, as many models of peer-related social competence rely extensively on the cognitive abilities of the participants (e.g. Dodge *et al.*, 1986). Krakow and Kopp (1983) have demonstrated how information processing difficulties affect developmentally delayed children's ability to solve problems involving social exchange. Difficulties in detecting and interpreting social cues, as well as processing rapidly changing complex social behaviours of peers, are likely to pose problems for children with a variety of different disabilities.

However, it is apparent that non-cognitive factors can have a significant impact as well. Some insight into the difficulties handicapped children experience can be found in an examination of the historical antecedents of individual differences normally developing children exhibit in both their willingness to engage in peer interactions as well as the quality and effectiveness of those relationships. Although it is beyond the scope of this chapter to explore these factors in any detail, it is now well established that portions of this variability have their origins in early and continuing parent-child interactions.

For example, there now exists a substantial group of studies demonstrating that insecure attachment between parents and infants is associated with lowered initial sociability with peers and difficulties in establishing peer relationships in general (Easterbrooks and Lamb, 1979; Lieberman, 1977; Pastor, 1981; Waters, Wippman, and Sroufe, 1979). Rubin and his colleagues have described some potential developmental pathways that can lead to peer relationship

problems. These pathways consider interactions occurring among numerous variables including child characteristics, particularly temperamental variations, family interaction styles, and environmental factors and resources (Rubin, LeMare, and Lollis, in press; Rubin and Lollis, 1988). Recent research has now moved toward an examination of specific aspects of parent behaviour and interactive skills that can directly influence the peer-related social competence of their children, such as social modelling, forms of communicative exchange, and the extent to which parents directly encourage and monitor peer interactions (Ladd and Golter, 1988; MacDonald and Parke, 1984; Putallaz, 1987). In addition, Gottman and Katz (1989) have demonstrated recently the existence of a strong association between marital conflict and social competence with peers. Assessments of physiological indices were consistent with a model suggesting that difficulties encountered by children are related to their ability to control emotional arousal. Indeed, conflict resolution and escalation and de-escalation processes are vital to maintaining extended social interactions with peers (Gottman, 1983). Similarly, MacDonald (1987) suggested that regulation of affect during parent-child play can serve an important role in peer-related social competence.

Given these influences, the question arises as to whether families with handicapped children exhibit patterns that may not be as conducive to the development of their child's peer-related social competence in comparison with families with non-handicapped children. Unfortunately, available evidence suggests that many of the interactions between parents and handicapped children are, in fact, stressed, apparently setting the conditions for reduced levels of competence in relations with peers.

Specifically, the presence of a handicapped child within a family clearly adds an additional element of tension and potential discord (Bristol, 1987; Crnic, Friedrich, and Greenberg, 1983; Farber, 1975). Similarly, difficulties encountered in forming secure attachments also appear to be increased for these families, endangering the quality of parent-child relations (e.g. Stone and Chesney, 1978). Problems encountered in establishing affectively positive parent-child relationships and the formation of more directive communication styles (Crnic, Friedrich and Greenberg, 1983; Cunningham *et al.*, 1981) in families with a handicapped child suggest conditions that will adversely affect future peer-related social competence. Many families do, in fact, make successful adaptations, a circumstance that will vary with available resources and the severity of a child's disability (Beckman, 1983; Crnic, Friedrich and Greenberg, 1983). However, the increased risk of stress and discord remains, and may well serve to alter the ultimate quality and effectiveness of children's peer-related social competence.

Moreover, it appears that opportunities for exchanges with peers for handicapped children decline throughout the preschool years (Lewis, Feiring, and Brooks-Gunn, 1987). Whether the stigmatizing aspects (Goffman, 1963) or perhaps the prevalence of associated behaviour problems (Guralnick and

Groom, 1985) are responsible for this constriction of the social world of handicapped children, it is clear that limitations are imposed on the growth and development of peer relations.

Despite the array of environmental and family factors that may predispose handicapped children to engage in less than ideal peer relations by the time they reach preschool age, the impact of specific and extended experiences with peers themselves cannot be ignored. During the preschool years activities involving peers become more central, and the influence of one's companions may well be able to alter the developmental path established by these early and perhaps continuing experiences.

Accordingly, the purpose of this chapter is to examine the peer relationships of preschool age handicapped children, placing special emphasis on the importance of the characteristics of their companions in regulating essential features of peer-related social competence. A particular focus will be the social and communicative adaptations and accommodations required of young non-handicapped children to interact effectively and appropriately with children different in developmental status. It should be noted that arrangements designed to create highly structured situations usually involving explicit training of one or more peers, such as that which occurs in peer tutoring (see Chapters 4, 5, and 6, this volume), will not be considered here. Rather, the nature and impact of social and communicative interactions as they typically occur in both dyad and group settings will be the focus of this chapter.

First, descriptive information on the nature of handicapped children's peer interactions will be presented. Emphasis in this section will be placed on peer interaction assessment procedures as well as an identification of the nature of specific deficits exhibited by handicapped children. This information will provide a framework for understanding the effects of the impact children's companions may have on peer-related social competence as presented in the remainder of the chapter. It is important to note as well that most of this descriptive and related research has been carried out on children with cognitive delays. As a consequence, the information provided in this chapter will focus primarily on that population of young handicapped children.

This initial section will be followed by a discussion of the impact of the characteristics of one's companions on peer-related social behaviour, focusing primarily on the effects of social exchanges occurring with non-handicapped children. Issues of social integration between children differing in developmental status, the qualitative nature of interactions occurring between handicapped and non-handicapped children, and the appropriateness of social and communicative accommodations and adaptations by non-handicapped children to handicapped children will then be addressed. Finally, systematic manipulations of the characteristics of handicapped children's companions accomplished through changes in the composition of groups as occurs in an effort to modify peer-related social interactions will be analysed.

HANDICAPPED CHILDREN'S PEER INTERACTIONS

Cross-sectional and longitudinal studies of preschool age handicapped children's peer relations have yielded consistent findings suggesting both specific deficits and atypical developmental patterns. As noted, much of this research has centred on children with a range of developmental (cognitive) delays. In general, the peer interactions of these children have been assessed in free-play situations while interacting with other children with similar delays or disabilities. Since the effects of one's peers on children's social and communicative development is a central theme of this chapter, the unavailability of non-handicapped children (due to segregated environments) and the relatively homogeneous nature of the children with regard to social skills in these settings should be noted. Fortunately, most of the analyses of delayed children's peer relations have been presented within a developmental framework and comparisons have been made with non-handicapped children at equivalent developmental levels.

This section will focus on assessments of the peer relations of young handicapped children as reflected by measures obtained from many different perspectives. Included are global measures of peer-related social interactions, some specific indices of individual peer-related social behaviours, measures of the ability of handicapped children to adjust their communicative interactions to the characteristics of their companions, and process analyses of behaviour request episodes.

Global measures

Descriptive accounts of the peer-related social competence of both handicapped and non-handicapped children have frequently utilized variations of Parten's (1932) index of social participation. This scale characterizes the global peer interactions of young children as they progress from independent to group play. Concerns do exist with regard to the sequential and hierarchical nature of this scale (Bakeman and Brownlee, 1980; Roper and Hinde, 1978; Rubin, Maioni, and Hornung, 1976; Smith, 1978). However, its widespread use reflects the scale's sensitivity to developmental changes, socioeconomic status, and environmental conditions (e.g. Barnes, 1971; Rubin and Krasnor, 1980; Smith, 1978; Vandenberg, 1981). In addition, the scale has been shown to be sensitive to differences associated with the characteristics of one's peers (Goldman, 1981) and correlates with other indices of peer-related social competence (Rubin, Daniels-Bierness, and Hayvren, 1981).

The most commonly used current version of this scale is the one developed by Rubin and his colleagues (Rubin, Maioni and Hornung, 1976; Rubin, Watson, and Jambor, 1978). The scale consists of 11 mutually exclusive and exhaustive categories. Based primarily on Parten's (1932) social participation scale, the three primary play categories are as follows: (1) solitary play—playing

alone, (2) parallel play—playing next to another child, and (3) group play—playing with another child in some mutual fashion (actually a combination of Parten's [1932] associative and cooperative play categories). This scale also yields an additional dimension related to the level of cognitive play in which children are engaged. Specifically, four measures of cognitive play based on the work of Smilansky (1968) are nested within the three social participation categories. Accordingly, whenever children are observed participating in solitary, parallel, or group play, their play is also classified into one of the following: (1) functional—simple repetitive play, (2) constructive—learning to use materials, creating something, (3) dramatic—role taking and pretend play, and (4) games with rules—child behaves in accordance with prearranged rules. The eight remaining categories consist of: (1) unoccupied behaviour—child is not playing, (2) onlooker behaviour—child watches other children but does not enter into play, (3) reading—reading, leafing through a book, (4) rough and tumble—mock and playful fighting, running after one another, (5) exploration—examining physical properties of objects, (6) active conversation—talking, questioning, and suggesting to other children, but not playing, (7) transitional—moving from one activity to another, and (8) adult-directed—any activity with an adult. Typically, the free play sequence is divided up into 10- or 20-second intervals and that category which best describes the child's behaviour for that interval is coded. If solitary, parallel, or group play is coded, one of the four cognitive play classifications is also made. The identity of those peers with whom a particular child interacted is also obtained.

When the naturally occurring peer interactions of handicapped children participating in play with other handicapped children are described within this framework, a pattern emerges suggesting a peer interaction deficit. Specifically, for moderately and mildly delayed preschool age children, a series of cross-sectional and short-term longitudinal studies (Crawley and Chan, 1982; Guralnick and Weinhouse, 1984; Guralnick and Groom, 1985) have documented that delayed children engage in the most advanced form of peer interaction, i.e., group play, only to a very limited extent. In fact, comparisons with non-handicapped samples similar in developmental level suggested that, on average, delayed children participated in group play approximately half as often as would be expected on the basis of their level of cognitive development. Unfortunately, even this figure is somewhat deceptive in that only a small proportion of the delayed children accounted for a majority of the more advanced forms of social play. Moreover, cross-sectional analyses across the preschool years failed to find a trend toward increased participation in more interactive forms of play or a decrease in solitary or parallel types of play. These patterns are highly atypical from a developmental perspective. In addition, these deficits appear to be characteristic of other groups of handicapped children (see Guralnick, 1986) such as those with hearing impairments (Higgenbotham and Baker, 1981).

It is important to note as well that aspects of these peer interaction deficits have been observed in settings which included other non-handicapped children (e.g. Guralnick and Groom, 1987a). As discussed in detail in a subsequent section of this chapter, the simple availability of non-handicapped children may minimize some of the peer relationship difficulties, but the essential features of the deficit remain intact.

Specific social behaviours

The relative absence of group play for handicapped children found in these studies is especially discouraging since it is this measure that provides the best index of young children's abilities to utilize whatever social skills and social resources are available to them to engage in extended play interactions. The design of intervention programmes requires insight into those specific social skills or social behaviours that might be associated with peer interaction deficits revealed by the more global measures. The simple frequency of social behaviours is not the answer, as this measure appears to be of minor value in identifying children at-risk for problematic peer relations (Asher, Markell, and Hymel, 1981). However, more qualitative approaches that consider both the positive and negative aspects of peer interactions as well as those specific social behaviours and social processes that are associated with peer-related social competence should prove more useful.

One of the most comprehensive and widely utilized scales that focuses on children's individual social behaviours consists of a cluster of behaviours originally developed by White and Watts (1973). Such behaviours include gaining the attention of peers, leading peers in activities, imitating a peer, expressing affection or hostility, competing for an adult's attention or equipment, and following or refusing to follow a peer's requests. The success of social bids (i.e. actually gaining the attention of peers) can also be evaluated using this scale. These individual social behaviours have demonstrated predictive and concurrent validity in relation to peer-related social competence. Specifically, these component behaviours do increase across the preschool years, they correspond with other measures of peer-related social competence such as teacher ratings and peer sociometrics, and they correlate positively with the index of social participation (Connolly and Doyle, 1981; Doyle, Connolly, and Rivest, 1980; Wright, 1980).

When this scale is applied to observations of the free play of developmentally delayed children, an interesting pattern is obtained (Guralnick and Groom, 1985, 1987a; Guralnick and Weinhouse, 1984). Overall, interactions tend to be positive. However, compared to non-handicapped children at similar developmental levels, there is a noticeable absence of those individual social behaviours associated with peer-related social competence (see White, 1980). The limited attempts of mildly delayed children in particular to lead others, to use them as

resources, or to show affection appear to restrict opportunities to establish and maintain extended peer interactions. Overall, the lack of directedness in peer play appears to be the most obvious feature distinguishing the play of delayed from non-delayed children.

Communicative adjustments

The ability to adjust communicative exchanges in accordance with the characteristics of one's companion is an essential feature of peer-related social competence (see Guralnick, 1981a, for discussion). Successful exchanges typically require numerous adjustments in syntactic, semantic, pragmatic, and discourse features of language. By the time young children reach preschool age, these adjustment capabilities are well established, including interactions occurring with companions differing in chronological age (Gelman and Shatz, 1977; James, 1978; Masur, 1978; Sachs and Devin, 1976; Shatz and Gelman, 1973). Overall, non-handicapped preschool age children seem to make adjustments that are appropriate in that (1) communicative effectiveness is increased (e.g., use of syntactically less complex utterances, but greater use of attentional devices and more redundancy when interacting with younger companions) and (2) social rules in relation to task demands are observed.

Are young handicapped children able to make these adjustments? Are these children sufficiently sensitive to situations and task demands as well as to the characteristics of their companions (e.g. chronological age, developmental level, linguistic abilities) to enable them to make appropriate modifications? Although research is limited, it does appear that adjustments generally similar to those of comparable groups of non-handicapped children do occur. For example, language-impaired children interacting with adults, same-age peers, and toddlers do adjust their use of imperatives, contingent queries, self-repetitions, and total number of questions in a manner similar to normally developing age-mates (Fey and Leonard, 1984). Mildly developmentally delayed young children also have demonstrated an ability to adjust their language to the characteristics of their companions. Recordings of the communicative exchanges of mildly delayed children during free-play with non-handicapped, other mildly delayed, as well as moderately and severely delayed companions revealed adjustments in syntactic complexity, semantic diversity, and pragmatic aspects of language highly similar in magnitude and direction to those of normally developing children (Guralnick and Paul-Brown, 1986). More recently, Guralnick and Paul-Brown (in press) confirmed that the communicative adjustments of a group of 4-year-old mildly delayed children were similar to those of a developmentally matched group of normally developing children, particularly in relation to pragmatic aspects of language. However, it is important to note that concerns exist about the ability of mildly delayed (Guralnick and Paul-Brown, 1986) and language-impaired children (Fey, Leonard, and Wilcox, 1981) to adjust their

communicative interactions when the chronological ages or developmental differences of companions are less marked.

Moreover, despite these similarities, it is important to recognize that the conclusions on communicative adjustments noted above were based primarily on utterance-by-utterance analyses of data summed to obtain overall frequencies, or on proportions of utterances or utterance types as addressed to different listener groups. On some occasions, the immediate effects of a preceding utterance were analysed. However, as discussed in the next section, the utterance-by-utterance approach to assessing communicative adjustments has many limitations. More recently developed social/communicative process and sequential analysis measures may provide a different perspective on handicapped children's communicative skills.

Process and sequential measures

The measures of social participation, individual social behaviours, and the utterance-by-utterance communicative measures have been able to capture many important features of a most complex social process. However, such static measures do not allow an appreciation of the actual processes that young children employ as they solve social interaction problems, particularly as sequences of events unfold over time. In fact, an appreciation of the 'long-view' of social exchanges with a corresponding ability to adjust appropriately to a companion's feedback while persisting in accomplishing one's social goals, is an essential characteristic of peer-related social competence (Asher, 1983; Guralnick, 1981a).

In recent years, a number of methodological and conceptual advances have enabled behavioural scientists to obtain a better understanding of these processes. It has become well recognized that it is essential to provide a framework for interpreting the sequences of interactions that occur. Specific social tasks, such as children's efforts to obtain entry into group play or sequences in which children request certain goods or services from a companion, are common and important social episodes that can be identified for analysis (see Guralnick, 1986). As Dodge *et al.* (1986, p. 3) point out:

The concept of the social task is crucial to an understanding of social competence, for it is only with reference to a specified task that a child's performance can be judged to be effective or ineffective and competent or incompetent. When a task is not specified, the judge must use an implicit (and idiosyncratic) reference point. The social task thus provides the context for understanding social behavior.

Social tasks are often arranged or contrived in order to maximize the opportunities for events of interest to occur and to permit a wide range of measures to be utilized. For example, research by Putallaz and Gottman (1981), Putallaz (1983), and Dodge, *et al.* (1986) have demonstrated how peer entry behaviours in analogue situations can provide important insights into

the social behaviours that correspond to different levels of children's social competence as assessed by sociometric status measures. These analogue models have proved to be extremely valuable and have demonstrated they are valid representations of events that occur in more natural encounters among children.

Although there are many benefits to using a contrived setting, social tasks can also be studied within the context of more typical child-child interactions. In this approach, specific tasks or episodes characterizing situations or events are identified from the flow of behaviour and analysed accordingly. Social tasks that have been evaluated in this manner include children's dispute settlements (Brenneis and Lein, 1977), conflict resolution (Eisenberg and Garvey, 1981), the use of behaviour requests (Garvey, 1975, Guralnick and Paul-Brown, 1984; Levin and Rubin, 1983; Parkhurst and Gottman, 1986), and entry strategies (Corsaro, 1979). Analyses of episodes derived in this manner can also be used to characterize the social interaction strategies of different groups of children such as those who are socially integrated and those who are socially isolated (e.g. Rubin and Borwick, 1984).

One of the most conceptually productive outcomes of efforts to analyse interaction patterns as they extend across social episodes has been the integration that has occurred between the fields of social and communicative processes. The emergence of the fields of developmental pragmatics (Ochs and Schieffelin, 1979) and child sociolinguistics (Ervin-Tripp and Mitchell-Kernan, 1977) has provided a framework for assessment of the more subtle and complex aspects of children's social/communicative strategies. These rich analyses of children's peer interaction have recently been combined with rigorous statistical approaches that can segment the stream of behaviour while still maintaining an emphasis on dependence among interactions and the significance of specific social interaction patterns (Gottman, 1983; Sackett, 1978, 1987).

Unfortunately, applications of these new approaches to the study of handicapped children's peer relations have not yet been explored. As will be discussed later, although analyses of communicative sequences of non-handicapped children interacting with handicapped companions have been evaluated (e.g. Guralnick and Paul-Brown, 1984), virtually nothing is known about the entry skills, strategies used to obtain goods and services from peers, or the conflict resolution techniques employed by young handicapped children.

Current research by Guralnick, Paul-Brown, and Groom (in preparation) is attempting to address these important issues. Specifically, the sequences of communicative interactions of mildly developmentally delayed children involved in directive episodes during a series of playgroups are being evaluated. Videotaped records of mildly developmentally delayed 4-year-olds interacting in free play with 3- and 4-year-old non-handicapped children or with other 4-year-old delayed companions have been reviewed to identify directive episodes (100 minutes of videotape per child obtained over a four-week period). Each directive episode consists of an initial directive turn, defined as a request to

initiate, change, or stop a companion's action or activity where verbal or behavioural compliance is expected. In addition, to be considered an episode, non-compliance in some form must have resulted on the part of the companion, with a subsequent communicative interaction by the speaker pursuing the initial directive. As such, each directive episode reflects more than a passing interest on the part of the mildly delayed speakers to obtain their interpersonal goals. Since this social task is such a prominent part of children's interactions (see Levin and Rubin, 1983), the social/communicative strategies utilized by delayed children should provide an important index of their peer-related social competence.

Each of these episodes has been tracked and coded for both speaker and companion turns until some resolution to the initial directive occurred. A number of general types of data were available. Two types of information assessed the general tone and character of the overall episode. First, it was important to determine whether the speaker softened the directive request through some form of mitigation, such as the use of polite speech forms or providing a reason for the directive within the initial directive turn, or whether the speaker simply uttered a command, typically in the imperative form. Second, the primary purpose of the episode was determined and provided a sense of the affective nature of the overall exchange. Stopping an action ('Don't do that!') or requesting assistance ('Can you help me with these scissors?') clearly provide differing frameworks within which children will organize their communicative strategies.

The outcome of each episode is of course important, as children will vary dramatically in terms of their success in gaining their interpersonal goals. Distinguishing between full and complete compliance and modified compliance (the latter usually resulting from some form of compromise) can be contrasted with episodes in which children simply switch topics or do the task themselves whenever possible.

However, the primary intent of the analysis of behaviour request episodes is the identification of interactive strategies that are employed as children pursue some resolution to their initial directives. A series of over thirty possible interactive strategies has been identified. The affective tone, willingness to negotiate, persistence, and reciprocal nature of the exchanges are dimensions that characterize these strategies. Specific examples include counter-compromise, mitigate or minimize, insist-positive, insist-negative, postpone, provide reason for prior directive, and information-seeking request. Utilizing both conventional and sequential analyses focusing on adjacent turns, indices of what appear to be important peer-related social processes (see Asher, 1983; Dodge *et al.*, 1986; Gottman, 1983) can be identified for individual children from analyses of these strategies. For example, justification of directives tends to be a successful strategy to resolve conflict (Eisenberg and Garvey, 1981; Parkhurst and Gottman, 1986). In addition, connectedness, as indexed by responding with an informative

response to an information-seeking request, is an important measure of the quality of children's relationships. Establishing a negotiating position through interactions surrounding the acceptance or rejection of proposals and counter proposals or other compromises may also reflect important social processes that can be evaluated through sequential analyses of these directive episodes.

Although these data are still being analysed (Guralnick *et al.*, in preparation), peer-related social competence difficulties that mildly delayed children exhibit in this important social task are nevertheless emerging. In comparison to either non-handicapped 4-year-olds or to a developmentally matched group of non-handicapped 3-year-olds, mildly delayed children tend to utilize strategies and processes that are not nearly as adaptive, appropriate, or successful. Their purposes differ, there is evidence for a lack of connectedness and flexibility, and there is limited use of more sophisticated strategies to achieve their interpersonal goals. Firm conclusions, however, must await a complete analysis of the data.

INTERACTIONS WITH NON-HANDICAPPED PEERS

Now that a number of the fundamental peer interaction difficulties which handicapped children experience have been identified, the nature and quality of social exchanges occurring between handicapped and non-handicapped children will be examined with the specific purpose of determining whether there are any 'developmental advantages' (Hartup and Sancilio, 1986) for handicapped children. Specifically, in this section, the degree to which handicapped children are socially integrated with non-handicapped children when placed in the same settings will be evaluated in terms of developmental opportunities for observational learning or involvement in more advanced forms of play. Following this analysis, the social/communicative environment provided by non-handicapped children will be examined in terms of its potential developmental impact on handicapped companions. Finally, the communicative adjustments by non-handicapped children to the developmental characteristics of handicapped children will be of special interest.

Social integration

A surprisingly large number of studies have been directed toward analysing the extent to which young handicapped children are integrated with non-handicapped children in classroom settings (e.g. Arnold and Tremblay, 1979; Cavallaro and Porter, 1980; Guralnick, 1980; Guralnick and Groom, 1987a; Ispa, 1981). Diverse groups of children, varying in type and severity of disability, have been included in these studies. In addition, the chronological ages of the non-handicapped children as well as the type and quality of programmes have been equally diverse. Overall, and despite this variability, the findings are

quite clear: handicapped children form a socially separate subgroup in preschool settings. In general, non-handicapped children tend to interact far less frequently with handicapped children than they do with other non-handicapped classmates. This statement holds irrespective of the measure used to evaluate the extent of integration (e.g. positive social exchanges, peer sociometric ratings, visual attention). Moreover, greater degrees of social separation are found for children with more severe disabilities (see Guralnick, 1981b).

A recent investigation by Guralnick and Groom (1987a) illustrates how the issue of evaluating social integration can be approached. In this study, a special effort was made to avoid many of the methodological problems that have plagued previous research in this area. Specifically, sampling bias that is usually associated with evaluations of social integration within existing, intact classroom groups (the standard practice of previous research for practical reasons) was minimized by systematically sampling from populations of delayed and non-handicapped children to form a series of specially created mainstreamed playgroups.

In addition, the study of intact classes does not permit investigators to vary systematically the characteristics of the non-handicapped children in the setting, particularly their chronological ages, or even attempt to match children on the basis of developmental level. As a consequence, it is difficult to evaluate the extent to which social integration in previous studies was affected by these factors. In fact, in a majority of the studies that were conducted, non-handicapped children were typically one year younger than their handicapped classmates making it difficult to separate out the effects of chronological age from developmental status.

Fortunately, the mainstreamed playgroup approach permitted the systematic selection of children to establish the appropriate chronological age and developmental level matches. Accordingly, in the Guralnick and Groom (1987a) study, playgroups were selected so that each was composed of three normally developing 3-year-olds, three normally developing 4-year-olds, and two mildly developmentally delayed 4-year-olds. The delayed children were selected so that a developmental match was achieved with the non-handicapped 3-year-olds and a chronological age match with the non-handicapped 4-year-olds. An important aspect of this study was that children were initially unacquainted with one another. Therefore, the social integration patterns that were obtained would be free of bias from previous reputations of the children and existing social status hierarchies. This was of special concern since in many of the previous studies children were brought together only during free play situations but were in separate classes for delayed and non-handicapped children.

Eight such playgroups were formed, each operating 2 hours per day for four weeks. During that time, children's social and communicative interactions were recorded using videotaped and audio records obtained through a one-way mirror in an observation room adjacent to the playgroup in conjunction with the use

of radiotelemetry microphones and wireless transmitters worn by children in the playgroups. To evaluate the extent to which children representing each of the three groups interacted with children from their group or the other two groups, the frequency of positive social interactions was used to develop a preference score that took into consideration the availability of children in any particular playgroup session. Expected frequencies of interaction were calculated and compared with observed values.

When analysed in this manner, the non-handicapped older group (4-year-olds) revealed a marked preference for interacting with other non-handicapped older children. In contrast, there was a negative preference (lower than expected interaction levels) for children in both the non-handicapped younger and mildly delayed peer groups. However, non-handicapped younger children did not show a significant preference for either of the two non-handicapped peer groups, but did reveal a negative preference for the mildly delayed peer group similar to that which was observed for the 4-year-old non-handicapped children. Accordingly, both groups of non-handicapped children exhibited a negative preference for the mildly delayed group. Finally, the mildly delayed children themselves produced an especially interesting pattern. Specifically, the mildly delayed group preferred to interact more with their chronological age mates (4-year-old non-handicapped children) than with the 3-year-olds. They also interacted with other mildly delayed children to the extent to which they were available; i.e., no negative or positive preferences. These preference patterns were confirmed by peer sociometric measures as well. Taken together, the results present a clear picture of social separation in that both groups of non-handicapped children held a negative preference for mildly delayed children. Of equal importance was the fact that mildly delayed children were interacted with proportionately less frequently than even the developmentally matched group of non-handicapped 3-year-olds. Accordingly, preference is related to developmental status (i.e. existence of a developmental delay) rather than developmental level.

These findings are certainly not unexpected, as subgroups of young children form on the basis of numerous characteristics including sex, chronological age, socioeconomic status, and popularity (see Guralnick, 1986, for discussion). It is important to recall the earlier discussion in which it was concluded that developmentally delayed children show peer-related social competence deficits beyond those which would be expected on the basis of their developmental levels. Even the development of friendships between delayed and non-handicapped preschool children, based on mutual preference, is problematic (Guralnick and Groom, 1988a). Since children's social skills contribute significantly to the extent to which they are involved in constructive and elaborate child-child interactions, the patterns of social separation are to be expected. In fact, the pattern of social separation is continued into the later school years (Taylor, Asher, and Williams, 1987).

Developmental opportunities

The question remains as to whether this pattern of social separation is sufficient to prevent handicapped children from taking advantage of those developmental opportunities that may arise from interactions with non-handicapped children. Available evidence suggests that, in fact, many potential benefits do exist. For example, despite the pattern of social separation, interactions occur frequently between handicapped and non-handicapped children. Interestingly, as noted, mildly delayed children even prefer to interact with non-handicapped age-mates. Moreover, they are generally successful in gaining an appropriate response to their social initiations. Non-handicapped children are also highly responsive to the initiations of more severely disabled children (Strain, 1984a). Of particular note was the finding by Guralnick and Groom (1987a) that when mildly delayed children engaged in group play, consisting of elaborate forms of mutual interactions, their play partner was a non-handicapped child on approximately 60% of the occasions. In addition, when more passive measures such as proximity to peers were used as the index for establishing a preference measure, far less social separation was obtained (Guralnick, 1980; Guralnick and Groom, 1987a). As a consequence, considerable opportunities for observational learning appear to exist for handicapped children in mainstreamed settings.

An alternative way to address this issue is to examine more directly those social interactions occurring between handicapped and non-handicapped children when placed together systematically in dyads. This provides a perspective on what occurs when children do come into sustained contact with a particular companion as part of a larger group activity, and complements the information obtained from those free-play group situations. In a recent study of dyadic peer interactions involving mildly developmentally delayed children, Guralnick and Groom (1987b) did find that pairing mildly delayed children with non-handicapped age-mates produced more frequent involvement in more advanced levels of social play and more frequent social interactions in comparison to pairings with non-handicapped younger or other mildly delayed children. Apparently, the more active and interactive non-handicapped older group had sufficient social competence to be able to engage the delayed children more frequently in productive social interactions. Moreover, the extremely low level of peer interactions found in dyads composed only of mildly delayed children suggests further that more developmental opportunities can be found in settings that provide access to non-handicapped companions. However, it is important to note that not all disability groups will yield similar results. Specifically, children with sensory handicaps appear to pose special problems in their interactions with non-handicapped children (e.g. Vandell and George, 1981).

Communicative adjustments to handicapped children

Any assessment of potential developmental advantages to handicapped children that can result from involvement with non-handicapped peers must consider communicative interactions. The substantial discrepancies that often exist between a handicapped child's chronological age and developmental level pose important challenges to non-handicapped peers to adjust the linguistic and other features of their communicative exchanges to the levels of their companions. In the absence of such adjustments, it is difficult to see how any possible developmental advantages to handicapped children could exist.

As discussed in an earlier section of this chapter, the abilities of preschool age non-handicapped children to adjust communicatively have been demonstrated when interacting with chronologically younger non-handicapped children. In fact, many of the linguistic adjustments to younger children, such as reduced syntactic complexity, parallel adjustments made by parents to their developing children. In many respects, these adjustments by non-handicapped children have created a linguistic environment that appears to be adapted to the level of the companion in a manner that improves communicative clarity between speaker and companion and provides a linguistic environment that promotes communicative development (see Guralnick, 1981a; Lederberg, 1982 for discussion).

The expectations in terms of the communicative value of these adjustments should, however, be kept in perspective. Clearly, adjustments are needed, particularly in critical linguistic features such as syntactic complexity and semantic diversity. The adjustments by non-handicapped children to companions at different chronological ages do appear to be based both on initial perceptions of the situation and the capabilities of the listener, as well as moment-to-moment modifications that occur in accordance with feedback from the listener (Guralnick, 1981a). Yet, linguistic environments created by young children are certainly not exact replicas of those provided by parents, as many didactic functions tend to be absent in peer-peer speech (Martinez, 1987). Moreover, as discussed below, many adjustments by non-handicapped children are also likely to be governed by the quality of the interpersonal relationships existing between the participants, particularly in relation to social status. This interplay among cognitive and associated characteristics of the listener, environmental factors, and interpersonal relationships necessitates careful interpretation of any communicative adjustments that might result when a companion is a handicapped child.

Nevertheless, a series of research studies focusing on adjustments by non-handicapped preschool children when interacting with developmentally delayed companions has yielded some consistent findings (Guralnick and Paul-Brown, 1977, 1980, 1984, 1986, in press; Guralnick *et al.*, in preparation). Specifically, when addressing severely and moderately delayed children, it has been well

established that non-handicapped preschool age children reduce syntactic complexity (e.g. mean length of utterance) and semantic diversity (e.g. type-token ratio) of their speech in comparison with speech directed to developmentally more advanced companions. In addition, the functional aspects of speech are altered as proportionally more directives but fewer informational statements or informational requests are addressed to less advanced companions. Moreover, certain discourse features of speech, such as an increased use of repetitions or gestures, are found more often when companions have significant developmental delays. Interestingly, when specific episodes which track children seeking to obtain compliance to their behaviour requests are analysed (Guralnick and Paul-Brown, 1984; Guralnick *et al.*, in preparation), non-handicapped children show high proportions of adaptive strategies responsive to the feedback of their delayed companions. Similarly, in comparison to exchanges with other non-handicapped children, more frequent combinations of adaptive strategies along with a greater reliance on non-verbal techniques, such as demonstration and exemplification, are found when interacting with companions with significant delays.

Although not every study yielded exactly the same pattern for each measure, the overall results suggested that an appropriate linguistic environment was being provided for children with severe and moderate developmental delays by non-handicapped children. The adjustments seemed to be responsive to the cognitive and linguistic abilities of their companions and, as a consequence, appeared to improve communicative clarity and provide a progressive linguistic environment for the delayed children. Directive utterances appeared to serve as strategies for probing the comprehension of companions with limited cognitive and language abilities. Correspondingly, the use of adaptive and flexible strategies by non-handicapped children to gain compliance with their requests were also techniques likely to result in increased comprehension by the delayed children. It is important to recognize, however, that these studies were concerned with adjustments to children with development delays—adjustments which might not occur to children with other disabilities (see Vandell and George, 1981).

It can be argued that, taken together, these communicative adjustments by non-handicapped children provide potential developmental advantages to children with significant developmental delays. Adaptive linguistic adjustments such as those described above certainly could not occur when companions have similar disabilities. A number of questions remain, however. It is uncertain as to how finely-tuned those adjustments are to the delayed children. In fact, distinctions between moderately and severely delayed children are rarely found in the adjustment patterns of non-handicapped children.

Mildly delayed children

Of equal concern, however, is recent evidence suggesting that, for mildly developmentally delayed children, perceptions of their social status by

non-handicapped children or difficulties in interpersonal relationships may compromise any potential developmental advantages. When delayed and non-handicapped children are similar in terms of developmental level, a feature of many studies involving mildly developmentally delayed children, it is reasonable to expect that any adjustments by non-handicapped children would be similar for both groups. This has been confirmed in a number of studies for syntactic and semantic measures (e.g. Guralnick and Paul-Brown, 1977, 1980, 1986). However, analyses of the speech style of non-handicapped children in relation to mildly delayed children have revealed some disconcerting patterns. For example, Guralnick and Paul-Brown (1984) noted that non-handicapped children rarely asked questions of mildly delayed companions and chose to justify or mitigate their requests almost exclusively to other non-handicapped children. Interpreted within a sociolinguistic framework (Ervin-Tripp and Mitchell-Kernan, 1977), there exists a concern about the quality of the interactions occurring between mildly delayed and non-handicapped children. In fact, these speech style patterns and other less 'peer-like' communicative exchanges to delayed children are consistent with their lack of social integration and lower ratings on peer sociometric measures discussed earlier.

A more recent study by Guralnick and Paul-Brown (in press) analysed the speech style directed to mildly delayed 4-year-old children by non-handicapped 3- and 4-year-olds. As noted earlier, the mildly delayed children were matched in terms of chronological age to the older non-handicapped children and in terms of developmental level to the non-handicapped 3-year-olds. Although a wide range of measures was used for this utterance-by-utterance analysis, most interest focused on the speech style and affective quality of interactions. Specifically, behaviour request categories of strong (inflexible, explicit requests), weak (use of mitigation or softening such as the use of politeness forms, tag questions, inferred directives, or offering justification), joint ('let's' or 'we' requests), and attentional (e.g. 'look') directives provided the focus for assessing speech style. Disagreement and agreement measures yielded information regarding the affective quality of exchanges.

The results of this study revealed that non-handicapped children addressed more strong but fewer joint directives to mildly delayed than to other non-handicapped children. This study also revealed that more directives, irrespective of type, and more attempts to clarify a message but less sharing of information, occurred when companions were mildly delayed than when they were non-handicapped children. A substantial proportion of disagreements involved mildly delayed children. Moreover, these patterns held for both 3- and 4-year-old non-handicapped children.

Interestingly, this pattern of outcomes is quite similar to the one observed for children with more severe developmental delays (Guralnick and Paul-Brown, 1980, 1986). The more frequent use of directives can be seen as an effort by non-handicapped children to establish and maintain involvement with children

less capable than themselves. The absence of self-initiating, organizing type activities characteristic of many mildly delayed children (Guralnick and Groom, 1985, 1987a) suggests that the increased use of directives is an appropriate adjustment by both older and younger non-handicapped children. Similarly, the proportionally less information sharing that was observed may well reflect difficulties in establishing relationships, or perhaps indicates the more limited information processing and expressive language skills evident in their delayed companions. Difficulties in establishing and maintaining social contact may also be reflected in the greater proportion of message clarification requests that were directed to the mildly delayed group.

Despite these apparently reasonable explanations suggesting the appropriateness of this pattern, results of the analyses focusing on speech style and affective quality suggest that factors other than cognitive-communicative ones may be at least partially responsible for this interaction pattern. Specifically, the fact that proportionally more strong directives were directed to mildly delayed children than to the two non-delayed groups is of concern. This speech style difference may have reflected an adjustment to the cognitive limitations of the delayed children, since unmitigated directives are almost always issued in a more concise, specific, and more comprehensible form than mitigated directives. To evaluate if this was the case, a comparison was made of communicative interactions occurring to the younger non-handicapped group; the group matched in terms of developmental level to the mildly delayed children. If the use of strong directives reflected an effort to minimize cognitive demands on the listener, a similar speech style pattern should be evident when interacting with this developmentally matched non-handicapped group as well. However, this did not turn out to be the case, as directive types were distributed to younger non-handicapped children in a manner similar to those addressed to the older non-handicapped group, but not to the mildly delayed children. This result is consistent with the finding that other measures of cognitive demand, specifically mean length of utterance and proportion of complex utterances, did not vary when non-handicapped children addressed delayed or non-handicapped children.

An alternative to the cognitive demand hypothesis is that the speech style modifications in strong directives are governed by social status and interpersonal factors. In fact, the unusually high proportion of disagreements involving mildly delayed children combined with their less preferred social status in the mainstreamed playgroups (Guralnick and Groom, 1987a) suggests that these interpersonal perceptions and relationships may well be responsible for differences in speech style. An especially relevant finding is that this speech style pattern was also found for mildly delayed children interacting with other mildly delayed companions. As a consequence, although this pattern cannot be considered to be a developmentally productive one from the perspective of mildly delayed children, the problems are not limited to exchanges with non-handicapped companions.

In partial summary then, an extensive body of research has suggested that there may well be special developmental opportunities available to handicapped children as a consequence of their involvement with non-handicapped peers. Most of the research, however, has focused on young children with developmental delays. Settings which include non-handicapped peers appear to be highly socially interactive and responsive, allow for frequent opportunities for meaningful observational learning involving developmentally advanced peers, and provide a communicative environment in which appropriate adjustments are made in accordance with children's developmental levels. However, a number of negative factors have been observed as well. Specifically, tendencies toward social separation of handicapped children are apparent even though mildly delayed children, in particular, prefer to interact with companions who are non-handicapped. In part, the social separation reflects the social skills deficits of delayed children, evident even when matched developmentally to non-handicapped children, as well as to difficulties in interpersonal relationships. As a consequence, handicapped children are perceived as being of lower social status and are treated accordingly as reflected in speech style analyses. As noted, this latter pattern is also found when delayed children interact with other delayed children.

COMPARISONS BETWEEN INTEGRATED AND SPECIALIZED ENVIRONMENTS

Assuming that the developmental opportunities associated with involvement with non-handicapped children are of greater significance than any negative features that may exist, it would be reasonable to expect that these potential benefits would eventually translate into developmental gains for handicapped children. The design of comparative studies to evaluate this hypothesis is, of course, an extremely complex problem and, like any experiment concerned with the efficacy of different conditions or treatments, is subject to many threats to its internal and external validity (see Guralnick, 1988). The practical problems encountered in establishing comparisons in which children are assigned in a random fashion to equivalent programmes differing only in terms of the availability of non-handicapped children have been considerable. In fact, even when opportunities present themselves to assign subjects randomly, they are usually so infrequent that it is impossible to carry out systematic research focusing on programmatic factors, such as the type of children's disabilities, curriculum model, or ratio of handicapped to non-handicapped children. Programmatic factors have been shown to be critical in governing the outcomes of integrated or mainstreamed programmes, particularly in relation to child-child social interactions (Guralnick, 1981c). Unfortunately, comparisons between established groups of children enrolled in integrated and specialized programmes, even when similar to one another on important demographic variables, nevertheless allow

alternative interpretations of outcomes (e.g. Cooke *et al.*, 1981; Novak, Olley, and Kearney, 1980).

In view of these constraints, many researchers have adopted some variation of within-subjects experimental designs thereby avoiding the equivalence of subject problem. For example, in group designs, comparisons of peer interactions are made when handicapped and non-handicapped groups of children are playing with peers similar to themselves (e.g. specialized programmes) in contrast to occasions when the groups are brought together (i.e. integrated). Researchers systematically manipulate the occurrence of those integrated occasions and seek to ensure that no differences in settings or related factors that might influence child-child interactions can be identified other than the characteristics of one's peers.

In designs involving dyads rather than groups, the child's partner is systematically changed. In this way, many more comparisons can be made since, for example, it is highly feasible to arrange for a handicapped child to first be paired with another handicapped child, then with a non-handicapped child similar in chronological age, and finally with another non-handicapped child dissimilar in chronological age. By counterbalancing for order of the pairings, important experimental questions can be addressed.

Despite the ability to avoid many confounding factors, there are many limitations to these within-subjects designs. Of most concern is the fact that only the *immediate* effects of participation with children different in terms of developmental status can be achieved. Moreover, there are many factors that mitigate against the occurrence of social exchanges between initially separate groups of children brought together episodically with one another in integrated settings. Familiarity and reputational factors are most prominent in this regard (see discussion by Guralnick and Groom, 1987a) and should be considered when interpreting the results of these studies. As a consequence, this approach may minimize any potential benefits from the placement of heterogeneous groups of children in the same setting.

Investigations involving dyads create special issues since the artificial nature of the situation could yield results that have little validity beyond that unique situation. On the other hand, dyadic interactions are commonly occurring forms of social exchange between preschool children, and the setting itself often frees children from the direct influences of the group and even the teachers. In fact, many of the patterns found in dyadic exchanges are highly similar to those obtained in assessments of social interactions in larger group situations (Guralnick and Groom, 1987b). Hopefully, some consistency in the outcome patterns will emerge that will allow generalizations across these design-related but potentially influential factors.

Such consistency has, in fact, been obtained. Whether or not comparisons are based on between-subjects designs, using either pre-existing groups of children or random assignment, or within-subjects designs involving groups or

dyads, the following two outcome patterns can be stated with confidence: (1) no adverse effects on children's peer-related social behaviours have been observed for either handicapped or non-handicapped children as a consequence of involvement with one another; and (2) a small but potentially beneficial effect for handicapped children from interaction with non-handicapped children has been obtained. Specifically, with regard to the latter point, more constructive levels of play have been found to occur as have increases primarily in the frequency of occurrence of peer-related social interactions (see initial reviews by Guralnick, 1981b, 1982; Peck and Cooke, 1983).

For example, Field *et al.* (1981), Beckman and Kohl (1987), Guralnick and Groom (1988b), and Strain (1984b) found increases in positive social interactions for handicapped children involved in integrated settings in comparison with when they participated only with other handicapped children. Similarly, Jenkins, Speltz, and Odom (1985) found more social 'peer entry' behaviour for handicapped children participating in an integrated programme. With regard to the cognitive aspects of play, Guralnick (1981d) found reduced levels of inappropriate play for severely delayed children when in integrated as opposed to specialized settings. In addition, a comparison of mainstreamed and specialized settings for mildly delayed children (Guralnick and Groom, 1988b) also indicated more frequent occurrences of constructive play and a tendency to play less functionally (stereotypic, repetitive play) when participating with normally developing children in the mainstreamed setting.

Comparisons involving dyadic pairings have yielded similar results. In a recent study (Guralnick and Groom, 1987b), mildly developmentally delayed children engaged in more positive interactions, more conversation, but less solitary play when paired with non-handicapped as opposed to other mildly delayed children. However, one notable exception to the pattern can be found in a study of dyadic interactions of hearing-impaired and normal hearing children (Vandell and George, 1981). In contrast to findings with other disability groups, in which interactions increased as a consequence of participation with non-handicapped children, both children in dyads composed of either hearing or hearing-impaired children (i.e. like dyads) interacted more effectively than did dyads composed of a hearing and hearing-impaired child (mixed dyads).

Even when considering the generally consistent positive findings, the issue remains whether these patterns are producing developmentally meaningful changes. One aspect of this problem revolves around increases in frequencies of positive exchanges as a consequence of involvement with non-handicapped companions. Although the frequency of positive interactions has face validity and is certainly a prerequisite to more complex forms of peer-related social interactions, evidence for the occurrence of more sophisticated social interaction patterns as a result of involvement with developmentally more advanced peers either has not been considered or not been found (e.g. Guralnick, 1981b). Reductions in less constructive forms of play that have been obtained do appear

to have developmental significance, however, as appropriate object-oriented play is an important correlate of developmental progress and serves as the framework for more advanced forms of social exchange (Rubin, Fein, and Vandenberg, 1983).

Even in the Guralnick and Groom (1988b) study in which more substantial gains in peer-related social exchange were obtained than found in previous investigations, the fact remains that certain complex forms of peer-related social interactions, such as group play, were not altered simply through participation or even active involvement in play situations with more advanced peers. The availability of non-handicapped children of similar chronological ages in a setting in which non-handicapped children were the dominant peer group (i.e. being in a mainstreamed as opposed to an integrated environment) was probably responsible for the substantial increases in the frequency of peer interactions in the Guralnick and Groom (1988b) investigation. Nevertheless, even though many of the individual social behaviours that did increase in frequency were associated with higher levels of peer-related social competence, increases in more elaborate forms of social play were not observed.

COMPREHENSIVE INTERVENTION: CONCLUSIONS AND IMPLICATIONS

Clearly, from the evidence reviewed, we cannot expect that the natural social forces involving heterogeneous groups of children will create learning opportunities sufficient to overcome the significant peer social interaction deficits of handicapped children. This is not to say that involvement with more advanced peers does not have beneficial effects. As has been presented, not only have positive outcomes been documented, but it is reasonable to suggest that the absence of the more active and responsive social environments provided by non-handicapped children will prevent meaningful peer-related social development from reaching optimal levels. This latter point has been made strikingly clear in research in which peers have been used as confederates of interventionists, being trained to promote the peer interactions of handicapped children (Strain and Odom, 1986). Although this procedure can be highly effective, gains in peer-related social behaviour are only maintained when handicapped children are placed in settings containing non-handicapped peers.

The success of modifying children's social interactions through changes in the developmental characteristics of their peers carried out in larger playgroups (e.g. Guralnick and Groom, 1988b), through specific pairings (e.g. Furman, Rahe, and Hartup, 1979; Guralnick and Groom, 1987b), or as a consequence of peer confederate training (e.g. Strain, 1984b), has probably been due largely to an externally imposed social pattern, i.e., prompts, direction by the more dominant peer group, in combination with sanctions for inappropriate play activities. Some permanent intrinsic changes in peer competence are certainly

also likely to result as a consequence of these procedures, as existing social interaction skills are strengthened and new positive interaction patterns develop. However, as has been seen, for the vast majority of children with disabilities, this circumstance does not appear to be sufficient to yield the types of changes that result in more elaborate and perhaps more long-lasting forms of interactive play. Unfortunately, it is increases in these elaborated play patterns which provide the most meaningful index of improved social competence.

CONCLUSION

What must occur, then, in order to produce developmentally significant and presumably long-term effects on young handicapped children's peer-related social competence? What appears to be needed is a comprehensive intervention programme focusing specifically on young children's peer-related social competence. A critical component of such an intervention programme would include an assessment instrument capable of capturing the critical elements, major influencing factors, and essential processes of peer interactions. To be of value, this instrument must be grounded firmly in a developmental framework. In turn, the information gathered would be used to generate a systematic *individualized* series of interventions. Although the involvement of non-handicapped or advanced peers is likely to have an important role in both the initial intervention and the maintenance (i.e. generalization) phases of any peer interaction programme, these initial intervention efforts would be centred on selected environmental and social competence issues.

In essence, it is the content, process, and general environmental influences of peer-related social competence that must guide our approaches to these problems. Recent advances in developmental psychology, revealing how children form acquaintances (e.g. Gottman, 1983) or process social information (e.g. Dodge, *et al.*, 1986), are essential features that must be incorporated into any comprehensive programme. Critical social tasks, such as entry into peer groups, conflict management, successfully gaining goods and services in directive episodes, or repair of conversations (Parkhurst and Gottman, 1986; Guralnick *et al.*, in preparation) have not yet found their way into the assessment of handicapped children's peer-related social competence or the design of intervention programmes. Similarly, the interference of even relatively minor behaviour problems with productive peer relations (see Guralnick and Groom, 1985), and the nature of children's preferences for play activities, must also be considered. Finally, environmental events and family factors that affect interactions with peers must receive attention. This includes the social perceptions held by companions or specific physical or social settings that seem to influence peer interactions as well as the substantial influences family members can have on both developing and maintaining the level of their child's peer-related social competence.

It may well be that we have reached the point of diminishing returns for those studies that seek to determine the impact of involvement with advanced peers on peer-related social competence. We have already pressed to developmentally meaningful limits what can be accomplished through the simple presence of non-handicapped children or even to the structuring of interactions with advanced peers. The participation of non-handicapped children can perhaps be most constructively viewed as a necessary but not sufficient condition for promoting the peer-related social competence of handicapped children. After nearly two decades of research in this area, we should be pleased with our accomplishments, but it appears wise now to direct our attention to more fundamental developmental processes, including environmental and family influences.

In many ways, this is a very natural return from an almost fractionated approach to child-child social interactions. Somewhere along the line the processes of cognitive, language, and social development became separated from the study of social competence. Moreover, the contributions of developmental and clinical child psychology, including the role of the family, became isolated from the analyses of group processes in classrooms, substituting structural and environmental factors for the more fundamental elements of social behaviours. Hopefully, future efforts will capitalize on the knowledge and methods associated with all of these important domains and create those programmes that will yield truly developmentally meaningful and permanent gains in the peer-related social competence of handicapped children.

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