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ABSTRACT

Fourteen sites attempting to integrate 245 severely handicapped students (aged 3-22) with non-handicapped children were examined. Trained observers recorded social interaction between handicapped and non-handicapped students, incorporating macroscopic and microscopic views. Adaptive behavior of each S was also measured, as was teacher and school support for integration. Additional data were gathered from Individualized Education Programs (IEPs), measures of non-handicapped students' attitudes, state level information requested by the U.S. Department of Education, analysis of state certification practices, and responses to a previously conducted survey of state support for the severely handicapped. Results indicated that integration defined in terms of social behavior occurred in each of the sites, with the degree of integration statistically related to information about six factors: antecedent factors of the state and local education agency, people present in the environment when integrated, organization of the environment, rate of social input from non-handicapped students, degree of support for interaction from the teacher, and the teacher's educational planning process. The social behavior of severely handicapped Ss differed depending on whether the behavior was directed to other severely handicapped students or to non-handicapped students. The degree of integration was related both to the proportion of objectives achieved on the target students' IEPs and to the attitudes of non-handicapped students. Effects on severely handicapped and non-handicapped students revealed that integration can be a positive part of the educational program for severely handicapped students. (CL)

EVALUATION OF THE INTEGRATION OF SEVERELY HANDICAPPED STUDENTS IN REGULAR EDUCATION AND COMMUNITY SETTINGS

FINAL REPORT

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CHAPTER I

INTEGRATION OF SEVERELY HANDICAPPED STUDENTS

I.I WHY INTEGRATION FOR SEVERELY HANDICAPPED STUDENTS?

Gillian is a nine-year-old Down's syndrome girl attending a regular primary school in Cheshire, England. She is not a typical Down's syndrome child. First, she had atypical levels of assistance during her infancy and early childhood. When she was identified as a Down's syndrome infant she was immediately referred to a project at the University of Manchester (Cunningham, 1979), which began developmental assessment every six weeks for the first year of life. During this time Gillian's parents were able to obtain from the researchers a better understanding of both what is known and what is not known about the prognostic implications of having Down's syndrome. This information dispelled some of their worst fears that Gillian's life would be one of total dependency, progressing very little beyond a prechooler's level of development. When Gillian was 3 years old she was enrolled in the Anson House preschool project at the University of Manchester. There Gillian and her parents had the opportunity to interact with nonhandicapped children both at similar developmental levels and at similar chronological ages. Finally, Gillian is unique for a Down's syndrome child in that she has done very well academically and has obtained normal reading achievement scores and lags by only one year in mathematical achievement. The reason we begin this final report with a story about Gillian, is that she epitomizes the dilemma of a person striving to succeed and become a part of society when she has a handicapping condition which has traditionally been associated with failure and dependency.

In school, the class had been discussing the Leonard Arthur trial, a court case in which an obstetrician was accused of killing a baby because the infant had Down's Syndrome and, therefore, according to Dr. Arthur, very little developmental potential. In the course of the discussion one of the children turned to Gillian and said, "You were one of those mongols when you were a baby weren't you, Gillian?" Gillian replied indignantly, "No, I wasn't." Upon returning home Gillian related the incident to her mother who gently explained the nature of Down's Syndrome and the fact that Gillian had it. Gillian listened attentively. After a moments thought she said, "Well, if they ask again I'll still tell them I'm not."

Gillian was exceptional in having developed the social and cognitive skills typically required within a regular school setting. She earned her way into a normalized setting. Yet, it is difficult to separate the skills which she uses from the situations in which those skills are required. Typically, Downs' Syndrome students do not exhibit such skills nor are they typically in situations in which the skills are naturally and at times implicitly demanded. Consider a second case, a scene which was observed during collection of data in one of the 46 schools evaluated by this project.

Lisa is a five year old multi-handicapped child attending an integrated preschool class in a regular public school. Lisa has no speech nor has she control over her trunk or lower limbs. She has rudimentary fine motor skills and requires total assistance in feeding, dressing and toileting. Lisa is the first to arrive. Her teacher removes her from a wheelchair and places her on a mat and bolster at the center of the free play area just as the other students begin to arrive. Lisa's face beams as she sees her classmates enter the room. Several children greet her as they scurry by putting their belongings away and selecting toys to play with. Two children approach Lisa and sit beside her on the mat. She smiles and laughs as they tickle and talk to her. When music period begins, Lisa is placed in a special chair with trunk and leg supports. Her chair is positioned within the music circle alongside the chairs of her classmates. As the teacher instructs the students on the lyrics and hand motions of the new song, Lisa watches the teacher and the children seated beside her imitating the song's movements. As the song begins, the other children clap to the music as Lisa watches. A girl seated beside her turns and smiles at Lisa. She exaggerates her own motions encouraging Lisa to participate. As Lisa then slowly begins to clap her hands both smile with mutual enjoyment of a shared experience.

To advocates of integration, this scene represents an opportunity for improved social development through interaction with competent peers (Bricker, 1978; Hartup, 1978; Youniss, 1980; Rubin & Ross, 1982). It has been argued that these opportunities are an entitlement of every child and should be afforded as long as no harm ensues (Vincent, Brown, & Getz-Sheftel, 1981). Opponents contend that integrated environments may, in fact, be harmful by subjecting severely handicapped students to possible rejection or ridicule and by overtaxing the educational system's ability to provide necessary support services in diverse regular education environments (Burton & Hirshoren, 1979). Though the debate continues, empirical evidence of the effects of integration is preliminary at best (Stainback & Stainback, 1981; Peck & Semmell, 1982; Tawney, 1981). In the absence of evidence to substantiate harm, it behooves professionals to look beyond the traditional, segregated environments to discover opportunities which might be available within the larger social system of the school or community. This is not to negate the need for maintaining or expanding the level of therapeutic services provided to date. Rather with the supports of law, litigation and educational/developmental research, there is a a need to extend current notions of appropriate environments and educational goals for severely handicapped students to encompass greater social realities. It is only through exposure to a broad range of

environments and empirical studies of the effects of such environments on students behavior and development that the impact of integration can truly be measured. (Peck & Semmell, 1982). Exceptional cases such as Gillian or Helen Keller or Dick Boydell (Nova, 1982) have led to the belief that handicapped children should be provided with an appropriate public education in the least restrictive environment. Most of our professional experience and judgement tells us just how atypical such cases are. Many children with the same genetic or similar biological conditions do not advance so well or give much cause for optimism. Lisa is such a case. She may not astound us as a success story in the same way as Gillian or Helen Keller, yet, relative to her typical behavior, the degree of awareness of and participation in her social environment is exceptional. Professionals working with severely handicapped populations have rarely had the opportunity to see such students outside of the therapeutic environments which have been created for them. Such environments are certainly primary and necessary components of effective education for severely handicapped students. However, we should systematically seek to discover the opportunities which might be available in the larger social system of school and community, before concluding that such opportunities do not exist, that integration is not a possibility.

Support for studies to socially validate the effects of integration by examining the contexts in which educational goals are best achieved has its roots in ecological research (Bronfenbrenner, 1977). From this work there has been increasing realization that behavior is a function of a dynamic interaction with forces in the environment and thus it must be studied within the context in which it occurs. (Brooks & Baumeister, 1977; Scott, 1980; Rogers-Warren & Wedel, 1980). If real progress is to be made in evaluating integration, then it must begin by identifying environmental factors which influence integration. Toward this end, the project to conduct a national evaluation of integration of severely handicapped students was designed.

The project to be described provides an initial empirical basis for discovering the opportunities for severely handicapped students in integrated school and community settings. The project is unique in that it examined a large number of severely handicapped students (N = 245) integrated in a wide variety of different school and community settings. Fourteen school districts located in 9 states were involved. The project is also unique in its ecological scope (Guralnick, 1982). It was designed to examine factors which might facilitate integration at various levels of the educational process. These factors included information from the state, district, school, teacher, and individual student. The criterion for integration was the observed rate of interaction between handicapped and nonhandicapped students. Our presumption was that whatever integration was and whatever might be accomplished through integration, it at the very least had to involve the opportunity for interaction with nonhandicapped people other than the therapeutic agents usually found in special classes and special schools. The direct measurement of such interactions was thus central to three themes of the project: 1) describing the degree and quality of integration, 2) discovering factors which significantly account for integration, 3) examining the impact of integration on the severely

handicapped student's educational program and upon nonhandicapped student's attitudes toward the handicapped.

I.II CURRENT EDUCATIONAL POLICY FOR SEVERELY HANDICAPPED STUDENTS

The Education for All Handicapped Children Act (PL 94-142) requires that all children have access to free appropriate public education in the least restrictive setting. The least restrictive setting is a concept which requires definition for each handicapped child. There are large differences in professional opinion regarding the boundaries within which these individualized definitions might fall (Burton & Hirshoren, 1979; Sontag, Certo, & Button, 1979). From the perspective of normalization (Wolfensberger, 1972) the least restrictive setting would be one offering the "normal" range of opportunities and experiences to which children of a given age have access such that these experiences do not provide an impediment to the handicapped child's educational goals. Public Law 94-142 places the burden of proof upon the educator to demonstrate that any exclusionary educational placements are in the best interest of the handicapped child. Although PL 94-142 was clearly an outgrowth of increased acceptance of the concept of normalization (Bricker, 1978), the confusion remains as to whether "least restrictive alternative" implies integration of handicapped children (Meyers, MacMillan, & Yoshida, 1975). This confusion is aptly expressed in the fact that the largest number of complaints to the U.S. Department of Education, Special Education Programs, regard the least restrictive environment issue (U.S.O.E., 1982). The possibility of integrating severely and profoundly handicapped individuals has generally been ignored except in the most innovative school systems (Galloway & Chandler, 1978; Sailor & Haring, 1977; Stainback & Stainback, 1981).

As with any form of social integration, the integration of handicapped individuals within society can occur in many different degrees and forms. Integration can involve merely the physical presence of members from different groups on the same premises. By this standard the pre-Civil War South might be regarded as having been racially well integrated. Obviously, a more desirable form of integration includes not only physical integration but also integration in terms of social interactions. The idealized endpoint of the continuum of integration in education has been embodied in the concept of mainstreaming (Kaufman, Gottlieb, Agard, & Kukic, 1975). Mainstreaming implies the physical, social, and educational integration of handicapped and nonhandicapped children. The mainstreamed handicapped child would not only be on the same physical premises as the nonhandicapped child; he/she would also interact with the nonhandicapped child. In addition, the handicapped child would participate in the same educational context as the nonhandicapped child although the educational goals and educational process might be adapted to accommodate the handicapped child. Logically, mainstreaming would appear to be one definition of the least restrictive alternative with restrictions being placed on the amount and types of integration only as such restrictions are justified as the necessary cost of achieving particular educational goals.

For most severely handicapped students the goal of mainstreaming will not be possible since the educational goals and processes must be modified considerably for this population. However, social and physical integration may be possible for severely handicapped students without sacrificing educational goals.

I.II.A Conceptions Of Integration Influence Evaluation Of Integration

The way in which one conducts an evaluation of the integration of severely handicapped students in regular educational settings depends upon one's basic presumptions about the goals of such integration. Three perspectives on the goals of integration have emerged as points of departure for an evaluation of integration of severely handicapped students. The three perspectives are:

1. Integration is an educational tool for achieving curriculum goals for handicapped students.

2. Integration is a legal right which can only be restricted when the benefits of such restrictions are defined and monitored.

3. Integration is a societal goal in and of itself.

These are related perspectives and the conduct of one's evaluation will be influenced more by the relative weight assigned to each perspective rather than acceptance of one perspective to the exclusion of the other two. We will briefly review these three perspectives and their implication for the type of evaluation design which one might employ if any one of them was given precedence over the others.

I.II.A.1 Integration As An Educational Tool. - This perspective is that integration of severely handicapped students can be justified in terms of the skills achieved through integration. For example, it has been argued cogently that severely handicapped students will not learn (Brown, Nietupski, & Hamre-Nietupski, 1976) nor will they generalize (Stokes & Bear, 1977), if they are not taught in settings which include nonhandicapped students. It has also been argued that one major reason for integration is that nonhandicapped students can act as role models for handicapped students (Bricker, 1978). These positions are certainly justifiable on logical grounds. However, they have not been strongly substantiated by empirical demonstration of the effects of integration per se. Integration which includes structuring of the integrated context and/or training of nonhandicapped students (Stainback & Stainback, 1981) can lead to positive educational changes.

The danger of viewing integration primarily as an educational tool is that a) integration was not instituted as a social policy on these grounds and b) integration without additional programs for facilitation of social interactions does not seem to fuction as an educational tool. Presumably if integration of severely handicapped students is an educational tool among others then integration should be based and evaluated primarily in terms of efficiency. If educational objectives can be achieved more rapidly by teachers of the severely handicapped in nonintegrated settings or if integration contributed little to a severely handicapped student's program (which might be slow in any context) then integration would not be defensible from this technological perspective.

I.II.A.2 Integration As A Legal Right. - From the perspective of legal rights, integration of severely handicapped students is guarded by the U.S. Constitution and is further elaborated by statutes and legal precedents. The major court cases of the 1970's (P.A.R.C. vs. Commonwealth of Pennsylvania, Wyatt vs. Stickney) viewed handicapped individuals as United States citizens entitled to equal protection under the law and due process considerations for any exclusions from such protection. Thus, if education is provided for U.S. children within a certain age range, it must be provided for all such children (PL 94-142). Furthermore, although additional service may be necessary to accommodate severely handicapped students in educational settings due process must be used in making such recommendations and restrictions on the handicapped student's contact with other students and school resources must be justified on the basis of the benefits to the handicapped student.

The perspective of legal rights makes it incumbent upon the "restrictor" of a student's activities to justify such restrictions. The student is viewed as student first with "handicapped" being appropriately used as an adjective rather than a noun. Thus students who are handicapped don't have to "earn" their way into public school environments since their right to be in such environments is now protected by law. Restrictions on this right must be defended by school officials on the basis of the students' best interests.

One danger of the legal rights perspecitive is that it often relies upon an active advocacy on behalf of the student to maintain the status accorded by law. Many students have no strong advocate. Alternatively, the student's right to be in the least restrictive environment may be compromised by the apparent largesse of some nonintegrated environments. A specially built school or institution with specially trained staff hold a continuing enticement for those advocates who fought to have it established. If the student's advocates take the view that the student must be protected from society then it will be difficult to invoke the student's legal rights to be part of society.

I.II.A.3 Integration As A Societal Goal. - This perspective views integration as a goal toward which society should strive. Thus the extent to which a society is assimilating the heterogeneous needs of all its members is the degree to which it justifies its existence (Dewey, 1916). This perspective stems from a philosophy of normalization (Wolfenberger, 1972) and from the notion that partial participation in society is a possibility which progressively can be achieved by handicapped individuals (Brown et al., 1976; Brown et al., 1980). From this perspective the goal of any educational program would be to increase handicapped people's participation in their community and to increase their ability to independently function within the community. Restrictions in such participation will be inevitable for the severely handicapped student, but educators must now clearly articulate the benefits which removal from the mainstream will in fact produce.

We will turn now to a review of the literature on the social behavior of severely handicapped students in integrated versus segregated settings. The purpose of this review will be to provide the context within which the present evaluation model was conceived and to provide the basis for our prioritization of the three purposes of integration for severely handicapped students.

I.III REVIEW OF LITERATURE ON INTEGRATION OF HANDICAPPED STUDENTS

When one is faced with reviewing a literature in which little well controlled research has been conducted there seems to be two potential directions. The first is simply to state that in this case well-controlled studies of integration of severely handicapped students in regular educational and community settings have not been reported in the literature. This is true. The satisfied reader may proceed to the first six pages of Chapter 2 and then to Chapter 3 on the methods employed for this evaluation of integration of severely handicapped students.

The second approach is to review the research literature which touches upon major themes potentially relevant to integration of severely handicapped students although such literature may have differed in important respects. We have chosen to broadly review studies which have involved integration of less severely handicapped or nonhandicapped students of different ages in educational settings as well as experimental studies in laboratory and preschool settings which might differ considerably from the regular education and community settings which we proposed to study. We took this approach in the spirit of integration which seeks first an understanding of commonalities around which appreciation of and questions about differences might ultimately be phrased.

In the remainder of this chapter we will review the critical nature of social skills to the process of defining handicaps. Then we will turn to the few studies which have looked at the social interactions of severely handicapped students in integrated and segregated settings.

I.III.A Social Skills As A Definition Of Handicap

At a fundamental level the classification of a person as handicapped is a dynamic process. The classification process has two aspects. First, there is some difference in the person which elicits a response from others. The difference can be biological, experiential or most likely a combination of both. However, in addition to some difference in the person, the concept of a handicap implies a specific kind of social response to the difference. Specifically, important and powerful people (relative to the person with the difference) in the labeled person's ecology predict that such an individual will have limitations in the type of commerce which is possible within social environments. For people classified as severely handicapped there is ample confirmation of this prediction and indeed significant assistance from other people is necessary in order for severely handicapped people to function. Thus, it is a social response to differences which is inherent in definition of handicapping conditions.

Historically, the definition of handicaps has been in terms of social skill deficiencies rather than psychometric criteria (Bialer, 1977). Thus, the severity of a handicap has been in terms of the degree to which an individual needed the mediation of another person in order to be in society (Tredgold, 1937). The greater the required mediation by others, the greater the severity of the handicap. Several people have reviewed the historical forces through which mental retardation emerged as a societal response to individuals whose social skills were inadequate or different (Sarason & Doris, 1979; Gould, 1981; Wolfenberger, 1972).

Hobbs (1966; 1975) has proposed a model of classification which is based upon social competence defined within an interactive system. Thus, the definition of a handicap is a relative concept which requires analysis not only of the behavior of the child, but also of the social ecology of the child and of the resources necessary to ameliorate the handicap. Hobbs emphasizes that the ameliorative process can and should focus on changing the demands of the environment as well as on changing the child. From this perspective the person is not classified as handicapped but rather his behavior is classified as handicapped within a specific ecological context. The degree of handicap increases as the number of contexts for which the person has no appropriate behavior increases. The contextual and cultural relativity of handicaps has been recognized increasingly in the past decade (Feuerstein, 1979, 1980; Mercer, 1970).

From this perspective intervention in the social development of the handicapped student must focus on the processes by which the child's interactions become more complex as well as upon the processes by which the child's social network progressively changes the definition of acceptable social behavior. Although skills which are a necessary part of social development may be taught in situations outside of the social context (Cooke & Apolloni, 1976; Fredericks, Baldwin, Grove, Moore, Riggs, & Lyons, 1968), it is not clear that they will be used appropriately in everyday situations (Beveridge & Brinker, 1980; Beveridge & Tatham, 1976; Brown, et al., 1976; Stokes & Baer, 1976). Moreover, the relevant aspects

of these skills may not be found in a task analysis of the skills themselves, but rather in an analysis of aspects of the interactive contexts in which the skills should be used (Brinker, in press; Lewis, 1977). Thus, the development of social skills requires an analysis of interactions in natural social contexts. However, a professional consensus is emerging that as the number of contexts within which an individual can interact increases and as the complexity of social interactions within contexts increases, the level of an individual's handicap decreases.

I.III.B Segregated Special Education

Educational policy in England, Scotland, and Wales has resulted in a system of completely segregated schools for severely/profoundly handicapped (Educationally Subnormal Severe, ESN(S)) and moderately handicapped students (Educationally Subnormal Moderate, ESN(M)). A number of researchers have observed the interactions which take place between children in ESN(S) schools (Swann & Mittler, 1976; Beveridge & Berry, 1977; Beveridge & Evans, 1978; Beveridge, Spencer, & Mittler, 1978). They have generally found that there is a very low level of interaction in such environments. For example, in two classrooms for 5 to 10 year old children only 10 and 6 interactions were initiated respectively, by any child in the group (between six and eight children) during four hours of observation (Beveridge & Berry, 1977). These groups did not include profoundly handicapped children. In ESN(S) classrooms children between 10 and 15 years of age (N = 14) initiated on the average 20 interactions in an hour (range 1 to 60, SD = 15). In both studies all verbal and nonverbal interactions were recorded. It is interesting to compare this data to that collected by Brinker using the method reported in Brinker & Goldbart (1981). All the children in that study were under 5 years of age and participated in an integrated preschool intervention program at the University of Manchester in England (Hogg, 1979). The Down's syndrome children in that study used an average 47 single word and 25 multiword utterances in one hour period. Severely handicapped children used an average 22 single word and 12 multiword utterances in one hour. Since the data reported by the Beveridge group has been replicated several times, the implication would be that the preschool children, most of whom would eventually be classified administratively as ESN(s), would show no significant increase in their verbal interactive behaviors for the next 5 to 10 years of their life. The important point is that at age five some school appropriate language behavior was used in an integrated preschool context but may not be required in a context in which only severely handicapped children are present. Beveridge and Tatham (1976) have shown that the language competence of severely handicapped adolescents was not being demonstrated in their daily interactions at school. However, teaching role-taking skills did facilitate these children's utilization of their language skills at school. Finally, Beveridge and Hurrell (1979) demonstrated that very few verbal initiations by severely handicapped children were responded to by teachers in ESN(s) schools.

This documentation of the socially restrictive nature of segregated special schools has not been brightened by data demonstrating the positive benefits of segregated special education for handicapped children in America (Dunn, 1968; Filler, Robinson, Smith, Vincent-Smith, Bricker, & Bricker, 1975). The importance of one-to-one instruction for severely handicapped children is almost universally accepted (Sailor & Haring, 1977). However, the possibility that severely handicapped individuals could learn from appropriately constructed social routines which include other children has largely been ignored. Very little of the available research about severely handicapped students describes the differences and regularities of their behavior as a function of their typical social and physical environment (Brinker, in press, Beveridge & Brinker, 1980; Brooks & Baumeister, 1977; Stainback & Stainback, 1981). Nevertheless, the development of social skills which are used in the right social contexts is perhaps the fundamental educational need of severely handicapped individuals.

I.III.C Children's Behavior In Integrated Settings

There has been very little research on the interactions which occur when handicapped and nonhandicapped children are integrated in school. What has been done has primarily concentrated on mildly to moderately handicapped children or preschool children (Jones, Gottlieb, Guskin, & Yoshida, 1978; Guralnick, 1982; Porter, Ramsey, Tremblay, Iaccobo, & Crawley, 1978). The rationale for the benefits for handicapped children of integration is considerably clearer than the documentation of such benefits (Bricker, 1978; Guralnick, 1978). The major arguments would include: a) handicapped children may learn new behaviors by imitating behavior of nonhandicapped peers; b) nonhandicapped children would offer a wide range of challenging experiences from which the handicapped child may have been sheltered but which may, nevertheless, be necessary for development; c) nonhandicapped children provide teachers and therapists with developmental models which will improve their understanding of the patterns and variations in development. All of these potential benefits presume some degree of interaction or the opportunity for interaction between handicapped and nonhandicapped students.

In general, studies have shown that the mere physical integration of severely handicapped children with nonhandicapped children does not result in positive behavioral changes in either group (Bell, 1977; Devonney, Guralnick, & Rubin, 1974; Fredericks, Baldwin, Grove, Moore, Riggs, & Lyons, 1978; Preninger, 1968). After such integration, there will not, necessarily, be an increase in interaction such that the handicapped children could learn by modeling the nonhandicapped children or such that nonhandicapped children will develop a more nurturing, caring attitude towards children different from themselves. Several investigators have found that nonhandicapped children interact more frequently with other nonhandicapped children in integrated settings (Porter et al., 1978; Michell, 1979; Ray, 1974).

Gampel, Gottlieb and Harrison (1974) demonstrated that mildly retarded children who were integrated into regular classes when compared to children who remained in special classes, a) emitted fewer negative verbalizations to peers, b) were the brunt of fewer negative verbalizations, and c) emitted more prosocial behavior relative to their own behavior in a segregated special class prior to being integrated.

The behavioral studies both in preschool and school settings lead to the conclusion that settings which include handicapped and nonhandicapped children have a wider range of stimulation which could be potentially beneficial to handicapped children. This wider range of opportunity is particularly dramatic when placed in contradistinction to the studies by Beveridge and colleagues conducted in the segregated special schools of England. However, merely placing children together in the same context does not guarantee that these opporutnities will, in fact, be actualized. To our knowledge, no studies actually measure the amount of time that handicapped and nonhandicapped children spend together during the school day nor the different contexts and settings in which interactions may occur. This descriptive information is important to obtain since certain situations may facilitate interaction whereas others may restrict it.

CHAPTER II

EVALUATING THE INTEGRATION OF SEVERELY HANDICAPPED STUDENTS

II.I PRIORITIES OF PERSPECTIVES

Our relative weighting of the three perspectives on integration is (from most important to less important):

1. Integration is primarily a social goal
2. Integration is a legal right
3. Integration is an educational tool

We have four major reasons for this ordering of perspectives. First, we believe that integration of severely handicapped students is a much broader concept than either the issue of educational technology or the current laws of the U.S.A. Integration is more appropriately regarded as one aspect of normalization philosophy and as such revolves around issues of who belongs to society and the contingent benefits of such belonging. Secondly, the legal status of least restrictive environment was established upon the broader principles of human rights and the general protection of human rights under the Constitution of the United States. Third, it is premature to evaluate integration as an educational technology since very little is known at either a theoretical or empirical level about the nature and functions of peer versus adult interactions in schools. Little attention has been given to the similarities and differences between interactions in which one peer is elevated to the status of tutor and interactions in which peers develop their own status hierarchies. Fourth, the field of special education badly needs a description of the variety of integration currently being achieved rather than a premature set of "best practice" standards based upon very little experience with integration of a wide age range of children in schools (Stainback & Stainback, 1981).

This fourth reason for ordering integratrion perspectives at this time with relatively less weight given to integration as an educational tool is to avoid the mistakes of some educational evaluations of the past. Any educational innovation should be carefully described prior to its elevation to the status of an educational practice. Hopefully, discussion of the

impact of integration will not have the same roots as the furor over early compensatory education. A premature summative evaluation of the impact of early education based exclusively on achievement data led J. McVicker Hunt (1969) to question, "Has compensatory education failed? Has it been attempted?" If integration is evaluated as an educational technology at this point I predict that someone will need to repeat Hunt's argument replacing the words "early childhood education" with the words "integrated education for the severely handicapped."

II.II EVALUATION PLAN: OVERVIEW

An overview of the general evaluation model is presented in Figure 1. The purpose of the model is 1) to determine which contextual variables (the left-hand box in the figure) predict the degree of integration of severely handicapped children (middle box), and 2) to determine the extent to which the degree and quality of integration (middle box) predicts the educational and attitudinal impact on children (right-hand box in Figure 1).

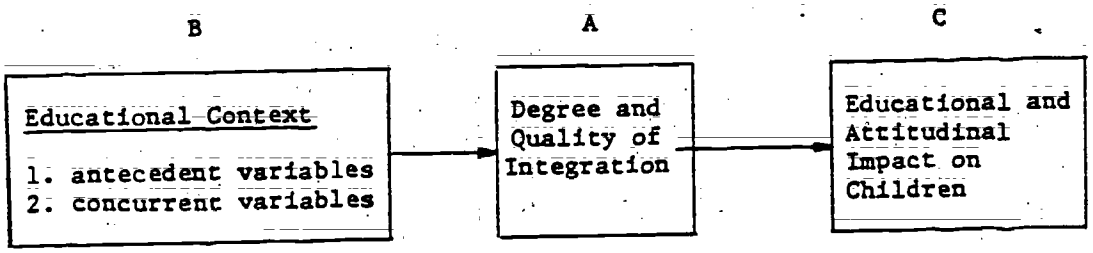

Figure 1. General Evaluation Model

II.III SPECIFIC EVALUATION MODEL

The specific variables considered within the proposed evaluation are presented in Figure 2. The major premise of the proposed evaluation model is that the evaluation of peer interaction should constitute the central focus for the study of integration. The extent to which handicapped children have the opportunity to interact with nonhandicapped children and the extent to which interactions occur when given the opportunity is the extent to which a school is integrated. Regardless of the benefits of integration, if a school considers itself integrated, there should be evidence of handicapped and nonhandicapped children interacting or at least having the opportunity to interact. The purpose of the evaluation will be to determine the extent to which aspects of the educational context are predictive of the degree of integration and subsequently, to determine the extent to which degree of integration is predictive of academic and

attitudinal changes in children. We will review in turn the variables which describe a) the degree and quality of integration, b) the educational context for integration, and c) the impact of integration on children.

II. III. A Degree And Quality Of Integration.

For our purposes, the degree of integration will be defined as the amount of interaction between handicapped and nonhandicapped children when they are together in the same context. Being in the same context means being physically together in visual contact in the same place. The degree of integration has two aspects. First, the amount of social input from nonhandicapped students to severely handicapped students is an important dimension of the degree of integration. Second, the amount of social output from severely handicapped students to nonhandicapped students is a measure of degree of integration. This social output reflects the impact of integration on the limited social repertoires of severely handicapped students. The quality of integration will be defined in terms of the social affect which accompanies the interactions between handicapped and nonhandicapped students. A higher quality of integration will be defined in terms of higher rates of positive interactions between handicapped and nonhandicapped students and low rates of negative interaction between handicapped and nonhandicapped students.

II. III. B Educational Context For Integration.

The educational context for integration presented in Figure 2 is subdivided into two major aspects: antecedent contextual features and concurrent contextual features. The antecedent features are further subdivided into state planning, local planning, school support, and parent involvement. The concurrent features of the model include variables which characterize the physical and social setting for integration. These have often been classified as process variables (Semmel, 1975).

II. III. C Educational Impact Of Integration.

A third set of questions involves an assessment of the impact of integration upon handicapped children and nonhandicapped children. It is of critical importance to know what effect integration has upon the educational gains of the handicapped child, and attitudes of the nonhandicapped child toward handicapped children. Although children's levels of skills and their attitudes may change for a variety of reasons, we are interested primarily in changes in skills and attitudes which are related to the extent of integration which a child has experienced. These relations are depicted in Figure 2 by the arrow from the central box to the bottom box.

INTEGRATION EVALUATION MODEL

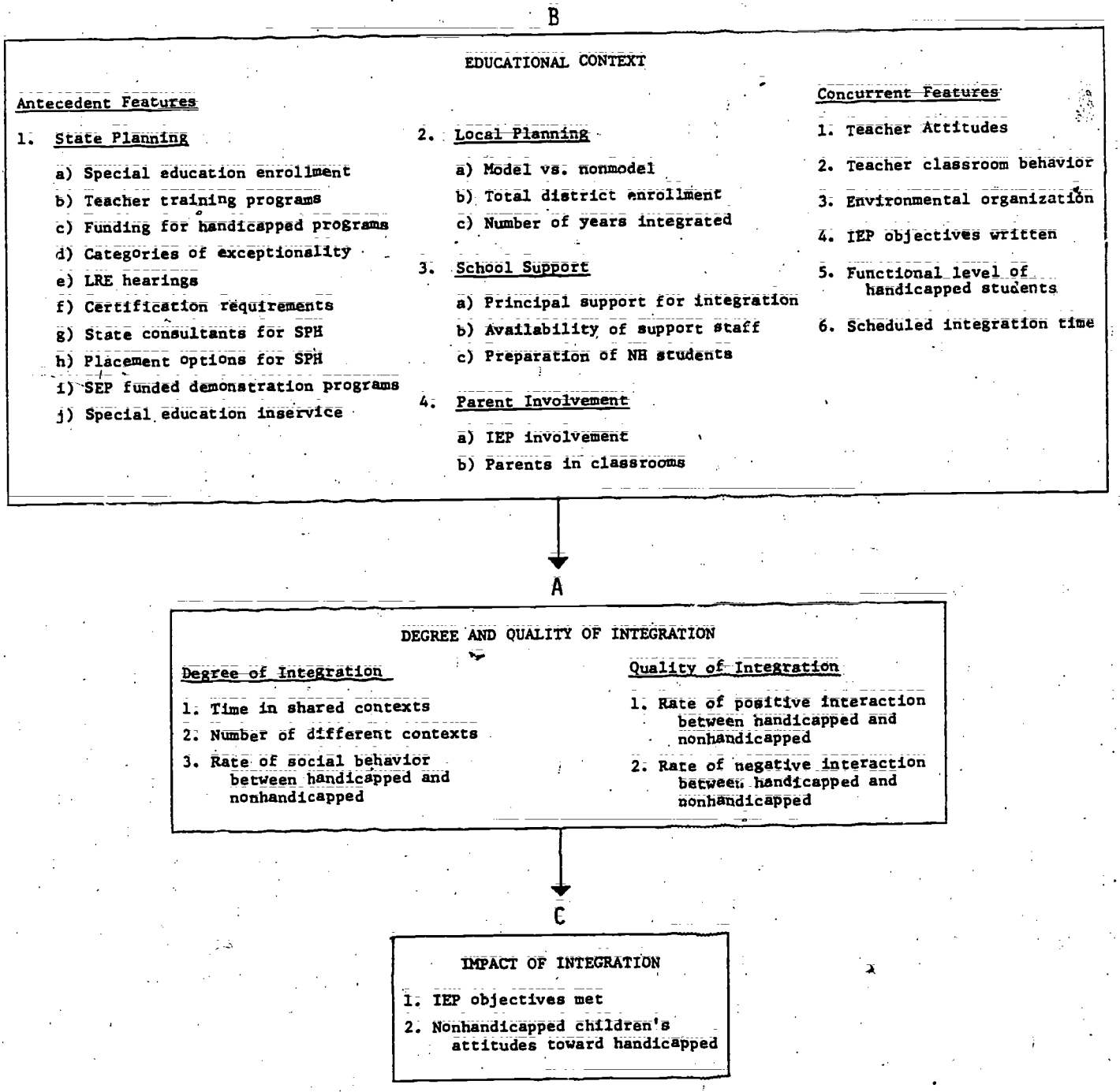

Figure 2. Specific Evaluation Model

II. III. D Statistical Model.

It is anticipated at this point that the degree of variability in the amount of integration and the variation in contributors to that integration can be substantial. Hence, a design which compares integrated versus segregated education programs cannot succeed because the extent of variation within either integrated or segregated programs will be at least as great as the variability between integrated and segregated programs (Jones et al., 1978; Kirk, 1964; MacMillan & Semmel, 1977). The general statistical model for evaluating the predictors of integration and the impact of integration will be multiple regression analysis within a predictive framework (Cohen, 1968; McNeil, Kelly, & McNeil, 1975; Pedhazur, 1982; Ward & Jennings, 1973). In the proposed model depicted in Figure 2, the amount and quality of integration will be the criterion variables predicted by a set of variables describing the preparations for integration and the processes of integration. Subsequently, the amount of integration will be used to predict educational changes of severely handicapped students and attitudes of nonhandicapped students toward the handicapped students.

With this general overview of the evaluation model and statistical framework in mind, we will review the data bearing on the relevant criterion and predictor variables. The literature which is applicable to the specific evaluation model presented in Figure 2, unfortunately, does not provide equal coverage of the features of this evaluation. The area to be reviewed will begin with those studies relevant to the degree and quality of integration. Subsequently, we will review those studies which bear upon the predictability of the amount of integration from various descriptions of the educational context. Finally, we will review those few studies which bear upon the educational impact of integration of handicapped and nonhandicapped students.

II. IV DEGREE AND QUALITY OF INTEGRATION

One of the objections raised to integrating severely handicapped students is that they will not be accepted and in fact, may be ostracized or ridiculed in integrated settings. To address this concern, the majority of studies have relied upon sociometric or attitude ratings involving educable mentally retarded students. Findings have been fairly consistent in rating handicapped students below nonhandicapped students in sociometric status both in studies within integrated settings (Monroe & Howe, 1971) as well as in integrated versus segregated comparisons (Goodman, Gottlieb & Harrison, 1972; (Gottlieb & Budoff, 1973). Additionally, handicapped students who were integrated received lower ratings than those who were segregated. Among the investigation of variables affecting attitudes, the degree of contact between handicapped and nonhandicapped students has received a great deal of interest. Some studies addressing this factor have concluded that the amount of contact is negatively related to the acceptance of handicapped students (Strauch, 1970; Gottlieb, Cohen & Goldstein, 1974).

Other studies have shown that these results may be mediated by other factors including demographic variables of nonhandicapped students' residence (Bruininks, Rynders & Gross, 1974) and age (Peterson, 1974). Additionally, the appropriateness of the handicapped students' social behavior (Gottlieb & Budoff, 1973; Gottlieb, Semmell & Veldman, 1978; Kiernan & Kavanaugh, 1978) as well as the extent to which a supportive structure is present to facilitate positive interactions between students (Johnson & Johnson, 1975) have been suggested as important variables influencing attitudes toward handicapped students. Research with severely handicapped students supports the notion of the influence of direct contact within a supportive structure to promote positive attitudes towards severely handicapped students. Using a rating scale (Voeltz 1980; 1982) compared the attitudes of nonhandicapped students toward severely handicapped students with whom they had varying degrees and types of contact. Her findings reveal that those students who had been involved in a systematic program to foster peer interactions expressed significantly more positive attitudes toward severely handicapped students than those who did not have such contact. The program had included presentations, discussions and direct contact with severely handicapped students over several weeks designed to increase nonhandicapped students understanding and skills in relating to severely handicapped students. Thus, there is support for the idea that attitudes toward severely handicapped students are modifiable and influenced by promoting positive peer interactions.

Though observational studies are limited, research has shown that spontaneous interactions occur infrequently between handicapped and nonhandicapped students. Furthermore, it has been suggested that the degree of interaction is related to the functional level of the handicapped student. The more severely handicapped a student is, the fewer interactions are directed by nonhandicapped peers to that student (Guralnick, 1981). When given a choice, nonhandicapped students prefer to interact with more competent peers (Guralnick, 1980; Cavallaro & Porter ,1980; Porter, Ramsey, Tremblay, Ioccoba & Crawley, 1978; Peterson & Haralick, 1970). One hypothesis that has been proposed to account for the nonpreferred status has received some confirmation from observational studies. It has been suggested that the reason for limited social contact with nonhandicapped peers may be in the failure of more severely handicapped students to exhibit more complex coordinated social behaviors required to sustain social interaction (Guralnick, 1981; Strain, 1982). On the positive side, an increasing interest in intervention has led to some initial success in facilitating interaction between severely handicapped and nonhandicapped students (Strain, 1981). Interventions involving a combination of modeling, shaping and reinforcement of handicapped students' social behavior have produced an increase in social behavior during training sessions (Apolloni, Cooke & Cooke, 1977; Cooke, Cooke & Apolloni, 1978) as have interventions in which nonhandicapped or mildly handicapped peers were trained to initiate social behavior with severely handicapped students (Strain, Shores & Timm, 1977; Ragland, Kerr & Strain, 1978).

Though many issues remain to be resolved including generalization and development of more complex social behaviors, existing studies represent a hopeful beginning. A common element important to the success of existing approaches is the need for direct structuring of interactions between students. What form this structuring should take is still the subject of study. There is some evidence to suggest that interaction between handicapped and nonhandicapped students is facilitated when initially structured by teachers but then allowed to proceed without ongoing adult intervention (Shores, Hester & Strain, 1976; Strain & Hill, 1979). Further exploration is also needed in identifying environmental factors that relate to optimizing the occasion for interaction between handicapped students both at the level of the broader environment as well as the immediate context in which handicapped and nonhandicapped students are present (Guralnick, 1981).

II.V EDUCATIONAL CONTEXTS FOR INTEGRATION

II.V.A Educational Context: Antecedent Features

The majority of research has focused upon a very narrow aspect of the educational context depicted in Figure 2 as this related to the integration of handicapped and nonhandicapped children. A recent computer survey of the CEC collection of readings on exceptional children and of the Psychological Abstracts revealed that over 70% of the articles on mainstreaming focused on teachers' attitudes. Other authors have reported a similar predominance of attitudinal research (Bell, 1977; Galloway & Chandler, 1978) in the area of mainstreamng. The literature on state and local planning for mainstreaming consists primarily of reports of surveys of teachers' reported needs for training, support, and materials. Hence, in the ensuing literature review, the antecedent features of the educational context which include state planning, local planning, and school support (see Figure 2) will all be considered under the heading, "state and local planning needs." After careful search of the literature, we were not able to find data regarding the ways in which the specific aspects listed in Figure 2 under state and local planning were related to the amount of integration of severely handicapped children. Similarly, we were not able to find much literature on the relationship between parent involvement and the degree of integration (Turnbull & Blacher-Dixon, 1981). However, we have reviewed some of the major lines of evidence indicating that the involvement of parents is a necessary condition for effective education of handicapped children.

II.V.A.1 State And Local Planning Needs. - Three major studies have concentrated on priorities of needs expressed by educators (Hargan & Forringer, 1977; Rude, 1978; Vale, 1980). Hargan and Forringer (1977) found that the highest priorities of special educators were for published guidelines which would provide a standard by which individual educational plans (IEP) could be written. Regular classroom teachers listed as major priorities a) the provision of materials regarding the values of mainstreaming (especially of the emotionally disturbed child); b) materials adapted for handicapped children; and c) in-service training on methods for recognizing and dealing with children's handicaps. Administrators listed as their major priority the development of appropriate assessment devices and standards by which placement decisions are made, and procedures for reevaluation of placement decisions. All these priorities lead to the conclusion that the level and range of local and state planning should be a major predictor of the degree of integration of handicapped children.

Rude's (1978) evaluation of needs and priorities expressed in state plans for implementation of P.L. 94-142 agrees with the Hargan and Forringer (1977) results. The three top priorities nationally were for training in instructional procedures/classroom management; curriculum and programming materials and resources; and preparing individualized educational programs. Less than half of the states based these priorities upon a systematic needs assessment. Although several sources emphasize the necessity of on-site demonstration and experiential in-service training (National Education Association, 1975; Lawrence, 1974; Mann, 1976) most state plans relied on didactic-type workshops, institutes, and consultations (Rude, 1978). Furthermore, the development of training plans and products has been primarily a local affair and has not involved replication of plans which have been used successfully elsewhere. Moreover, evaluation and monitoring of the effectiveness of state in-service training was not listed as a high priority in state plans.

In 1978, the Bureau for the Education of the Handicapped contracted with the Berkeley Office of Educational Testing Service to assess the needs of special educators for educational media and materials for the handicapped (Vale, 1980). There was agreement between special educators (N = 28,044) and supervisor and related special education personnel (N = 2,015) in ranking appropriate social behavior consistently within the top three priorities for media and materials development. The availability of such materials could obviously have a strong impact upon teacher's willingness and enthusiasm for the social integration of handicapped and nonhandicapped children. The National Education Association and the American Federation of Teachers have both encouraged a positive attitude toward mainstreaming by their union locals provided that an adequate context of planning and support exists (Sosnowsky, Simpkins, & LaPlante, 1976).

II.V.A.2 Parent Involvement. - As noted earlier, parents have played a major role in the changes which have culminated in the passages of P.L. 94-142 (Bricker, 1978; Lora versus Board of Education of the City of New York; Larry P. versus Riles; Pennsylvania Association for Retarded Children versus the Commonwealth of Pennsylvania). Moreover, those programs which have made the most substantial changes in children's behavior have involved parents in the educational process (Bronfenbrenner, 1975; Tjossem, 1976). There are ample theoretical models available which would account for the importance of parents as causal agents in any aspect of a child's behavior (Bijou, 1963; Klinger, 1975; Lewis, 1978; Parke & Collmer, 1975; Ramey & Mills, 1975; Rosenberg, 1977). In fact, measures of family background have generally been far superior in predicting the developmental course of children than has schooling (Averch, Carol, Donaldson, Kiesling, & Pincus, 1972; Coleman, 1966; Jencks, 1972).

Thus, while parents have obtained education for their handicapped children in hard fought legal battles and while such education is more effective if it involves them, parents are still not always involved in their children's education, often due to attitudes about parental participation (Gorham, DeJardins, Page, Pettis, & Sheiber, 1975). When parents are involved, they are involved often as an extra pair of hands which can increase the temporal intensity of therapy since they are always available to the child (Farber & Lewis, 1975). The assumption has often been that parents simply need to learn and apply the effective teaching techniques in order to maximally influence their children (Bricker, Seibert, & Casuso, 1980; Lillie, 1974; O'Dell, 1974; Rosenberg, 1977). However, a wealth of literature exists to suggest the existence of a fine-tuning of the interactions between parents and children (Filler & Bricker, 1976; Jones, 1977; Lewis & Rosenblum, 1974; Rondal, 1978). Furthermore, it is now acknowledged that the child affects its parents as well as the parents affecting their child (Bakeman & Brown, 1977; Bell, 1978; Fraiberg, 1974, 1975; Kogan, Tyler, & Turner, 1974). Few interventionists have capitalized on descriptions of the existing interaction styles between parents and children as necessary information for any effective intervention, whether carried out by parents or teachers (Beveridge, 1980; Wahler, Berland, Coe, & Leske, 1977). The extent to which parents are utilized as a different kind of expert rather than as individuals who should learn to be teachers has important implications for the development of truly individualized educational plans. The extent to which parents insist upon sharing expertise which is not valued by the educational system is the extent to which they will be perceived as adversaries of the system. The extent to which parents participate in the educational plans generated by educational personnel is the extent to which they will be perceived by the educational system as supportive of their child's program. Somewhere between these extremes of parental involvement lies a happy medium of give and take in which educators and parents share information about children's abilities and educational goals and synthesize this information into an individual educational plan. We had hoped to capture these types of parental involvement in a child's educational plan and relate the extent of involvement to the degree and quality of integration of the child. Unfortunately, our plans for interviews to which parents had consented were not approved by SEP and hence very limited

information about the relationship of parental involvement to degree of integration can be reported in this study.

II.V.B Educational Context: Concurrent Features

The concurrent features listed in Figure 2 include variables that are often included under the rubric of "educational process variables" (Rosenshine & Furst, 1971; Semmel, 1975). We are concerned primarily with the relationship of these variables to the amount of integration of severely handicapped and nonhandicapped children. There are no studies which attempt to describe the relationship between these process variables and the amount of integration. However, there is extensive literature on teacher attitudes toward mainstreaming although only a few studies have looked at the degree of integration as it is related to teacher attitudes or vice versa.

II.V.B.1 Teacher's Attitudes. - It is obvious that teachers will be the major facilitators of integration of handicapped and nonhandicapped children. Thus, it is not surprising that the major research efforts in the area of integration of the handicapped has centered upon describing and changing teacher's attitudes. If teachers actively oppose the integration of handicapped and nonhandicapped children, then the "least restrictive educational alternative" would probably not offer many opportunities for handicapped and nonhandicapped children to interact.

In a national survey of educators about the needs created by P.L. 94-142, Hargan and Forringer (1977) found that special educators and administrators viewed the regular classroom teacher as the major impediment to mainstreaming. However, over half of these regular class teachers (N = 195) indicated support for integration of handicapped children while less than one-fourth rejected the idea outright (Hargan & Forringer, 1977). Studies indicating negative attitudes of regular class teachers toward integration of the handicapped have been reported by Keogh and Levitt (1976), Vacc and Kirst (1977), Shotel, Iano, and McGettigan (1972), and Weber (1977). Others have reported a wide range of differing opinion by regular educators regarding the integration of handicapped students (Gikling & Theobald, 1975). A substantial number of regular teachers have favored placement of at least mildly handicapped children in their classrooms (Foster & O'Leary, 1977; Keilbaugh, 1977; Singleton, 1976). Although Shotel et al. (1972) found increasingly negative attitudes of regular educators associated with increased contact with handicapped children, several studies have reported increasingly positive attitudes with increased contact (Coy, 1977; Guerin & Szatlocky, 1974; Harasymiw & Horne, 1976; Plummer, 1977). A problem with these conflicting studies is that they often involve different measures of teachers' attitudes and different ways of describing or defining contact with handicapped children.

The variability in the results of the teacher attitude research is somewhat disheartening. However, this variability may reflect the fact that teachers have been provided with no clear guidelines about how to implement many aspects of P.L. 94-142. Perhaps a more consistent attitudinal picture will emerge as teachers become aware of the resources available to them as an outgrowth of the law. Thus, teachers' attitudes toward mainstreaming may be a function of the level of planning and support which teachers perceived to be available within their school, their school system, and their state. Thus, the variability in teacher attitudes should be related to the variability in local planning and available resources. The available studies of teacher attitudes have not specifically explored the relationship between teacher attitudes and available resources although anecdotally some studies suggest such a relationship. Our original study had proposed collecting data on attitudes both from interviews with regular and special education teachers and from observations of teacher's interactions with severely handicapped students. Unfortunately, clearance to conduct interviews was not obtained from SEP. Attitudes of teachers discussed in this study will be inferred from observations of teachers' behavior.

II.V.B.2 Teacher Knowledge Of Behavioral Principles. - There is little information regarding the relationship between the teacher's knowledge of behavioral principles and the effect of this knowledge on integration of handicapped and nonhandicapped children. Perhaps the most enlightening research with reference to this question has been a study by Cantrell, Stenner and Katzenmeyer (1976). They found three clusters of teachers who could be discriminated by their knowledge of behavioral principles and their attitudes toward teaching. These test profiles of teachers were predictive of both their classroom behavior and the achievement scores of their children. Teachers with more knowledge of behavioral principles emitted a higher ratio of praise to criticism in the classroom when compared to other teachers with less knowledge of behavioral principles. Teachers with more knowledge of behavioral principles and with positive attitudes toward teaching had students who achieved more than could be predicted on the basis of their achievement status when entering these teachers' classrooms. Finally, techers' knowledge of behavioral principles increases as a function of problem solving experience with a master teacher (Cantrell & Cantrell, 1980). We regret that we will not be able to relate teachers' knowledge of behavioral principles to integration of severely handicapped students as had been originally proposed due to lack of SEP clearance to administer the instrument selected for this purpose.

II.V.B.3 Curriculum Model. - The finding that teachers' knowledge of behavioral principles (Cantrell, et al., 1976) is related to academic achievement has broad implications for teacher training as well as ongoing assistance in the educational problem solving which is inherent in good teaching. Perhaps the most influential variable in a teacher's daily practice of education is an understanding and systematic application of a curriculum approach. Brinker (in press) has reviewed curricula for severely handicapped students and traced the evolution of three approaches. The three approaches which have emerged are: 1) an operant or applied behavioral approach, 2) a developmental approach, and 3) an ecological approach. The major emphasis of the first two approaches has been to document reliable and valid methods for changing the behavior of handicapped students and to establish new behaviors in limited behavioral repertoires (Bricker, 1970). The third approach takes a broader ecological perspective and incorporates integration as an inherent part of the curriculum. First, we will review the basic concepts behind these three approaches. Then, we will review methods for facilitating interactions between handicapped and nonhandicapped students which have emerged from the three approaches. Our purpose is to provide a broad perspective on these curricular approaches and possible methods by which integration might be facilitated. Once again, there is very little data available on the use of these approaches to establish interactions among severely handicapped students and nonhandicapped students.

The Operant Approach. The operant or remedial approach (Guess et al., 1978), is based upon the belief that behavior is a function of a history of operant conditioning (Skinner, 1953) and that the influence of such a history could be changed by new contingencies in the present. The control of behavior is to be found through an experimental analysis of events antecedent and consequent to the behavior. If manipulations of antecedent and consequent events do change the rate of behavior, then the antecedents can be defined functionally as discriminative stimuli and the consequences can be described functionally as reinforcements. The key elements of the operant system require an experiment to make the translation from the descriptive language "antecedents" and "consequences" to the functional language of "discriminative stimuli" and "reinforcements." Thus, the essence of this perspective is that the teacher obtain data about the rate of behavior when there are specific antecedents and consequences for that behavior, as well as data about the rate of behavior when such antecedents and consequences are not available. A comparison of these two types of rate data provides the basis for understanding that the behavior of interest is controlled by discriminative stimuli and reinforcements.

Empirical case studies demonstrated that even the most problematic behaviors could be changed. Children who were inflicting severe harm to themselves were taught to stop their self-injurious behavior. Children who used no functional language were taught to use words appropriately. Children who had never been trained to use a toilet, to eat appropriately, or to dress themselves were taught to do so (e.g., Bijou & Baer, 1967; Whitman & Scibek, 1979). Thus ended a phase of total dependency for some individuals which had been a major factor defining them as severely retarded.

The Developmental Model. The developmental model is based upon a large body of data demonstrating that children master skills at different ages, and some skills are consistently mastered by children before other skills (Cohen & Gross, 1979). Application of this model to mental retardation implies that the rate of development is slower than normal but the pattern of development and the stages of development are essentially the same for retarded and normal individuals. The task for the developmental interventionist is to identify the current developmental level at which a child is functioning and to select educational objectives which are just above that level. Developmental progress is produced by selecting objectives which are an "optimal mismatch" (Hunt, 1961), between new task requirements and existing skills.

In practice, developmental models often utilize developmental checklists of behaviors in various domains of functioning. For example, Hanson (1977) provides a developmental curriculum for Down syndrome infants which includes many items from the Bayley Scales of Infant Development (Bayley, 1969). Other popular developmental curricula include information from research and normative developmental tests for young children which provide a basis for arranging behaviors in sequence based upon the chronological ages at which such behaviors are normally acquired (Brigance, 1978; Cohen & Gross, 1979; Shearer, Billingsley, Frohman, Hillard, Johnson & Shearer, 1972). For example, Brigance (1978) presents picture vocabulary items in the speech and language skills domain which are scaled in terms of age. Using this framework the child who knew few words would be taught dog before man, and airplane before cup. The child being taught the Portage curriculum would be taught to say "all gone" (item 13 in language domain) before being taught to answer the question "What's this" with an object name (item 20). The rationale for the order in selecting the objectives is that on average children of various ages perform differently on such items. However, there is no logical reason that some of these items should be mastered before others. More importantly, the relevance of these sequences of behavior derived from normative scales to the sequence of development for severely retarded children is open to considerable question (Hogg, 1975; Lewis & Wehren, 1982; Garwood, 1982; Riechle, Williams, Vogelsberg & Williams, 1980; Switzky, Rotatori, Miller & Freagon, 1979).

The Ecological Model. The goal of the ecological model is to move severely handicapped individuals towards ultimate functioning. Ultimate functioning is described by Brown et al. (1976) in terms of the degree to which severely handicapped persons are able to function productively in the widest variety of community settings which are appropriate to that person's chronological age. The ecological model has several important features:

1. A fundamental commitment to participation by severely handicapped students in the life and environments within the community.

2. An analysis of major environments within a community based upon an inventory of public places and their physical design.

3. An analysis of activities which generally occur within the various environments in tne community.

4. Task analysis of the skills necessary to participate independently in selected activities in environments and a specification of the supports necessary for facilitating at least partial participation in the widest functional range of activities.

A critical feature of the ecological perspective is the belief that the structure and stimuli within the environment provide the basis for what will be learned and also the supports to maintain the behavior. Thus, severely retarded students do not have to learn prerequisite skills to gain entry into community environments. Rather, the ecology itself is a major part of what must be learned. Since functioning is supposed to occur within the community ecology as an actual goal, there are valid empirical reasons for teaching in that ecology rather than teaching within a classroom and "hoping for generalization" to the community setting (Stokes & Baer, 1977). Curriculum goals can be derived from each of the perspectives described. The goals from the various perspectives, however, may be quite different in content and these differences have fueled the fires of controversy favoring one approach over another. For example, the operant approach was, historically, the first model for embarking upon a course of change in the lives of severely handicapped individuals. It came under attack by developmentally oriented interventionists because it did not capitalize upon the structure of behavior as it emerges developmentally. When the curriculum goals are something other than the deceleration of aberrant behavior or the acceleration of the rate of adaptive behavior already in the repertoire, then some criteria are needed to determine what to teach and in what sequence. The selection of behavior to modify or teach has always been a problem from a behavior modification perspective. The developmental literature is a more objective source of goals than simply one's own intuition about what to teach next. Unfortunately, if development is viewed as a forced march from "stirring in a cup with a spoon" through "sorts 15 transitors into 3 groups within 3 minutes," severely retarded students have an inordinately long infancy. Year after year the same educational objectives involving the same preschool materials are attempted with precious little change in behavior. Clearly, the basic skills which severely handicapped students lack are not being taught by changing objectives from "puts three pegs in a line" last year to "puts five pegs in a line" this year.

The evolution of these three curriculum approaches has matched the evolution of service delivery systems. When the dramatic behavioral changes were being made through operant techniques most severely retarded persons were being served in residential institutions. As school systems began extending services to severely retarded children at increasingly

earlier ages, the elimination of many behaviors which were typical within institutional settings was no longer the major problem. Rather the development of new skills from limited repertoires has become the major problem. As severely retarded students become more visible within schools they become more visible within communities. With visibility comes the possibility of fuller participation in community life.

Clearly the ecological perspective is most closely associated with an emphasis on integration of severely handicapped students into school and community settings. However, there has been very little research documenting the relationship between the ecological, the operant, or the developmental models of curriculum and the degree of integration actually achieved. Madison Public Schools which have been the most prominent advocate of integration for severely handicapped students (Brown, et. al. 1980) have found a dramatic increase in regular employment in non-sheltered work settings. Loomis (1982) reported that a followup of 53 graduates of Badger School, a segregated special school in Madison which was closed in 1977, revealed that only 1 student was in non-sheltered employment. This contrasts markedly with employment of severely handicapped graduates of their program since the district adopted an integration policy in 1978. Half of the 1979/80 graduates were in regular or volunteer work settings in the community. All 25 of the graduates from 1980/81 and 1981/1982 are working in the public sector as paid employees or volunteers. Thus,the limited data available suggests that adherence to an ecological model does facilitate integration into the community.

II.V.B.4 Teacher Classroom Behavior. - While educational research has not produced astounding demonstrations of the outcomes of regular education, a number of studies have shown that important relationships do exist between the kinds of behavior teachers emit and children's academic achievement (Rosenshine & Furst, 1971; Semmel, 1975; Soar, 1972; Stallings, 1975). The argument would be that what teachers do in school should contribute to any outcomes of the schooling experience. Moreover, what children actually do is clearly a function of what the teacher and other children are doing. However, apart from the literature in applied behavioral analysis (Hall, Lund & Jackson, 1968; Lovitt & Curtiss, 1969; O'Leary & O'Leary, 1972), there have been very few descriptive studies relating teachers' behavior directly to children's behavior (Brinker, 1976). Demonstrations that behavior can be controlled once reinforcing consequences are found do not tell us much about how behavior actually is controlled in the natural environment, if it is, by the events which are temporally contiguous with it (Willems, 1974).

Several authors have observed tne relationship between teacher's behavior and children's behavior in the classroom. Generally, this has involved observations of children's attentive, nonattentive, and disruptive behavior as these are related to the teacher's manipulation of subject matter or group ecology (Cantrell, 1974; Kounin, 1975; Kowatrakul, 1959). Kounin (1975) found that lesson formats in which the materials provided a continuous flow of signals to children produced more attentive behavior by

the children. Thus, children's attention was high during construction activities, reading books, and watching or listening to audio-visual materials. Attention was low during group discussion/recitation, singing, and movement lessons all of which provided relatively low signal continuity. Kounin, Friesen and Norton (1966) found differences in the amount of attentiveness of emotionally disturbed and nonhandicapped children but no difference in the way these behaviors were related to classroom contextual factors. For example, both groups of children showed more appropriate classroom behavior when the teacher was working with them in a small group.

Brinker (1976) observed 114 second-grade children, 63 of whom had been referred for a special intervention program (Cantrell & Cantrell, 1976). Brinker (1976) found that the teacher's classroom behavior was predictive of the amount of academic involvement and attentive behavior of the children. Peers' behavior toward the target children was the major predictor of the amount of off-task or disruptive behavior. None of the categories of children's behavior were predicted by their IQ scores, their achievement scores, or a classification of their type of problems. This would suggest that the quality of children's classroom behavior is largely a function of the type of interactions with teachers and peers which they experience.

We do not know the generalizability of these findings to the interactions and classroom behavior of severely handicapped students. However, it is clear that within the regular educational environment, interaction with other students is regarded as "inapropriate," "off-task," or "disruptive." Attention to the teacher and materials is the appropriate classroom behavior. For severely handicapped students, however, a major educational goal is usually to develop basic social and communicative skills. A program for such development may not be well suited to the typical instructional model in which all knowledge flows from the teacher and other students are regarded as distracting from this educational purpose. Clearly the role of social interaction with students must be better articulated in order for teachers to understand and facilitate such interaction. Special education for severely handicapped students requires such understanding, yet the current model of teachers' and students' roles in the classroom is poorly suited to the development of a functional social skills and communication curriculum (Brinker, in press; Power, 1981).

A number of studies have shown that teachers respond differentially to various groups of children. Generally, teachers interact less with children of lower socioeconomic status (Davis & Dollard, 1940) lower achievers (De Groat & Thompson, 1949; Lahaderne, 1967) and children whom the teachers had ranked lowest in terms of expected achievement (Good, 1970). As noted earlier, very few of the social initiations of severely handicapped children in English ESN(s) schools were responded to by teachers (Beveridge & Hurrell, 1979).

There are a few studies which have looked at the effect of teacher's presence and/or intervention on interactions between children. The available research with preschool nonhandicapped students suggests that a high child-adult ratio results in more social interaction with adults rather than with other children (Field, 1980; O'Connor, 1975). The inhibiting effect of the presence of adults on peer interactions has been documented in studies of teacher intervention styles. Both in research with nonhandicapped (Huston-Stein et al, 1977; Mueller, 1977) and with handicapped students (Novak, Olley & Kearny, 1980; White, 1980), the greater the level of teachers' intervention in students' activities, the less there is interaction between students. However, there is some research which suggests that teacher attention can increase appropriate peer social interaction when contingently applied (Nordquist, 1978). An important factor in determining whether adult intervention inhibits or promotes interaction between students appears to be the purpose as well as the manner in which adult intervention occurs.

II.V.B.5 Facilitating Interactions Of SH And NH Students. - Although the integration of handicapped and nonhandicapped children may not automatically result in interaction between the two groups, it is clear that such interaction can be facilitated. A number of authors have demonstrated that children who do not interact frequently will interact when reinforced by teachers (Allen, Hunt, Buell, Harris & Wolf, 1964; Hart, Reynolds, Baer, Brawley & Harris, 1968) or by peers (Long & Madson, 1975; Wahler, 1967; Wynn, Ulfelder & Dakof, 1975) to do so. Strain and Timm (1974) provided teacher attention and physical contact either to nonhandicapped peers contingent upon interaction with a "behaviorally disordered" child (condition 1) or teacher and physical contact directly to the behaviorally disordered child contingent upon social interaction (condition 2). They found that under both conditions, the frequency of interaction by the behaviorally disordered child increased as did the frequency of interaction with that child by peers.

In an attempt to replicate the Strain & Timm (1974) study with severely handicapped preschoolers, Sebba (1979) found that while the fequency of approach by the reinforced child increased, no reciprocal increase occurred in the frequency of interactions toward the target child. Furthermore, there was no generalized increase in interactions by the reinforced child after the reinforcement procedures were terminated. Devonney, Guralnick and Rubin (1974) were not able to increae the social interactions of severely handicapped children in a segregated special class using the techniques of reinforcement and structuring of activities which had been effective with less handicapped children in integrated contexts. However, introducing nonhandicapped children to the classroom produced a small but consistent increase in the social behavior of the handicapped children. However, when the teacher structured the activities and provided reinforcement in the integrated condition, there was a substantial increase in the amount of social interaction. It is interesting to note that these same structuring and reinforcement conditions had failed to produce increased interaction when the classroom was segregated. Strain, Kerr and

Ragland (1979) trained an 11-year-old boy to initiate, prompt, and reinforce social interactions with four autistic children. This resulted in substantial increases in the amount of positive social interactions by the autistic children, but there was no maintenance of this increase when the intervention procedures were not implemented. Timm, Strain and Eller (1980) suggest that social interactions by severely handicapped children will be maintained after the intervention conditions only if the degree of intervention is gradually and systematically faded. Strain, Kerr and Alpher (1979) found that in a preschool for physically abused and neglected children, social behavior was maintained primarily by the social responses of other children while social overtures by adults were ignored.

Other techniques which have been successful in facilitating the social interactions of children have been a) training of retarded children to imitate other children (Apolloni, Cooke & Cooke, 1977); b) training of retarded children to emit positive social responses (Cooke & Apolloni, 1976); c) training of retarded children to request items (Fredericks, Baldwin, Grove, Moore, Riggs & Lyons, 1968); d) provision of group contingencies for the social behavior of withdrawn members (Straughan, Potter & Hamilton, 1965; Walker & Hops, 1973); e) use of toys as mediators for social interaction (Guralnick, 1976); f) use of sociodramatic play and role playing to facilitate interaction (Beveridge & Tatham, 1976; Strain & Wiegerink, 1976).

It should be clear that there is a growing interest in the actual processes of interaction within classrooms. Furthermore, it can no longer be assumed that interaction is solely a function of the traits of the parties involved in the interactions. A variety of techniques are being developed which facilitate the interactions between children of very different abilities. Given the context in which such social facilitation techniques exist, the amount of social interaction between handiapped and nonhandicapped children will increasingly be viewed as the product of the classroom context and the teacher's behavior which might facilitate or retard such interactions. The extent to which this is the case has been evaluated in this project.

II.V.B.6 Environmental Organization - Agard (1975) attempted to determine differences in the classroom ecological structure of resource classrooms, self-contained special classrooms, and regular classrooms in which mildly handicapped children had been integrated. She described ecological structure in terms of class size, types of displays in the room, the rated quality of the physical environment, the number of adults present and their roles, the type of teacher task, the pupil's task, the group structure of the class, the seating arrangement, and the position of the teachers and children. A large number of classes were observed (regular classes, N = 400; resource classes, N = 100; self-contained classes, N = 150). The major differences were in terms of the special classes having more equipment and materials, more adults, and fewer students than the regular classes. Moreover, the groups were structured differently. The regular classes generally had all students sitting in rows and columns in one large

group with the teacher front and center. The special classes had more variation in seating arrangements (e.g., horseshoe, circle, individual work areas) and a higher proportion of times in which the class was divided into small groups. Major differences in subject matter were that the self-contained classes were more frequently engaged in art, the resource room was more frequently engaged in reading, while the regular class had a higher proportion of science and social studies when compared to each of the other types of classrooms. Children's and teacher's tasks were distributed in the same way in all three types of classrooms. Agard (1975) noted that her observations of regular class teachers revealed a very restricted range of instructional alternatives which were not well suited to individualized instruction.

II.V.B.7 Number Of Integration Objectives - To date, there are no research data regarding the number of IEP integration objectives and the relationship of this to integration. Consequently, a benefit of the proposed evaluation will be this type of assessment.

II.V.B.8 Functional Abilities As A Predictor Of Degree Of Integration - A major predictor of the degree of integration, which we will consider, is the degree of severity of a child's handicap. Unfortunately, much of the research which has been done has treated "the handicapped" or "the retarded" as if they were a homogeneous group. Subgroups of this larger presumably homogeneous population are then compared after exposure to some form of educational treatment which is also presumed to be homogeneous (e.g., EMR classes are all treated as the same thing). In fact, there is very little basis for assuming the existence of a homogeneous population called "the handicapped", or of consistent homogeneous treatments called "special classes," "resource teachers," etc. (Kirk, 1964; Jones et al., 1978).

The problem of classifying types of handicaps in terms of their severity is indeed sizeable (Hobbs, 1975a, b, c). Justen and Brown (1977) have noted, there is very little consistency in delimiting the population of "severely handicapped" in various states of the United States. Although 28 states have mandatory legislative provisions for serving the severely handicapped, these states have no definitions of "severe handicap." Of the states which did define "severe handicap," many used traditional educational definitions which defined severity of handicap in terms of an available administrative arrangement (e.g., class for the trainable mentally retarded). Of those definitions which focussed on the abilities of the child, most relied on standardized IQ scores. For example, several states have adopted Grossman's (1973) procedures for classifying a person as severely retarded if his/her IQ score is greater than four standard deviation units below normal and if this is associated with problems in social adaptation. Unfortunately, as Filler et al. (1975) point out, such a definition does not lead to the constitution of a group with similar educational needs.

An alternative type of classification would be an interactive system which focuses a) on the total ecology of the child; b) the behavior of the child in that ecology rather than upon the presumed inherent characteristics of the child (Bricker, 1967; Hobbs, 1966; Sarason & Doris, 1979); and c) upon the services and resources needed by the child and his ecology rather than upon gross categories of exceptionality. This system has been proposed by Hobbs (1966, 1975) and to a large extent has been incorporated into the federal definition of severely handicapped children. Such a definition emphasizes a description of functional needs rather than static child characteristics. Children would be classisified as severely handicapped a) if they lack basic skills of toileting, independent eating, ambulation (where no paralysis is involved); b) if they demonstrate severe maladaptive behaviors (e.g., self biting, head banging, etc.); c) if they demonstrate severe communicative problems; and d) demonstrate only sensorimotor intelligence when they are of school age.

If we accept such a functional definition of severe handicap (Justin & Brown, 1976; Sailor & Haring, 1977), then it becomes clear that the educational process for such children will be substantially different from the traditional forms of curricula. Many of the basic skills (beginning communication development, beginning social skill development, beginning cognitive development) are skills necessary for commerce with the child's social world. While such skills can be established outside of the social context in which they are used, it is not clear that this will result in appropriate use of the skills when the child is in the appropriate social context (Beveridge & Brinker, 1980; Beveridge & Tatham, 1976; Brown, Nietupski & Hamre-Nietupski, 1976; Stokes & Baer, 1976). Moreover, the relevant aspects of the development of these skills may not be found in a task analysis of the skills themselves but rather in an analysis of the socioemotinal aspects of the interactive context in which the skills are taught (Lewis, 1977). If the basic skills involve a complex set of discriminations of social context in order that such skills be accessed and utilized appropriately, then basic skills curricula will of necessity involve attention to the context in which these skills are utilized. Thus, a key aspect of the evaluation of the adequacy of basic skill acquisition will be found in assessment of the appropriate use of such skills given the opportunity in an appropriate context. With respect to the integration of severely handicapped children, major educational goals in the basic skill areas will be defined in terms of the degree to which the child has the opportunity to make these social discriminations and utilize his/her skills when such opportuniites arise.

One major form of evaluation of the impact of integration upon the handicapped child must therefore be in terms of the extent of that child's social network (Feiring & Lewis, 1978; Lewis & Feiring, 1979) and the quality of that child's interactions within the social network. Thus, one major evaluation goal will be to document the extent of opportunities for an extended social network and the handicapped child's interaction within this extended network. In other words, social effects are a predominant goal of integrated education. To the extent that a child's educational plan consists of basic skill acquisition these social effects are direct measures of the success of that plan. Thus, there are important

theoretical reasons to expect a relationship between the degree of integration and the degree of improvement exhibited by a severely handicapped student on his individualized educational plan.

II.VI EDUCATIONAL AND ATTITUDINAL IMPACT OF INTEGRATION ON CHILDREN

II.VI.A Children's Achievement

A much more extensive history of research on the effects of integration of mildly handicapped children upon their academic achievement leads to the conclusion that such integration is not detrimental (Filler et al., 1975; Johnson, 1950; Kirk, 1964). A more recent study of mildly retarded children (N = 1711) decertified (handicapped children reclassified as nonhandicapped) in California and placed in regular classes led to the conclusion that "while decertificatin did not make the students' average, the students nevertheless tended to succeed nearly as well as regular class matches" (Meyers, MacMillian & Yoshida, 1975). Although there was no significant difference at the time of decertification between children who were decertified and those who were not, the special class students were significantly lower in the Metropolitan Achievement Tests of Math and Reading when compared after decertification both to the decertified and the regular class students.

Cantrell and Cantrell (1976) provided an experimental study of the effects of mainstreamed education upon the achievement scores of not only mildly handicapped children but also nonhandicapped children. The experimental schools (N = 723 first graders) had access to specially trained teachers available to assist in the solutions of any teacher's problems with any first grade children. The control schools (N = 355 first graders) did not have access to these support teachers although they did participate in the same testing and classroom observtion procedures as the experimental schools (Hawthorne control procedure). Using the residual achievement score as a criterion measure (i.e., the difference between the achievement predicted on the basis of an achievement test administered at the beginning of the year and the obtained achievement at the end of the year) they found significantly higher scores at each of three IQ levels for the experimental school first graders. Moreover, there were significantly fewer referrals for special services from the experimental schools in comparison to the control schools. These results clearly demonstrate that mildly retarded children (IQ 50-90) can benefit from mainstream education when teachers are provided with appropriate support within their own school. Moreover, these differences were consistent across each IQ level. The authors conclude "this supports the contention that experimental school teachers tended to teach pupils at each IQ level in such a way that more homogeneity of growth rates was maintained within their classes than in control school classes" (Cantrell & Cantrell, 1976, p. 385).

Unfortunately, there are no comparable data on experimental integration programs for the severely handicapped because such programs simply have not been studied with systematic and replicable research designs.

II.VI.B Children's Attitudes

For elementary school children, the general finding has been that normal elementary school children reject handicapped children and would not choose such children as their friends (Baldwin, 1958; Clark, 1964; Gottlieb, 1975a; Johnson, 1950; Johnson & Kirk, 1950; Parish, Ohlsen & Parish, 1978). This bias against handicapped children seems to be established by age 4 years (Asher, 1975; Jones & Sisk, 1967; Richardson, 1970; Tucker & Brinker, 1980). Some studies have demonstrated that attitudes toward visibly integrated handicapped children were more negative than attitudes toward children in segregated special classes (Goodman, Gottlieb & Harrison, 1972; Gottlieb & Budoff, 1973; Iano, Ayers, Heller, McGettigan & Valaide, 1974). However, other studies have found either no difference in attitudes or more positive attitudes (Friedman, 1975; Nash & McQuistin, 1975; Peterson, 1974; Sheare, 1974; Strauch, 1970) as a function of having exposure to handicapped children. Gottlieb, Semmel, and Veldman (1978) found that the major cause of social rejection of handicapped children was attributable to perceived behavioral disturbance. The basis of children's negative attitudes toward handicapped children has been attributed by the nonhandicapped children themselves to aggressiveness and behavioral disturbance (Johnson, 1950; Kiernan & Kavenaugh, 1978).

It is difficult to draw any definitive conclusions from the attitudinal research other than the fact that handicapped children are regarded negatively by nonhandicapped children. Simpson (1976) and Tucker and Brinker (1980) demonstrated that specially designed media can produce positive shifts in attitudes toward handicapped children. Questions regarding whether initial or post intervention attitudes would be related to behavioral differences should be answered prior to developing large scale attitudinal change studies. Bell (1977) has shown that expressed attitudes of preschool children are not related to patterns of interaction. Sipperstein, Bak & Gottlieb (1977) have raised fundamental methodological issues about assessment of individual's attitudes. They have argued that the attitudes expressed toward handicapped children are a social group phenomena and that such attitudes are considerably more negative when assessed in a group rather than individual context. Clearly the expression of attitudes can be influenced by group processes (Asch, 1958). Whether such expression is any more valid than individual attitude scales (Voeltz, 1980; 1982) as an assessment of the individual's "true attitudes" is debatable. The critical question is whether either type of attitude assessment procedure produces measures which are related to behavioral measures of interaction in various social contexts.

Having reviewed the literature, it is clear that a number of studies have addressed the impact of the types of antecedent and concurrent features of educational contexts which we proposed evaluating within an ecological model of integration. It is equally clear that most of these features have been addressed separately, outside the framework of an ecological analysis. Moreover, very few of the studies have involved severely handicapped students. Thus we are faced with a very large number of factors which, when separately considered, may be critical to the integration of severely handicapped students in regular school and community settings. However, the available literature does not provide a broad context within which to consider any separate finding. Thus we might ask, "Are critical administrative features (Stetson, 1980) so critical that they compensate for differences one might ordinarily find in local expertise, teacher attitudes, teacher classroom behavior, or parent involvement?" It is clear that such questions cannot be systematically addressed based on the current available research for two reasons. First, there has been no measurement of the variations in the degree and quality of integration which might be related to variations in such factors about the educational context. Second, each antecedent and concurrent feature of educational contexts has been considered separately rather than within the ecological framework of interacting and mediating forces at various levels of the ecology (Bronfenbrenner, 1977). The purposes of the project to evaluate the integration of severely handicapped students were to

1. base whatever conclusions were made about the important variables affecting integration upon a consistent metric for measuring the degree of integration;
2. determine which features of educational contexts emerged as critical when evaluated within the ecological framework of other presumed critical components;
3. determine whether integration, as measured by the rate of interaction between handicapped and nonhandicapped students, had an educational impact on the progress of severely handicapped students and the attitudes of nonhandicapped students toward the handicapped;

We will turn now to a description of the methods used to measure both the degree/quality of integration and the antecedent and concurrent features of integrated educational environments.

CHAPTER III

METHODS

III.I SITE SELECTION

Our expectation regarding integration of severely handicapped students in regular educational settings was that few school districts would admit to such a goal. As one federal official said, "I wish you could show me half a dozen." In fact a total of 303 public school districts in 47 states were recommended as attempting to integrate severely handicapped students. These nominations resulted from formal requests to the 12 regional deaf-blind centers and to the directors of special education from each of the states, from informal questioning of professional colleagues and officials from Special Education Programs, and from an analysis of a survey conducted by the Association for the Severely Handicapped of its membership.

In requesting information from these sources we defined "integration" as the presence of severely handicapped students in the same school building as nonhandicapped students. Our definition of "severely handicapped" was the same as the federal definition, i.e.,

> "Severely handicapped children are those who because of the intensity of their physical, mental, or emotional problems, or a combination of such problems need educational, social, psychological, and medical services beyond those which are traditionally offered by regular and special educational programs, in order to maximize their full potential for useful and meaningful participation in society and for self-fulfillment."

The total number of sites by state and by nomination source are listed in Table 1. The total by nominating source was: Regional Deaf-Blind Centers - 26; SEA Special Education Directors - 85; Special Education Programs Officers - 7; and The Association for the Severely Handicapped - 201.

Each asterisk in Table 1 means that, of the sites nominated, one was also nominated by another source. Asterisks appear next to each of the mutual sources. Of the 303 different educational agencies nominated; 95% were nominated by only one source. Only one school system was nominated by

Table 1

TOTAL NOMINATIONS BY STATE BY SOURCE

			SOURCE			
	DISTRICTS/AGENCIES	SCHOOLS	SEA	DEAF/BLIND	TASH	OSE
Alabama	2	12		1	1	
Arizona	3	3			3	
Arkansas	3	—			3	
California	8	6			8	2
Colorado	12	—			12	
Connecticut	1	3			1	
Delaware	2	4			2	
Florida	9	26	**3	**4	*4	
Georgia	2	6			2	
Hawaii	1					1
Idaho	1				1	
Illinois	19	23		1	18	
Indiana	11		**5	**2	6	
Iowa	10	6	6		4	
Kansas	9		4		4	
Kentucky	3		1		2	
Louisiana	1				1	
Maine	3		*1		*3	
Maryland	3	2			3	
Massachusetts	5	1			5	
Michigan	9	7	2	*3	*4	
Minnesota	11	11	3	2	6	
Mississippi	12	8		1	11	
Missouri	4	2			4	
Montana	1				1	
Nebraska	5	6	***3		***4	
Nevada	2	2	2			
New Hampshire	2				2	

Table 1 (Continued)

	DISTRICTS/AGENCIES	SCHOOLS	SEA	DEAF/BLIND	TASH	OSE
New York	17	1		1	16	
New Jersey	1	1		1		
North Carolina	12	11	8		4	
North Dakota	1				1	
Ohio	5	4		1	4	
Oklahoma	5		4		1	
Oregon	17		*3	5	*10	
Pennsylvania	15	21	3	2	10	
Rhode Island	1				1	
South Carolina	1				1	
South Dakota	3	14	3			
Tennesee	20	38	16		4	
Texas	18		7			
Utah	3				3	
Vermont	6				5	1
Virginia	7	5	3		4	
Washington	6				5	2
West Virginia	5	6	4		1	
Wisconsin	9	4	**4	*2	*5	1

three of the four sources: Madison Public Schools. This would indicate that while there is more than a handful of sites in which integration of severely handicapped students is being attempted, knowledge of these efforts is not widespread. Thus, there is no consensus about whether these sites are engaged in an innovation or perhaps no forum for establishing a consensus about the innovative aspects of the integration which has been achieved.

Mere nomination certainly does not imply that a site actually was engaged in integrating severely handicapped students. To confirm the degree to which such integration was in fact taking place was one of the purposes of this project. However in order to verify the belief that a school district was integrated, 113 of the nominated sites were contacted by phone. These school districts are listed in Table 2.

Phone contact was often difficult to establish and the constraints of completing the entire site selection process in the first six months of the project diminished the possibility of a systematic survey at the site selection phase. Thus it was not possible to get detailed information from each of the nominated sites. In addition, we had targeted states in the geographic region of states which Special Education Programs (SEP) had nominated as potential recipients of funding as model projects for integrating severely handicapped students. It would be difficult to make any firm conclusions about districts from which detailed information was not available. However, 48 of the 113 nominated sites which had been contacted provided information about the number of severely handicapped students integrated, the age ranges of the students, the schools in which they were integrated as well as information about the size of the school district, the size of the special education program and the socioeconomic status of the integrated schools (if known). The summary information from these 48 sites is presented in Table 3.

On the basis of continuing discussion with these sites, an effort was made to determine a) the degree of innovation in integrating severely handicapped students, b) the willingness and resources of the site to participate in an evaluation as extensive as the one proposed, and c) the relationship of the site to other potential sites in terms of geographic region, age range of students integrated, and the range of integration activities. Based upon these discussions 22 sites agreed to participate in all of the particulars of the proposed evaluation. From these 22 sites the final selection of 14 sites was made.

During the early stages of negotiation with potential sites, districts were sent an overview of the project outlining the design and general data collection requirements as well as the project's proposal which described in detail the proposed evaluation plan, measures and timelines. Discussions were maintained with interested districts by phone to clarify questions about the design and procedures to be used as well as the involvement that would be required by ETS and district staff. Sites were assured that disruption of ongoing programming would be minimized and that all data collection responsibilities would be handled by ETS fieldwork staff on site in their district. For those sites which indicated a

Table 2

Sites Contacted by ETS on Telephone

STATE	SITES	SOURCE
AL	Birmingham Public Schools	Southeast Regional Deaf/Blind Center
CA	George Miller Development Center - Concord, Calif.	Contra Costa County Superintendent of Schools
	San Francisco Public Schools	OSE funded site
FL	Alachua County School District	Southeast Regional Deaf/Blind Center
	Jackson County School District	"
	Leon County School District	"
	Orange County	
HI	Hawaii Public Schools	OSE funded site
ILL	Chicago Public Schools	Illinois State Deaf/Blind Center
	LaGrange Area Dept. of Special Education	TASH Conference
IND	Hammond Public Schools	Midwest Regional Deaf/Blind Center and IND.-SEA
	Fort Wayne Public Schools	IND. SEA
	Lafayette Corporation	"
	Muncie Community	"
	NE Indiana Special Ed Coop	
IA	Dubuque Public School District	Iowa SEA
	Charles City School District	"
	Maquoketa School District	"
	Iowa City School District	"
	Kalona School District	"
	Pymosa School District	"
KA	USD #497 - Lawrence	KA. SEA
	USD #233 - Olathe	"
	Atchinson-Jefferson Educ. Coop.	"
	Leavenworth Comprehensive Special Ed Coop.	"
KY	Jefferson County Public Schools	KY. SEA
ME	Bradley Public Schools	TASH Conference and Maine SEA
MICH	Ida Public Schools	Midwest Regional Center for Deaf/Blind
	Traverse Bay Intermediate School District	

Table 2 (Continued)

STATE	SITES	SOURCE
MINN	St. Paul Public Schools Monticello Public Schools	Midwest Regional Center for Deaf/Blind
MS	Jackson Public Schools	Southeast Regional Center for Deaf/Blind
NEB	Lincoln Public Schools Grand Island Public Schools Omaho Public Schools	Neb. - SEA " "
NY	N.Y. Institute for Education of the Blind - Bronx	Mid Atlantic Deaf/Blind Regional Center
NJ	Woodbridge State School -Rayway	Mid Atlantic Deaf/Blind Regional Center
OHIO	Toledo Public Schools	Ohio State Center for Deaf/Blind
OK	Idabel Public Schools Oaklahoma City Public Schools Putnam City Public Schools Tulsa Public Schools	OK. SEA " " "
OR	Teaching Research - Monmouth Portland Regional Program for the Deaf Jackson Education Services District - Medford Clackamas Educational Services Marion Education Services District	Oregon Deaf/Blind Center " " and Oregon Research Insti Oregon Deaf/Blind Center
PA	Pittsburg Public Schools Philadelphia Public Schools	Penn State Center for Deaf/Blind
TX	Tuloso-Midway Indep. School District El Paso Independent School District Arlington ISD Region X Education Service Center Fort Worth ISD Judson ISD Region XX Education Service Center	Tx. SEA "
VA	Montgomery County Public Schools Shenandcah County Public Schools Fairfax County	VA. SEA " " "
VT	Central Vermont School Districts	OSE funded site

Table 2 (Continued)

STATE	SITE	SOURCE
WA	Shoreline Public Schools	OSE funded site
	Lake Washington School District	"
WI	Racine Public Schools	Midwest Regional
	Oshkosh Public Schools	Deaf/Blind Center
	Madison Public Schools	TASH Conference

Table 3

Site Selection Summary

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Birmingham City School District Birmingham, Alabama	5 D/B 75 SPMR	5-21	9 Schools - Elem. (16 Classes) Robinson 306 1-5; (D/B stdts) Comer 104 K-5 Hill 321 K-8 Huffman 358 K-8 Lewis 569 K-8 Martin 272 K-4 Minor 204 1-5 Price 218 1-5 Sherman Heights 447 K-8	49,488	3,500	100 Schools K - 12 77: elementary 23: secondary	Robinson 105 Comer 0 Hill 178 Huffman 0 Lewis 300 Martin 70 Minor 120 Price 30 Sherman Heights 95
George Miller East Development Center A coop. program between Contracosta County Sup. of Schools and Pittsburg Unified S.D. Pittsburg, Calif.	6 TMR Program operates on regular school campus but in an isolated portable unit on campus grounds.	6-9	1 elem. school K-5 500 students	6,020		11: K-12 6: K-5 2: 6-8 2: 9-12 1: Adult Center	

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
San Francisco State University & San Francisco Public Schools San Francisco, California OSE Model Site RFP 80-50	8 SH Other sites to be finalized	Preschool age	Jose Ortega K-5	61,734		109 Schools in 4 areas 80: elementary 29: secondary	
*Alachua County School District Gainesville, Florida	*Students moved into self-contained nonintegrated school.			Alachua County S.D. 21,572	3,668	34 Schools 20: elementary 14: secondary	8
Orange County School District Orlando, Florida	40 SMH & SMR	3-18	Hungerford Elem. K-6 310 Pine Castle Elem. K-6 387	81,851	10,772	107 Schools 73: elementary 34: secondary	Hungerford Elem. 113 Pine Castle Elem 0
*Jackson County Public School District Marianna, Florida	* The program is not integrated with nonhandicapped students. Severely handicapped are served with other handicapped students in a tricounty segregated program.			Jackson City School District 8,331	884	16 Schools 9: elementary 7: secondary	54

Table 3 (Continued)

ible	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
of ooper- Hawaii tment n awaii ite	49 SMH, D/B, SPMR	3-18	5 Schools in 3 LEAs LEA . School Hilo: DeSalvia 357 Waimea 616 Winward Oahu: Kainalu 723 Kaimalu 982 Honolulu: Jarret Int.-508	 Hilo: 18,763 Winward Oahu: 23,343 Honolulu: 44,665		Total in 3 LEAs: 123 schools Hilo: 31: 19 elem. 10 sec. 2 adult Winward Oahu: 31: 23 elem. 7 sec. 1 adult Honolulu: 61: 45 elem. 15 sec. 1 adult	
hip High rict in with ea Dept. Education llinois	33-35 SMH	16-21	Lyons H.S. (No. Campus) 2,340	SMH Program serves 3 High School Dist. Lyons Twp: 2,340		Lyons: 1: 9-12 1: 11-12	Lyons High School: 0

(Continued on next page)

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Lyons Township (con't)				Hinsdale Twp: 4,306 Riverside-Brookfield: 1,716		Hinsdale: 2: 9-12 Riverside-Brookfield: 1: 9-12	
Northern Illinois University DeKalb in cooperation with DeKalb Co. Spec. Ed. Assoc. DeKalb, Illinois OSE Model Site RFP 80-12 Regional Program Serving 10 LEAs	24 in public school settings & community programs 50 in residential & community programs	6-21	DeKalb: Senior High: 1,404 Little John Elem: 385 Notre Dame OCSEA Residential Facility: 50	For 10 LEAs in DeKalb County: 12,905 LEA enrollment: Genoa Kingston: 1.273 Shabbona: 503 Hiawatha: 635 Sycamore: 2,555 DeKalb: 3,965 Hinckley Big Rock: 954 Sandwich: 1,590 (Continued on next page)	For DeKalb District: 650 approx. 1,859 served by DeKalb County Special Services	DeKalb District 7: K-5 2: 6-8 1: 9-12	DeKalb Senior High: 0 Little John Elem: 30

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Northern Illinois University Dekalb in cooperation with DeKalb Co. Spec. Ed. Assoc. (con't)				Waterman: 361 Somonauk: 716 Malta: 353			
Hammond City School District Hammond, Indiana	3 D/B	9, 12 & 15 years of age	Wallace School K-6 Elem. 528	16,898	1,800 - 2,000	24 Schools K-12 19: K-6 or K-8 2: 7-12 3: 9-12	
*Bradley Public Schools Bradley, Maine *Program being moved to another district. Regional program serving several districts	4 SMR	6-9	Viola Rand Elem. School (K-8): 200 st. Bradley, ME			Bradley: 1: K-8	
Fort Wayne Community School District Fort Wayne, Indiana	5 D/B 6 SPMR	Under 12	Brentwood Elem.: K-6 331 Hogland Elem.: K-5 469	37,120	3,000 approx.	61 Schools	

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Wayne-Westland Community School Dist 31627 Palmer Road Westland, MI 48185 Catchment program for 5 LEAs	27 SMI/SXI 50 TMR (under 39 IQ)	6-12	3 classes: SMI/SXI: Kittering Elem: K-6 557 TMR Program: 8 classes Roosevelt-McGrath: K-6 429 Elliot: K-6 546 Hamilton: K-6 438 McKee: K-6 251 Hoover: K-6 298 Franklin Jr. H.: 7-9 1,140 Stevenson Jr. H.: 7-9 1,379	19,960	1,721 (w/speech)	31 schools 23: elementary 8: secondary	Kittering 58 Roosevelt-Mcgrath 0 Elliot 82 Hamilton 0 McKee 0 Hoover 38 Franklin Jr. H. 40 Stevenson Jr. H. 0
Marquette-Alger School District Marquette, Michigan Helen Schipman	14 SP Served in parochial setting. Lutheran Church - not a school	3-16	Redeemer Lutheran Church	5,160	686	10 schools 6: elementary 4: secondary	

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
East Lansing School District East Lansing, Michigan	1 D/B 7 mod.→severe 9 mod.→severe	 3-5 5-10	Pinecrest Elem. School K-5 365	4,834	250	12 schools 9: K-5 2: 6-8 1: 9-12	Pinecrest Elem: 0
Traverse Bay Inter. School District #1 Traverse City, Michigan	60 MH mod. →severe	3-21	Traverse City School District Cherry Knoll Elem. School K-6 437	Serves 5 counties 21,924 in 5 counties Antrium: 3,893 Ben Zie: 2,722 G. Traverse: 11,319 Kalkaska: 1,855 Leelanau: 2,125	Traverse Bay Intermediate District serves all handicapped students ages 0-25 in the 5 county area: 1,384 students	Antrium: 15 Ben Zie: 7 G. Traverse: 22 Kalkaska: 5 Leelanau: 6	Cherry Knoll Elem: 90
Spring Lake Park School District 16 8000 Highway 65 Minneapolis, Minnesota 55432 (612) 786-5570	14 6	5-10 secondary age	Westwood Elem: K-6 420 Westwood Jr. H. 7-8 484	3,906	384	6 schools 4: K-6 1: 7-8 1: 9-12	Total district enrollment: 111 (grades 1-4)

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
St. Paul Independent School District St. Paul, Minnesota	75 MH incl. 8 D/B 125 MH incl. 4 D/B	3-5 6-12	Como Park Elem: 531	34,547	5,000	71 schools 48: K-6 23: secondary	Como Park Elem: 0
Willmar Public Schools 611 West 5th Street Willmar, Minnesota	15 MI 6 Severely Retarded (will be 10 students next year) 11 TMR 10 TMR	5-25 11-14	Layfayette Elem: 165 Willmar Jr. H.: 937 Willmar Sr. H.: 1,060	3,923	400 est.	11 schools 7: elementary 4: secondary	Total district enrollment grades 1-6: 311
Jt. Independent School District 287 1820 No. Xenium Lane Minneapolis, Minnesota 55441	200 TMR at Elem. sites 54 TMR at Sec. sites (of these approx. 30 are SPMH)	5-25	Elem. sites: 13 Sec. sites: 7		1,300 served by Jt. Ind. S.D. 287	LEAs: Bloomington Brooklyn Center Eden Prairie Edina Hopkins	Suburban middle class area

(Continued on next page)

Se LEAs

Table 3 (Continued)

ible	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
ndent con't)						Minnetonka Orono Osseo Richfield Robbinsdale St. Louis Park Wayzata Westonka	
blic 2889 E 68501	20-25 SMH 20-25 SMH	5-14 14-21	Hawthorne Elem.	27,5000	2,700		Hawthorne Elem: 0 Eligible urban center in low income area, but didn't apply.
School #1 raska			Fontanelle Elem. 640 Hartman Elem. 492	50,200		100 schools 74: elementary 26: secondary	Fontanelle Elem: 131 Hartman Elem: 0

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Grand Island Public Schools 318 So. Clark Grand Island, Nebraska 68801 Part of a 31 district cooperative. Grand Island serves low incidence spec. ed. populations.	6-7 21	5-8 9-20	Howard Elem. W. W. Connell- a special ed. public school (NH stds come here & SH go into community)	19,000 est. in 31 LEAs Grand Isl. 6,500 est.	1,850 served by 31 LEAs Grand Isl. 700 est.		Howard Elem.: 45 W. W. Connell: 0 (not eligible as it's Spec. Ed. school)
Woodbridge State School in conjunction with Woodbridge Public Schools Woodbridge, New Jersey	26 D/B, SMH	6-21	Lynn Crest School Avenel, N.J. K-6 355	15,267	1,500 approx	28 schools K-12 20: K-6 7: 7-9 3: 10-12	Lynn Crest Elem. 0

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Albuquerque Public School District P. O. Box 25704 Albuquerque, New Mexico 87125	200 SPMR	5-12/13	Altrisco Elem. (K-5) 324 st. McCollum Elem. (K-5) 341 SA	74,412	9,700 (including 1,117 speech)	115 schools 75: elementary 40: secondary	Atrisco Elem: 272 McCullum Elem: 65
	60-70 severe comm, disordered/ autistic	5-10/11	McArthur Elem. (K-5) 261 st.				McArthur Elem: 0
Wake County School District P. O. Box 28041 Raleigh, North Carolina 27611	10 SP 2 classes	6-17	Garner Elem. (K-6) 893 Lignon Jr. H. 996	54,436	4,800	85 schools	Garner Elem: 117 Lignon Jr. H.: 164
Forsyth County School District 920 W. Eleventh St. Winston Salem , North Carolina 27102	16-20 SP 2 classes	6-11 12-21	Cook Intermediate Grades 5-6 309 st.	43,800	5,703 (of these 1,810 gifted 1,226 speech)	66 schools	Industrial & suburban area. Large middle & upper class Cook Interm: 60

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Rowan County Box 428 East Spenser, North Carolina 28039	S/P 2 classes		No. Rowan Middle grades 5-8 749 st.	14,411		23 schools 15: elementary 8: secondary	No. Rowan Middle School: 53
Albemarle City School District 1813 E. Main Albemarle, North Carolina 28001	S/P 1 class		East Albemarle School (K-6) 321 st.	2,399 st.	under 50 est.	6 schools 4 (K-6) 1 (7-8) 1 (9-12)	East Albemarle School: 60
New Hanover County 3702 Princess Pl.Dr Willmington, North Carolina 28005	20 students 3 classes	Most are 5-8 yrs. old but range 5-17	William H. Blount Elem: (K-4) 504 st.	20,912	2,000 (of these 800 speech)	32 schools 22: elementary 10: secondary	Blount Elem: 50

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Toledo City School District Toledo, Ohio	40 approx. including autistic, D/B communic. disordered	6-12	Washington Elem: 219 Old Orchard Elem: 580 Oakdale Elem: 823 Larchmont Elem: 362 Devilbiss H. S.: 1,550 Libbey H. S.: 1,650	48,151	4,752	79 schools (K-12) 59: K-5, 6 or 8 20: secondary	Washington: 85 Old Orchard: 0 Oakdale: 85 Larchmont: 0 Devilbiss H.S.: 0 Libbey H. S.: 0
Marion Education Services District 3180 Center St. N.E. Salem, Oregon 97301 Program serves 34 districts	13 approx. SPMR within TMR program	6-19 6-10 6-10 6-10 11-12 14-19	SPMR students are within TMR program 5 classes in 4 LEAs: Jefferson Elem.- Jefferson Stayton Hi. - Stayton St. Mary Elem.- Mt. Angel Woodburn Middle - Woodburn Woodburn High Woodburn	35,825 served in Marion County	581	74: elementary 9: middle 15: high	Large rural area 100 mi. in diameter. Blue collar Jefferson Elem: 215 Stayton Hi.: 50 St. Mary Elem.: 32 Woodburn Middle: 45 Woodburn Hi.: 0 (last year - 28)
Monmouth, Oregon	6 SH 7	7-13 14-16	Campus Elem.: Talmidge Jr. Hi.:				

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Jackson Educ. Services District Medford, Oregon	55 mod.→severe	0-21	Program in 4 LEAs (1 class per site) 5-8 stdts	Regional program serving 10 LEAs:	Jackson Spec. Ed. District serves 700 approx.	10 LEAs:	
		5-10 (interm. Jr. H.)	In Medford 549	Total # of students: 24,400		Ashland-Dist.5: 8 schools	
			Jefferson: K-6 447			Butte Falls SD91: 3 schools	Jefferson: 40
			Oak Grove Elem.: 276			Jackson Co. SD6-Central Pt: 8	Oak Grove: 35
			McGloughlin Jr.H.: 817			Medford: 18	McGloughlin: 50
		6-17	In Central District 6:			Phoenix SD4: 4	
			Sams Valley Elem.: K-6 168			Pinehurst SD94: 1	Sams Valley: 50
			In Eagle Point Dist. 9:			Prospect SD59: 2	
			Little Butte Interm.: 4-6 360			Applegate SD40:	Little Butte: 20
			In Ashland S.D.:			Rogue River SD35:	
			Ashland Sr. H.: 10-12 712			Jackson Co. SD9 - Eagle Pt: 8	Ashland: 0

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Portland Public Schools Child Service Center 220 NE Beech Portland, Oregon 97212	31 M.H. with sensory impairments (D/B, DMH, BMH) 20	3-21	Briger Elem.: (4 classes) K-6 293	Portland: 55,631	4,800 (with speech)	Portland: 16 schools	Briger Elem.: 0
Regional program serving 48 districts	11		Mt. Tabor: (2 classes) 6-8 423				Mt. Tabor: 132
	24 autistic students	6-10	Creston: (3 classes) K-5 462				Creston: 0
			Clark: (1 class) 459				Clark: 0
			Grant H.S.: (1 class) 8-12 1,529				Grant H.S.: 304
Mill Creek S.D. Mill Creek, Pennsylvania	9 SH		Grandview Elem.: 787 (with 125 Sp.Ed.) McDowell Interm. High School: 1,359	7,468	450	11 schools 7: elementary 4: secondary	Grandview: 56 McDowell Int: 0

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Philadelphia Public Schools Philadelphia, Pennsylvania	535 SH	5-21	36 schools Elem. - H.S.	244,723	23,000 approx.	313 schools	
Butler Area S.D. 167 New Castle Road Butler, PA 16001	11 SPH	5-21	West End School: (1 class) K-6 227 Butler Area Sr.H.: (1 class) 11-12 1,717	10,586	813 (with speech)	18 schools	West End School: 60 Butler Area Sr.H 0
Tuloso Midway I.S.D. 9760 Labranch Corpus Christi, Texas 78410	1 DBMH	12 years old	Clarkwood Elem: K-4 135 st.	2,499	400 est.	4 schools: 3: elementary 1: secondary	Clarkwood Elem.: 61
Region XX Ed. Service Center 1550 N.E. Loop 410 San Antonio, Texas 78209	16 D/B	adol.	Regional Technical Assistance Program for 120 districts. Not operating SP programs directly within a public school setting. Recommended public school programs to contact.				

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
El Paso Indep. S.D. Box 20100 El Paso, Texas 79998	12 autistic & students	6-19 (most of elem.age)	General McArthur Elem: (2 classes) Burgess H.S.: (2 classes)	61,298	6,000	65 schools (4 area S.D.'s)	McArthur: 139 Burgess: 314
Fort Worth Indep.S.D. Spec. Ed. Dept. 3210 W. Lancaster Fort Worth, Texas 76107	14 M.H. 17 D/B	7-12 11 months -14 years	Bruce Shulkey Elem: (2 classes) Alice Carlson Elem:	69,209	9,918	109 schools	Shulkey: 0 Carlson: 0
University of Vermont & Barre City & Barre Town School Districts Burlington, Vermont OSE Model Site REP 80-12 Regional program for districts in central Vermont	Barre City: 13 autistic/MR 7 TMR (for Fall '81)	7-21 15-17	Mathewson Elem: K-5 192 Spaulding H.S.: 9-12 1,417	Central Vermont school population: 13,400 approx. Barre City: 2,680	Barre City 2,680	Barre City: 5 schools elem. & sec.	

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
University of Washington in Cooperation with Fircrest Residential School & Shoreline Public School District Seattle, Washington OSE Model Site RFP 80-05	16 D/B	8: under 12 8: 12-21	Fircrest Residential School: 400 Maxin School-special public school: 156 st.	Fircrest serves 400 Shoreline SD: 11,365	Shoreline SD: 657 (including 112 speech)	21 schools	
Lake Washington Sch l District #4 K [illegible] Washington OSE Model Site RFP 80-51 (community model)	32 SH	13-21	2 Special Public Schools Gordon R. Hauck Special Ed. Ct. Hauck Vocati. Annex Plus community placement	16,894	1,082 (including 244 speech)	29 schools 19: elementary 10: secondary	
Judson Indep. School District Box 249 Converse, Texas	Their program for severely handicapped has been moved to a segregated special education center.			8,127		11 Schools 8: elementary 3: secondary	

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings	Age Ranges	# & Size of Site Schools	Total # of Students Served in LEA	Total # of Handicapped Served in LEA	# of Schools in LEA	Title I Enrollment of Site Schools
Milwaukee Public Schools 5225 W. Vliet St. Milwaukee, Wisconsin 53208	Mod.→severe 20 300	 3-6 6-21	2 Elem: 65th Street: 274 78th Street: 480 2 Middle: Moorse: 690 Autobahn: 741 Fritchie: [illegible] 3 Senior: Custer: 2,275 Riverside: 1,388 Hamilton: 2,371	97,207	9,000 est. (with speech)	147 schools: 118: elementary K-5, 6 29: High 7-12	Middle & low middle urban 65th Street: 0 78th Street: 0 Moorse: 0 Autobahn: 0 Fritchie: 0 Custer: 0 Riverside: 318 Hamilton: 0
Madison Public Schools Madison, Wisconsin	100 SPMR	3-21	Mendota Elem: K-5 246 Glendale Elem: K-5 313 Van Hise Elem: K-5 294	27,538	2,000	45 schools	Mendota: 97 Glendale: 52 Van Hise: 0

(Continued on next page)

Table 3 (Continued)

Responsible Agency	# of Severely Handicapped Students in Integrated Settings *	Age Ranges *	# & Size of Site Schools +	Total # of Students Served in LEA +	Total # of Handicapped Served in LEA *	# of Schools in LEA +	Title I Enrollment of Site Schools o
Madison Public Schools (con't)			John Muir Elem: K-5 377 Samuel Gompers Middle School: 6-8 720 Herbert Schnenk Middle School: 6-8 254 J. Madison Mem. H.S.: 9-12 1,894 LaFollette Sr. H.S.: 9-12 106				John Muir: 69 Samuel Gompers Middle: 0 Herbert Schnenk Middle: 0 J. Madison Mem. H.S. 0 LaFollette Sr. H.S. 0

Sources of information:

* : LEA contact person

: Curriculum Information Center Directory published by Curriculum Information Center, Westport, Conn., 1979.

o : SEA or LEA Title I Coordinators

willingness to participate in the project, a detailed, individualized letter was prepared summarizing the discussions that had been held and detailing specific data collection procedures, timelines and responsibilities. Following receipt of this letter, sites indicated whether a final commitment to participate could be made. A copy of such a letter is attached in Appendix A. In this manner the selection of our 14 districts was completed.

These 14 sites included 13 school districts and one public institution for the mentally retarded. The sites were located in four regions of the country--the Northeast, South, Midwest and Northwest and represented a range of communities including suburban, urban and rural areas. These locations also varied in size and socioeconomic characteristics as Table 4 reveals.

Within these sites integration with nonhandicapped students ranged from mere physical presence within the same building to special programs designed to foster interactions between handicapped and nonhandicapped students within school or to foster integration of severely handicapped students into community environments. Within this range the amount of integrated time and the type of integrated activity varied considerably.

III.II SUBJECTS

In all cases school systems were asked to identify their most severely handicapped students as potential participants using as criteria the federal definition and AAMD descriptions of adaptive behavior of severely retarded students described below. Using materials prepared by ETS, each system then sent a letter to parents or guardians of prospective students explaining the purpose of the study and requesting permission for their child's participation. Parents were told that their child would be observed during school hours and their child's assessment and program records would be reviewed. Parents were also asked to participate in an interview to discuss their child's program. The interview, however, was not conducted due to lack of SEP clearance. Parents were assured that the identity of their child would be protected and that their participation was voluntary. All data was collected and analyzed using numerical identification numbers assuring complete anonymity to all subjects. Parents who were willing to have their child participate then returned signed consent forms to ETS. ETS in turn sent copies of these permission slips to each participating district.

Nonhandicapped students were selected according to their opportunity for contact with severely handicapped students to form contact or no-contact groups. Students in the target schools who were known to interact with severely handicapped students or had the opportunity for such interaction were identified by teachers of severely handicapped students within each site as potential participants for the contact group. Students in schools that did not have severely handicapped students were randomly selected as potential participants for the no-contact group. The process

Table 4

Integration Evaluation Site Demographics

Site	Region	Community	District Enrollment
Birmingham Public Schools Birmingham, Alabama	South	urban	49,488
DeKalb County Special Education Association DeKalb, Illinois	Midwest	rural	13,487
LaGrange Area Department of Special Education and Lyons Township High School District 204 LaGrange, Illinois	Midwest	suburban	10,124
Spring Lake Park Public Schools Spring Lake Park, Minnesota	Midwest	suburban	4,210
Grand Island Public Schools Grand Island, Nebraska	Midwest	rural	6,172
Lincoln Public Schools Lincoln, Nebraska	Midwest	suburban	25,466
Jackson County Education Service District Medford, Oregon	Northwest	rural	25,000
Philadelphia Public Schools Philadelphia, Pennsylvania	Northeast	urban	225,805
Barre City Public Schools Barre, Vermont	Northeast	rural	2,271
Southwest Vermont Supervisory Union Bennington, Vermont	Northeast	rural	4,769
Lake Washington School District 14 Kirkland, Washington	Northwest	suburban	17,487
University of Washington and Shoreline School District and The Fircrist School Seattle, Washington	Northwest	suburban	11,365 (Shoreline)
Tacoma Public Schools Tacoma, Washington	Northwest	suburban	27,000
Madison Metropolitan School District Madison, Wisconsin	Midwest	suburban	23,232

for obtaining parental permission and confidentiality was the same as described for severely handicapped students.

III.II.A Severely Handicapped Students

245 severely handicapped (SH) students ranging in age from 3 to 22 years participated in the study. 54% were male. Students were identified as potential participants by their respective school systems according to the federal definition of severely, multiply handicapped previously quoted.

To provide sites with additional information which would enhance selection of severely handicapped students they were provided with the AAMD descriptions of independent functioning and social behavior representative of profoundly or severely handicapped individuals at different chronological ages. According to the American Association on Mental Deficiency Manual on Classification and Terminology, a severely retarded person would have severe impairments in adaptive behavior and a measured IQ between 20 and 36. Using impairments in adaptive behavior as a general guideline, we might conclude along with AAMD that persons would be severely handicapped as long as they were dependent on others for assistance in adaptive functioning. For example, in the areas of independent functioning and social skills, a person would be classified as severely handicapped if that person could not perform the following behaviors by the indicated ages.

Age	Independent Functioning
3 years	Attempts finger feeding, cooperates in dressing, bathing and toileting.
6 years	Tries to feed self with spoon.
9 years	Feeds self with spoon, drinks unassisted, indicates soiled pants or toilet needs.
12 years	Puts on clothing but needs help with zippers and buttons, can wash and dry hands.
	Social Behavior
3 years	Responds to others in predictable fashion, communicates needs by gestures, noises or pointing; occupies self alone with toys for a few minutes
6 years	Plays in parallel with others for short periods under direction, recognizes others and shows preferences for some persons over others.
9 years	Interacts with others in simple play activities, usually with one or two others unless guided into

group activity.

12 years participates in group activities and simple group games, interacts with others in simple fantasy play (e.g., "store", "house") and expressive activities (e.g., art and dance).

The population for whom parental or guardian's permission to participate was obtained represented multihandicapped and/or severely retarded individuals with pronounced deficits in the areas of language, mobility, self help, cognitive and community or domestic skills. These individuals required a high degree of assistance from others in order to function within a given domain with over 93% of the population functioning on a sensorimotor or preoperational level.

III.II.B Nonhandicapped Students

515 nonhandicapped (NH) students ranging from 4 to 18 years of age were administered the appropriate form of the Acceptance Scale (Voeltz, 1980, 1982). Of these students 328 took both pre and post school year attitude measures. Data analysis of student's attitudes was based upon students taking both pre and posttest. Of these students, 170 (125 females and 45 males) were selected by teachers of severely handicapped students as most likely to have contact with the severely handicapped students. 158 students (83 females, 75 males) were randomly selected from schools in which no severely handicapped students were enrolled.

III.II.C Confidentiality

All data collected and transmitted to ETS was specially coded to protect the identity of the district and all persons involved. The coding system that was devised nested various levels of information. A single digit represented a unique code for information at each of 5 levels. These levels were arranged in a hierarchial order and included identification of state, district, school, teacher and student data. Each level of information carried with it the unique code for all prior levels. Thus, the identification number for a district was two digits in length beginning with a digit for the state in which the site was located and followed by a digit for the specific district involved. In a similar fashion, the identification number for a particular target student was five digits in length beginning with the state code and ending with a digit representing the student. Such a coding system uniquely identified all information pertaining to a site. Confidentiality of all information was thus assured, while at the same time providing for consistency in record keeping and ease in merging information for data analysis. As data was being collected, any personally identifiable information was removed and replaced with an assigned identification number prior to transmission to ETS. Raw data was stored in locked files organized by identification number. All data was

entered and analyzed using these codes. A roster for each site containing target students' identification numbers, names, birthdates and sex were maintained in a separate locked file at the ETS Princeton office.

III.III CONTEXT SELECTION

In our model, integration in school represents an opportunity for social interaction between severely handicapped and nonhandicapped students and integration in the community represents this same opportunity for interaction with community people. Because we wished to observe students both within integrated and nonintegrated contexts, we asked teachers of severely handicapped target students who had the greatest knowledge of these students' school behavior to designate these contexts. In specifying the integrated context, we asked teachers to indicate the setting in which each student had the greatest number of, or opportunities for, interactions with nonhandicapped students in school or with nonhandicapped people in the community. These designated settings were used as integrated contexts for conducting observations of social interactions for each student. In a similar manner we asked these same teachers to indicate for each student the nonintegrated context in which each student had the most interactions or interaction opportunities with other severely handicapped students. Thus the selection of contexts for observation was individualized for each student and was based upon information supplied by those persons most familiar with these students social interaction opportunities in integrated and segregated contexts.

III.III.B.1 Data Collection Periods. - The study was conducted in two data collection periods. The first period covered October through December, 1981 and the second period covered March through May, 1982. Prior to the start of data collection activities, district administrators were sent summary descriptions of the evaluation project for distribution to school staff. These descriptions were intended to announce to principals and teachers the involvement of the district in this project and describe the kinds of data that would be collected in each school. The announcement indicated that a field worker hired by ETS would be responsible for collecting all data and would make every effort to minimize intrusion into the life of the school.

III.III.A Field Workers

Recruiting. A field worker was hired to collect data within each site. In all cases, the final selection was a decision arrived at jointly by the district and ETS staff. Each site was asked to nominate potential candidates for the field worker position. As it was not always possible to obtain candidates previously known to the district, field workers were also recruited by contacting college placement offices as well as advertizing

the position in local newspapers. Each candidate was asked to submit a resume and a writing sample. The writing sample was required since readability was a prerequisite to coding data in the central office for statistical analysis. Selected candidates were screened in a telephone interview by ETS staff. Since field workers would be interacting with various school staff in the course of their duties, it was very important that they have excellent communication and social skills, and that they recognize the sensitive nature of their presence on teachers and students. In addition, we sought information about field worker applicants which would convince us that they were conscientious, capable of generating and adhering to their own work schedule, and enthusiastic about observing severely handicapped students in schools and community settings. To assess these qualities a series of followup interviews were conducted with candidates who passed the screening interview. Additionally, references were contacted to provide personal evaluations. Final candidates were then proposed to the district. In cases where the person was unknown, districts were encouraged to conduct their own interviews. Once district approval was obtained, the field worker was then hired.

Training. A week-long training for field work staff was conducted in Madison, Wisconsin in the beginning of October, 1981. The Madison Public Schools had generously agreed to allow our field workers to conduct practice observations within school and community settings in which severely handicapped students were integrated. Each of the field workers had an opportunity to observe students from elementary through high school ages in a variety of integrated activities. Having an opportunity to use the observation systems in live settings accompanied by intensive preparatory and debriefing sessions, provided field workers with a sound basis to use these systems according to project standards in their own sites. In addition to receiving training in the observation systems, field workers were also trained in their other data collection responsibilities. Each field worker received a copy of the project's training manual containing a detailed discussion of all data collection activities.

On Site Familiarization. During the two weeks following training, field workers were given an opportunity to become familiar with their students and surroundings. During this time they conducted practice observations on their target students and received feedback from ETS to clarify questions relating to the use of the observation systems and/or other data collection responsibilities. During this time they also collected student schedules and obtained from teachers designations of contexts in which observations of social interaction should be conducted for each student.

Beginning October 26, 1981 field workers began collecting observational data in all sites except Philadelphia and Tacoma. Data collection was [illegible] those two sites due to local political situations. In [illegible]ia, the teachers' strike delayed the opening of school. In Tacoma [illegible]zation of special education services due to large staff reduction delayed commencement of project activities. As of November 23, 1981, data collection began in Tacoma. Observations of students in Philadelphia were begun on March 15, 1982.

Ongoing Feedback and Support. To maintain ETS standards and ensure the smooth transmission of data to ETS, a monitoring system was devised providing for weekly review of the progress of data collection activities in each site. Field workers were required to prepare a projected data collection schedule detailing on a daily basis the data to be collected for the entire data collection period. Each week written time sheets containing a daily listing of activities were submitted along with the data that had been collected during that period. Weekly review of data submitted and progress made in completing scheduled activities was the basis for providing feedback to field workers on the completeness and accuracy of their performance. Regularly scheduled weekly phone conferences were held with each field worker to provide feedback and to address any questions that had arisen. More frequent phone contact was made on an individual basis as needs arose. Project coordination was designed so that incoming calls from field workers or district administration staff would be responded to within the same day as calls were received. In addition to ongoing phone contact, periodic written instructions were sent to field work staff on both an individual and across site basis.

The strong emphasis on communication with field work staff ensured that they fulfilled their responsibilities in an accurate, professional and timely manner. An informal measure of this approach was the favorable feedback from district administration in all sites on the high level of professionalism exhibited by field work staff. In fact, several sites indicated an interest in hiring ETS staff following the completion of the project. On-site monitoring of the process of data collection was conducted through visits to participating sites conducted by project staff from the Princeton office. Within the first data collection period two visits were made to 10 of the 14 sites. Within 4 sites located on the West coast, transportation costs allowed that only one site visit occur within each data collection period. All sites were visited once during the second data collection period. At the time of each visit, a meeting was held with district administration to discuss the project's progress and respond directly to any questions or concerns. Additionally, time was spent with field work staff reviewing the progress of data collection and conducting joint oservations of target students using both observation systems. Prior to resumption of data collection activities in March of 1982, extensive communication occurred with field work staff and district administration. In the interim period, field work staff had been prepared through ongoing telephone contacts and written instructions. District administration and teaching staff were prepared for the beginning of the second data period through correspondence and discussions with the project director, Richard Brinker, followed up by direct contact with research assistants assigned to each site. As a result, the transition was made smoothly and without disruption to ongoing school activities. The system for monitoring data collection activities continued to be conducted through weekly phone contacts with each research assistant, weekly review of incoming data, periodic written instructions and on-site reliability visits.

The first week of data collection was spent collecting information on the amount of integrated time planned for each target student, reviewing contexts for observation and conducting practice observations on each target student. This information was reviewed and critiqued with each research assistant by Princeton staff to ensure maintenance of project standards. Actual observations were begun on March 8 with the exception of three sites in which replacement staff had to be hired and trained. These sites were Lake Washington School District (Washington), Jackson County Education Services District (Oregon), and Madison Metropolitan School District (Wisconsin). Training for these new personnel was conducted at one of the project sites (Tacoma, Washington) during the week of March 8. As two of the three research assistants were working in sites located on the West coast, it was most cost efficient to conduct the training in the state of Washington. The Tacoma public schools generously offered us the opportunity to use their classrooms for trial observations and the University of Washington project was most helpful in providing office space and video equipment to conduct didactic training. Following training the new research assistants began to work in their respective districts on March 15. The same process for initial transition to assumption of field work responsibilities was maintained with new staff. During their first week on site their data collection activities were closely monitored to ensure consistency and reliability of data collection standards. When assured that they were familiar with their school systems, target students and data collection activities, research assistants were permitted to begin actual observation.

III.III.B Interobserver Reliability

Joint observations were conducted in each data collection period. In the fall data collection period a total of 133 joint observations involving ETS Princeton staff and field workers were conducted. Seventy-five of the joint observations used the Interaction Observation System and 58 used the APPLE observation system. In the spring data collection period a total of 85 joint observations were conducted. Forty-three of these used the APPLE observation system while 42 used the Interaction Observation System.

The interobserver agreement data were obtained for the criterion variables reported in the subsequent analyses. Specifically, the average Pearson Product Moment Correlations between each field worker and the ETS criterion observers was obtained for the following measures:

1. The total number of interactive bids from the target student to other students or adults.

2. The total number of interactive bids from others to the target student.

3

3. The total number of interaction bouts. A bout is a continuous exchange of interactive bids between the same participants on the same topic.

4. The mean length of the interactive exchange.

The average of the correlations between observers for each of these measures is presented in Table 5.

TABLE 5--Average Correlations Between Rates Recorded by Field Workers and by Criterion Observers

	Average Pearson r	
	DC 1	DC 2
Total S bids to others	.88	.86
Total Other bids to S	.92	.95
Total Interaction Bouts	.81	.83
Mean Length of Interaction	.60	.88

Data Entry and Checking. After data were received and reviewed for accuracy and completeness, information was entered onto a VAX 10 minicomputer using the Forms Management System and Datatrieve (both Digital software products). This enabled the entry of data using a computer facsimile of the actual data collection forms. In addition, this facilitated editing of observational data where the syntax of the observation systems was violated or where complete information had not been provided. The data were subsequently transformed into specific data files and variables were defined for analysis using the SPSS and SPSSX statistical packages (Nie, Hull, Jenkins, & Steinbrenner, 1975; Hull & Nie, 1981; SPSS Inc., 1983). All observation data were initially entered at the level of individual student's daily observation sessions. At a later stage, data were aggregated by individual student across observation sessions. Other data pertaining to state, district, school, teacher and student variables were entered onto each target student's data file. At each stage of data entry and translation to data files the accuracy of information was checked by comparing records to the raw data. At least two independent checks at each stage of entry and analysis were conducted on all data to ensure accuracy.

Observational Data Collected. The study was designed to collect for each severely handicapped student a total of two hours and forty minutes of observational data in integrated settings and a total of one hour and twenty minutes of observations in segregated settings. Collection of this data was to be divided equally between both the fall and spring periods. Therefore, for each severely handicapped target student a total of two hours of observation were collected in the fall and two hours were collected in the spring. Each two hours of observation per student were composed of separate 10-minute observation periods conducted on different days. Observations were scheduled in this manner in order to obtain a representative picture of each student's behavior that would not solely

reflect atypical student behavior on a particular day. This composite picture we believed would be more representative of an individual target student's interactions than a continuous two hours of observation because such a composite captures the daily fluctuations in behavioral state which characterizes many severely handicapped students.

Exceptions to this plan arose in two sites, Barre, Vermont and Philadelphia, Pennsylvania. Due to data collection activities of another SEP funded project involving the same target students within the Barre City Public Schools, concern was raised by the school administration as to the potential negative effects on their students of a second outside presence. ETS agreed to collect only half the amount of data originally proposed. Therefore, a total of one hour and twenty minutes of observational data were collected in integrated settings and a total of 40 minutes of observational data were collected in segregated settings. In Philadelphia, due to a teacher's strike in the fall of 1981 which delayed school opening and engendered some tension within the district, data collection activities were not begun until March 1982. At that time it was agreed to limit all data collection activities including collection of observational data. Thus, for each student, only forty minutes of observations were conducted in integrated settings and twenty minutes were conducted in segregated settings. Within the remaining twelve sites, exceptions to the amount of planned observational time occurred on an individual student basis because of factors such as illnesses, change in residence, or conflicts in scheduling due primarily to the infrequency of occurrence of the designated setting. Nevertheless, for the large majority of students (n = 234 for the fall data collection period and n = 245 for the spring data collection period), the amount of observational data agreed upon with each site was in fact collected.

III.IV OBSERVATIONAL INSTRUMENTS

The central focus of the integration evaluation project was the description of integration in terms of opportunities for social interaction. Previous studies of integration of severely handicapped students have focused on policy and planning variables which facilitate integration (Stetson, 1980) but have not measured the amount of integration achieved. We have defined the amount of integration operationally in terms of the rate of interaction between severely handicapped and nonhandicapped students. Two observational procedures were developed to record the rate of interaction. Both provide three levels of information:

1. macroscopic overview of the location of the observation, the people present, and the organization of the environment

2. description of the specific social and physical context of the observation

3. microscopic view of the behavior of individuals relative to the severely handicapped target student and of the target student relative to others

The framework for development of the observational tools was provided by the APPLE system developed by Nadine Lambert and colleagues (Lambert & Hartsough, 1971; Lambert, Hartsough, Caffrey & Urbanski, 1976; Lambert, Hartsough, Converse & Converse, 1971). Lambert et al. (1971) adopted an ecological approach to data organization of events which happened in the daily lives of school children. They used narrative records of the "events" which happened to children in the classroom. Events were defined as behaviors of children plus a) the preceding behavior of others which were related to the target child's behavior, b) the consequent behavior of others to the target child, and c) the social and instructional context in which these behaviors occurred. These behavioral descriptions were recorded in simple narrative records which were then coded via an extensive lexicon. The lexicon evolved over a variety of educational evaluations which utilized the APPLE. The system was designed to reduce the use of inferential behavioral categories which might have restricted applicability to various school settings.

The APPLE was selected as a model for system development after careful examination of other observational systems which were a) not restricted to classroom use, and b) were capable of capturing peer-peer interactions. One major competitor to the APPLE was the Ecological Assessment of Child Problem Behavior (Wahler, House & Stambaugh, 1976). We selected the APPLE because the Wahler system is specific to children's behavior problems and the contingencies maintaining these behaviors. We anticipated that the severely handicapped children would often emit very low rates of behavior. Hence, the problem was to identify situations in which opportunities and encouragement for appropriate responses were given even though no response was emitted. We felt that an open ended system such as the APPLE would help to identify the contextual supports for responses (even in the absence of such responses) whereas the Wahler et al. (1976) system requires a clear behavior which is then categorized in terms of appropriateness. At the outset, the flexibility of the open ended APPLE system seemed advantageous for capturing a potentially wide range of educational practice.

Our modification of the APPLE system included the addition of a more detailed overview of the observational setting, focus upon a single target student and the social behavior in which he engaged, and coding of the identity of persons involved in the interaction. The system which we have called APPLE incorporates the narrative record format of antecedent-response-consequence units. The Interaction Observation System (Brinker, 1981) did not include narrative recording of what transpired

during an interaction but recorded the number of exchanges between participants within interactions. Due to the costs of data coding and reduction for the APPLE narrative records, only the Interaction Observation System data was analyzed for the current project. However, both systems will be described since two hours of data with each system were collected.

III.IV.A Overview Of The Observational Setting

Before an observer began observation of the target child that observer first completed the Observational Setting Checklist. This checklist provided a macroscopic overview of the location of the observation and the people present. The checklist is presented in Figure 3.

At the top of the Observational Setting Checklist, the school district participating in the evaluation is noted, in addition to the target pupil's identification number, the date of the observation, the observer, the hour and minute of the start and completion of the observation.

In the location column the number 1 was entered next to the mutually exclusive location category in which the target pupil was present at the beginning of the observation. If the location changed in the course of the observation, the observer coded the number 2 in the second location and the time at which the transition occurred. Changes were entered at the end of the observation. Up to three location changes could be recorded in the sequence in which they occurred. In addition the social setting of the room was described in terms of the people present and the size of the room.

III.IV.A.1 Adults Present. - The number of adults present of either sex were entered for each of the 14 adult role categories listed in Figure 3.

III.IV.A.2 Children Present. - Similarly, the number of children present by sex was noted. If the number of adults or children changed in the course of the observation, these changes and the time at which they occurred were noted on the Observational Setting Checklist when the observation period was completed.

III.IV.A.3 Location Size. - Location size refers to the physical dimensions of the observed area. Size was estimated in terms of the number of feet in length by width.

OBSERVATIONAL SETTING CHECKLIST

State | School District | School | Teacher | Target Child | Cycle

Date | Observer | Time Start | Time End

LOCATION ___ ___ ___

01	Special Classroom	___	11	Lavatory	___	20	Other Home	___
02	Regular Classroom	___	12	Playground	___	21	Work Place	___
03	Therapy Room	___	13	Hallway	___	22	Restaurant	___
04	Nurses Office	___	14	Other School Room	___	23	Store	___
05	Administration Office	___	15	Other School Grounds	___	24	Other Community	___
06	Lunch Room	___	16	Living Room	___	25	Bus	___
07	Library	___	17	Bedroom	___	26	Car	___
08	Auditorium	___	18	Bathroom	___	27	Street	___
09	Gym	___	19	Kitchen	___	28	Locker Rm.	___
10	School Shop	___				29	Pool	___

ADULTS PRESENT:	Male	Female		Male	Female
1. Teacher	___	___	8. Nurse	___	___
2. Aid	___	___	9. Parent	___	___
3. Administrator	___	___	10. Manager	___	___
4. Speech Therapist	___	___	11. Employee	___	___
5. Occupational Therapist	___	___	12. Customer	___	___
6. Physical Therapist	___	___	13. Other	___	___
7. Other Therapist	___	___	14. Reg. teacher	___	___

CHILDREN PRESENT:	Male	Female	Over 20
1. Non Severely Handicapped	___	___	___
2. Severely Handicapped	___	___	___
3. Selected Tutors/Friends	___	___	___

Location Size: ___ (feet) length x width

Figure 3. Observational Setting Checklist.

III. IV. B Organization Of The Environment

After recording who was in what environment the observer rated organization of the environment in terms of the ways in which people, materials and the physical setting were arranged (see Figure 4). The following elements were rated.

III. IV. B. 1 Material Density. - Material density refers to concentration of material within the observed area to which children had immediate access. The following scale was used:

1. Very few--materials are currently within the reach of most of the children within the class.
2. Half have materials--only half of the children in the class have materials within their reach.
3. One per child--every child has one kind of material within their reach.
4. Cluttered--most of the children have 2 or 3 kinds of materials within their reach.
5. Very cluttered--most of the children have 4 or 5 different kinds of materials within their reach.

III. IV. B. 2 Social Density. - Social density refers to the concentration of people within the observed area. Social density was rated using the following scale:

1. isolated--most of the children are more than five feet from any other children.
2. sparsely populated--50% or more of the people present are greater than an arms length from another person.
3. moderately populated--50% or more of the people present are within an arms length of only one other person.
4. crowded--between 50 and 75% of the people present are within an arms length of at least 2 other people.
5. very crowded--over 75% of the people present are within an arms length of at least 2 other people.

ORGANIZATION OF ENVIRONMENT

MATERIAL DENSITY:

1. No students have materials ____
2. A few have materials ____
3. Half have materials ____
4. Most have materials ____
5. All students have materials ____

SOCIAL DENSITY:

1. Isolated ____
2. Sparsely populated ____
3. Moderately populated ____
4. Crowded ____
5. Very crowded ____

NOISE:

1. Near silence ____
2. Quiet ____
3. Conversation level ____
4. Noisy ____
5. Very noisy ____

BRIGHTNESS CONTRASTS:

1. Uniformly dark ____
2. Uniformly bright ____
3. Light gradient without clear contrast ____
4. One clear contrast ____
5. More than one contrast ____

CLASSIFICATION OF MATERIALS IN LEARNING AREA

1. No grouping ____
2. Invisible grouping ____
3. 1-3 Visible groupings ____
4. 4 or more visible groupings ____
5. 4 or more visible and labelled ____

SPATIAL SEPARATION OF LEARNING AREAS:

1. None ____
2. 1 - 3 simple boundaries ____
3. 1 - 3 complex boundaries ____
4. 4 or more simple ____
5. 4 or more complex ____

MATERIAL ACCESSIBILITY:

1. No materials ____
2. Only within reach ____
3. Half of materials ____
4. Two-thirds of materials ____
5. Most of materials ____

AGE APPROPRIATENESS OF MATERIALS:

1. Infants and toddlers ____
2. Preschool ____
3. Elementary school ____
4. High school ____
5. Vocational/independent living ____

N.A. No materials available ____

Figure 4. Organization of the Environment.

III.IV.B.3 Noise. - Noise refers to the noise level in the observed area from either internal or external sources. One of the following dimensions will be selected:

1. near silence--no auditory stimulation is noticeable.
2. quiet--one could be heard by those within 10 feet by speaking softer than normal conversational level.
3. conversational level--one could be heard by those within 10 feet by speaking in normal conversational tones.
4. noisy--in order to be heard by those within 10 feet one would have to raise one's voice above the usual level.
5. very noisy--in order to be heard by those within 10 feet, one would have to shout.

III.IV.B.4 Brightness Contrasts. - Brightness contrasts refers to the number of bright and dark places in the observed area. One of the following scale items was recorded:

1. uniformly dark--the entire area is dark (i.e., reading for an hour anywhere in the room would normally strain one's eyes).
2. uniformly bright--the entire area is uniformly bright either from bright fluorescent illumination or bright sunlight.
3. light gradient without clear contrast--there is a well-illuminated part of the area and a less well-illuminated area but there is no distinct boundary between the light and dark parts.
4. one clear contrast--there is one well-illuminated area and one dark area with a distinct boundary between the two.
5. more than one contrast--there are several brightness contrasts including well il=lum=in=ated areas and dark areas with clear boundaries between the two (produced by light through the window, lamps, shades/curtains, and flourescent lighting).

III.IV.B.5 Learning Areas. - Learning areas refer to the way in which the observed area was organized for various learning activities. The dimensions range from clearly defined areas to areas without clear definition serving many purposes. A learning area is a place where a specific kind of learning about a particular subject matter or topic takes place. The topic or subject matter of a learning area should be obvious from the materials available. For example, a house area might have a stove, pots and pans, a refrigerator, a mirror, old clothes, a bed, a toy baby. Depending upon how clear the boundaries are between areas, the house

area might be two separate areas--a kitchen and a bedroom.

The learning environments were rated in terms of whether 1) materials were clearly grouped into types and 2) whether these groupings were clearly separated from other groupings. The importance of both dimensions (1. the overt classification of materials and 2. the spatial organization of these classifications) may not be readily apparent. However, these dimensions seem to occur independently. For example, in many preschool classrooms most of the puzzles are grouped together, the building blocks are grouped together, the kitchen toys/items are grouped together. However, these groupings are often not separated from each other by spatial boundaries such as bookcases or moveable partitions. Another example of clear classification often without clear separation of one classification from another would be found in a supermarket. Most of the same type of products are grouped together but the separation of one kind of product from another is usually not that obvious. A third example would be classrooms which are divided into areas by furniture, cabinets and other kinds of barriers, but which have no clear grouping of materials within areas.

Thus, rating of learning areas involved the following two scales:

1. Degree of classification of types of materials/-activities.
2. Degree of spatial separation or marking of classifications.

III.IV.B.5.a Materials Classification - The rating scale for degree of visible classification of types of materials was as follows:

1. No grouping--no visible grouping of similar materials in one place.
2. Invisible grouping--several kinds of materials in storage areas with some visible label/sign indicating what is in a closed storage area. Materials not visible.
3. 1-3 visible--three or fewer separate groupings of similar materials are visible but no signs or labels indicate the nature of the groupings.
4. 4 or more visible--four or more separate groupings are visible but no signs or labels indicate the nature of the grouping.
5. 4 or more separate groupings are visible and some of these are labelled with words, symbols, or pictures related to the grouping principle.

The concept of spatial separation of materials requires a certain agreement upon the definition of a boundary. Boundaries, for our purposes, were physical structures which divided space. Shelves, storage cabinets, curtains, partitions, walls, and different textures of floor coverings were typical boundaries. Boundaries involved one of these types of pnysical structures (simple boundaries) or a combination of such structures (complex boundaries). An example of a simple boundary would be a bookshelf placed perpendicular to a wall. An example of a complex boundary would be an area bounded by a bookshelf and wall which also had a change in floor covering. For example, carpet was in the three-sided area but linoleum was outside this area. Thus, complex boundaries involve at least two different physical structures which separate a space from the adjacent space. An area bounded on four sides with a clear entrance would be a complex boundary since in addition to two walls there would be at least two other physical structures to create the space. A mat or carpet in the middle of the floor would be a simple rather than complex boundary since the area is created by only one physical structure.

III.IV.B.5.b Spatial Separation Of Learning Areas. - The rating scale for spatial separation of materials is the following:

1. None--no clear spatial boundaries apart from the four walls in the room.
2. 1 to 3 (simple)--between one and three areas are defined by simple boundaries.
3. 1 to 3 (complex)--between one and three areas are defined by complex boundaries.
4. 4 or more (simple)--four or more separate areas most of which are created by simple boundaries.
5. 4 or more (complex)--separate areas at least 2 of which are created by complex boundaries.

All of the preceding ratings which have been described involved rating of the entire environment as it would impinge on anyone. The next two ratings were specifically in reference to the target pupil for the observation. The two environmental aspects rated relative to the target student were a) range of materials to which the target pupil had access at the time of the observation and b) the appropriateness of these materials to that child's chronological age.

III.IV.B.6 Material Accessibility. - Material accessibility refered to the variety of materials that were available to the target child during the observational period. That is, of the materials in the learning environment, what percentage of the materials would it be physically possible for the target student to touch if allowed to do whatever he/she wanted. The possibilities of that target student touching materials in the environment was rated rather than the actual materials which the target student was touching at the moment or which were nearby. Obviously target students with severe motor impairments would only be able to touch those few objects arranged immediately near their hands. Other severely handicapped students might be able to touch any of the materials availalbe in the classroom. However, if the materials were in a different room or in a closed cabinet then they would not be accessible even to the amubulatory severely handicapped student. Thus, rating the degree of accessibility involves knowing the physical mobility of the target student as well as the location of materials in the classroom. The following scale was used to rate the accessibility of materials to the severely handicapped students:

1. None--no materials are accessible to the target student.
2. Within reach--only materials placed within this target students reach are available to the student.
3. About half of the materials are available to the target student.
4. About two-thirds of the materials are available to the target student.
5. Most of the materials in the classroom are available to the target student.

III.IV.B.7 Age Appropriateness Of Materials. - This refers to the suitability of the materials accessible for the target child in terms of chronological age.

For example, a ten-year-old severely handicapped student may be working with puzzles or toys which were designed for much younger preschool children. Although such toys may be appropriate for the developmental level at which the handicapped student is functioning, they are not typical materials for nonhandicapped students of that age. In rating the chronological age appropriateness of materials the tasks and materials being used were compared with materials which nonhandicapped students as old as the target student would be engaged in this environment. Thus the rating was based on whether the available materials themselves were typical for children the age of the target child. The rating scale for the age appropriateness of the materials was as follows:

1. N.A.--not applicable since there are no materials accessible to the target student and rating of 1 was assigned above for material accessibility.

2. Infants--the accessible materials would ordinarily be used by infants and toddlers.
3. Preschool--the accessible materials would ordinarily be used by preschool and nursery school children.
4. Elementary school--the accessible materials would ordinarily be used by children in elementary school (ages 6-12).
5. High school--the accessible materials would ordinarily be used by students in high school (ages 13-18).
6. Pre-vocational/independent living--the accessible materials would ordinarily be used by people independently living in and holding jobs in the community.

III.IV.C Immediate Context.

After completing the Observational Setting Checklist the field workers set their alarm chronographs for 11 minutes after the present time. During the next minute they provided information on the immediate interactive setting of the target student they were observing. The purpose of the context section was to provide information on the extent of individualized instruction for the target student and the nature of the working relationship of the target student to the teacher and other people in the environment. The immediate context section of our data sheet is shown in Figure 5.

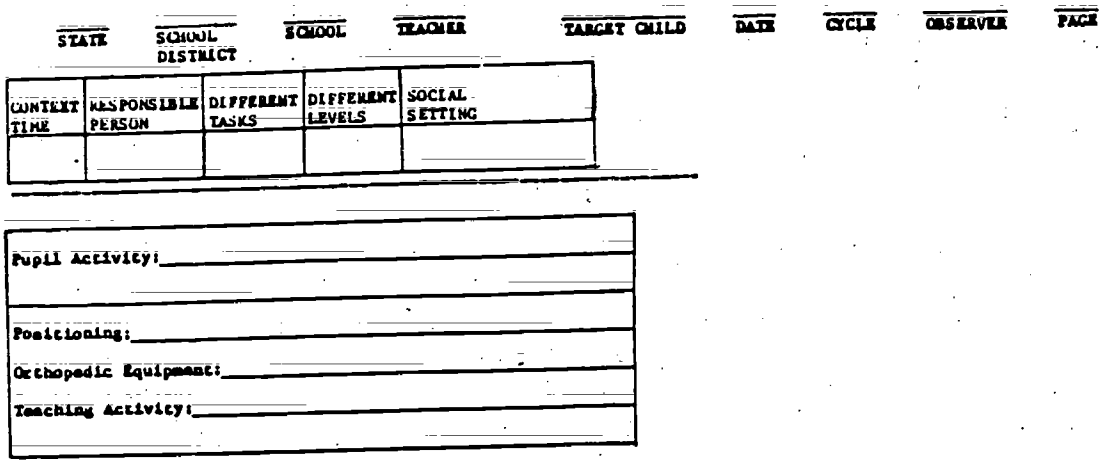

Figure 5. Immediate context information.

The time of day at which a context began was entered in the top box on the left-hand side. New context information was entered whenever a context changed and the new time was entered when such changes occurred. The target pupil's task relative to others in the group and the target pupil's location in the social setting was recorded using predefined codes described below. The categories were assigned based on answers to the following four questions.

III.IV.C.1 Responsible Person. - Who is responsible for the target pupil's activity? The question of responsibility refers to specific interactive behaviors with the target pupil. Thus, while the teacher has continual responsibility for many daily activities, we are referring to responsibility as it has been assigned in the interactions which occur during school. The following mutually exclusive codes can be entered: 1. T -- teacher; 2. Th -- Therapist; 3. A -- aide; 4. OA -- other adult; 5. HM -- a severely handicapped male student; 6. HF -- a severely handicapped female student; 7. NM -- a nonhandicapped male student; 8. NF -- a nonhandicapped female student; 9. I -- the target pupil on his/her own.

III.IV.C.2 Differentiation Of Task. - To what extent is the target student's task the same kind of task as the other children's in the environment? The task is the activity and materials with which the target pupil is engaged.

1. I -- target pupil's task is different from all other children's tasks
2. G -- target pupil's task is the same as at least one other child's task but not the same as the whole group's task
3. C -- target pupil is involved in the same kind of task as the rest of the children present

III.IV.C.3 Differentiation Of Task Level. - To what extent is the target pupil engaged in a task at the same level as others in the group who are involved in that task? The level of the task is the extent of use of materials or performance of the activity. For example, at lunch all students may be involved in the same task: eating. However, the target student may be getting physical guidance by the teacher to get the food from the plate to his mouth. This would be a different level from eating independently. Levels of a task will be indicated using the following codes:

1. I -- the level of a target student's involvement in a task is completely different from anyone else's involvement in the task
2. G -- two or more students (but not all the students present) are involved in the task at the same level of difficulty as the target pupil
3. C -- all children are involved at the same level of the task

III.IV.C.4 Social Setting. - What is the social setting for the target pupil's behavior? This refers to the group structure of which the target student is a member when a specific event was observed. The group is a collection of individuals engaged in a common activity or clearly distinguishable through spatial proximity. The relevant codes are:

1. I -- the target pupil is alone
2. HM -- the target pupil is with at least one severely handicapped male
3. HF -- the target pupil is with at least one severely handicapped female
4. H -- the target pupil is with both severely handicapped males and females
5. NM -- the target pupil is with at least one nonhandicapped male
6. NF -- the target pupil is with at least one nonhandicapped female
7. N -- the target pupil is with both nonhandicapped males and females
8. T -- the target pupil is with the teacher
9. A -- the target pupil is with the aide
10. Th -- the target pupil is with the therapist
11. OA -- the target pupil is with another adult

The above codes (with the exception of I) could be combined to characterize the group structure of which the target pupil was a part.

III.IV.C.5 Positioning. - The observer described the physical position of the target child relative to gravity (e.g., standing, sitting, laying) and the location of this position (e.g., in chair at work station, in parapodium at sink) within the room. These descriptions were later translated into the following codes: 1) lying; 2) sitting; 3) standing; 4) walking; and 5) other.

III.IV.C.6 Orthopedic Equipment. - This refers to any special equipment which a pupil was wearing or on/in which the pupil was positioned. If observers did not know the name of a specific piece of equipment they put a check next to orthopedic equipment and obtained the name of that equipment from the teacher after the observation. From these written descriptions numeric codes were later supplied to characterize the orthopedic equipment: 0) none; 1) leg braces; 2) helmet; 3) standing frame/parapodium/prone board/ standing table; 4) wheelchair; and 5) other.

III.IV.C.7 Teaching Activity. - This refers to the general topic of instruction in the group which includes the target pupil and the general method the "teacher" was using. If the target pupil is being taught individually or as part of a group, the topic and method of instruction was indicated. For example, "shopping in supermarket, verbally prompting children to select items by matching labels," or "putting pieces in a puzzle, physically guiding the child's hand."

The teaching activity is directly related to the person responsible for the target pupil's activity. If a nonhandicapped female (NF) was teaching the target student to swim by physically guiding him through the water, (NF) would be recorded under person responsible and the teaching activity would be described under the teaching activity box. If the student was responsible for directing his own activity and was not being instructed by anyone else, 'I' meaning self was recorded for 'person responsible' and 'NA, not applicable' was recorded for teaching activity. From the observer's written descriptions, ETS coders later supplied numeric codes to represent the teaching activity. The relevant codes are: 1) Caretaking; 2) Direct Physical Teaching; 3) Verbal Instruction; 4) Observing, Monitoring and Supervising; 5) Facilitation; 6) Playing and/or Conversing with Students; 7) Other Activity; 0) No Activity; and 8) Combination of Teaching Techniques.

III.IV.C.8 Student Activity. - The activity of the target student was described in behavioral terms. Activity descriptions included reference to the kind of objects with which a student was involved. Whenever the kind of objects changed, a change in student activity was recorded. For example, changing from a puzzle to coloring with crayons would be noted under pupil activity since this would involve a change in the kind of materials. Changing from coloring to looking around the room for a

prolonged period (more than 30 sec.) or to doing nothing would be noted as a change in target student activity. As in the case of teaching activity, the field worker's descriptions of the pupil's activity were later translated to numeric codes by Princeton coders. The following twelve codes were used to describe the activity in which the pupil was engaged: 0) Doing nothing/waiting; 1) Personal Living; 2) Domestic; 3) Work (Vocational or prevocational); 4) Community Contact; 5) Dyadic and Group Games; 6) Solitary Leisure/Play; 7) Preoperational School Readiness Tasks; 8) Sensorimotor Tasks; 9) Academic School Work; 10) Watching/Passive Attention (Listening); 11) Social Exchanges/Conversation; and 12) Other. A complete description of the codes for teaching activity and pupil activity are contained in Appendix C.

III.IV.D Interaction Observation System

The Interaction Observation System was used to record social bids (movements directed toward another person). The system was an event sampling procedure in which all behaviors of a specific type were recorded (Altman, 1974). The social interactions involving severely handicapped target students were recorded in a continuous fashion as they occurred. The recording system was designed to capture the number of exchanges between the target pupil and others in the environment. The quality of the behavior of each participant was also noted. A sample recording form is presented in Figure 6. On this form, the participants in the interaction are noted using the initials given in the previous description of the social setting.

III.IV.D.1 Beginning Of An Interaction -

An interaction begins in one of four ways: 1) the target pupil emits a motor movement when oriented toward another person within 4 feet; 2) another person emits a motor movement directed at the target pupil, 3) another person verbally or physically guides a 3rd person to interact with the target pupil; or 4) the target pupil emits a behavior which was not clearly directed to another person but another person reacts to it by directing behavior to the target pupil.

The interaction continues as long as it involves the same participants and the same topic. The target pupil must be involved in the interaction either as the person to whom the other participants direct their behavior or as the person who directs behavior to others. Participants were defined by: 1) being within 4 feet of the target pupil; or 2) being oriented with face and body towards the target pupil. Given these conditions, a participant's behavior directed toward the target pupil was recorded as part of an ongoing interaction if it involved the same topic as the ongoing interaction.

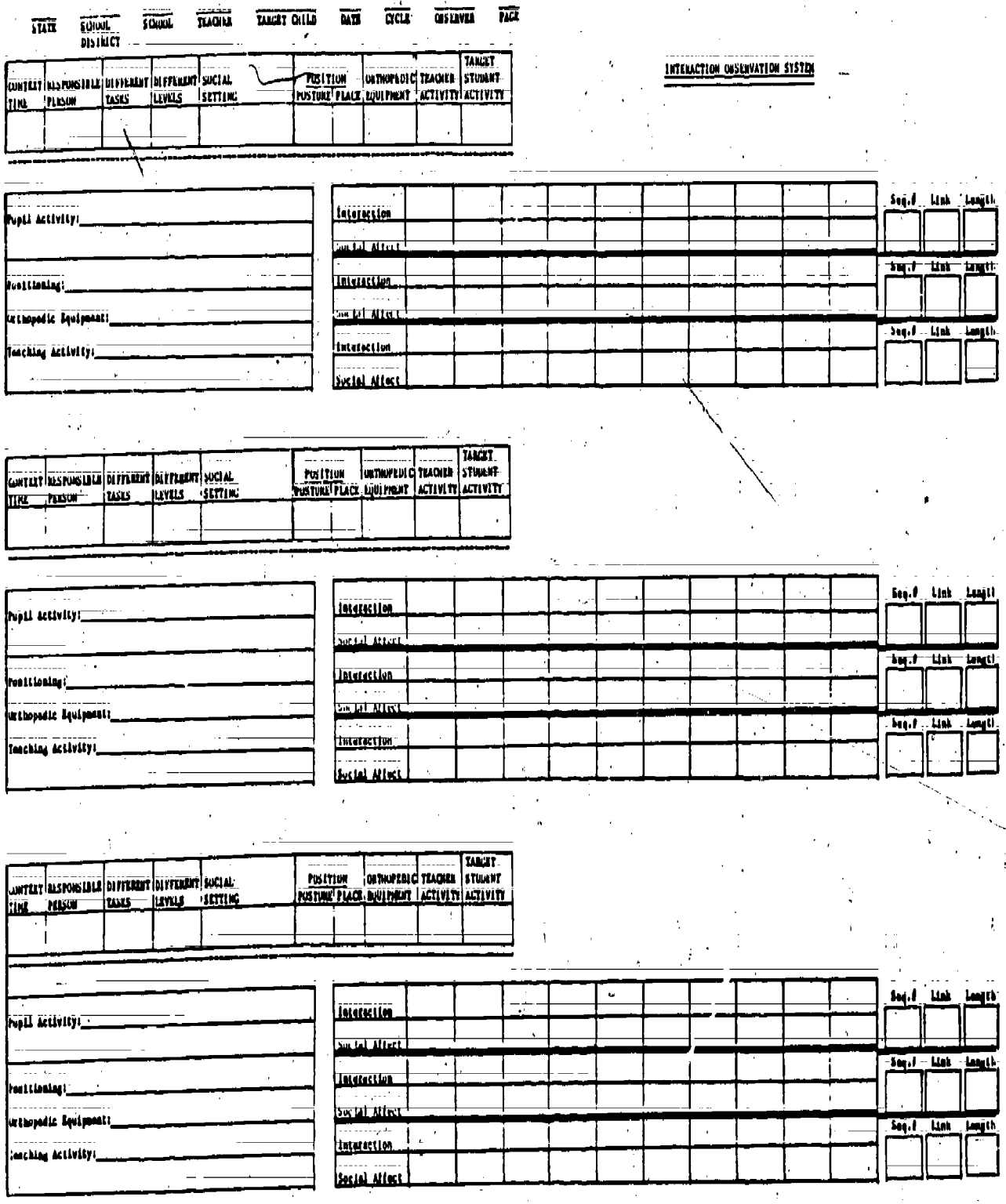

Figure 6. Interaction Observation System Record Form.

The topic of an interaction was defined by the materials being used and by the referents of verbal conversation. As long as the materials and/or referents were of the same generic class, the topic remained constant, e.g., within a cooking activity the materials are pots, pans, measuring cups, spoons, forks and various ingredients. These would all be considered part of the same generic class such that behavior involving these materials would be part of the same interaction. If the teacher had been directing the target pupil with these objects and then introduced a puzzle, a new interaction was coded.

III.IV.D.2 The End Of An Interaction -

An interaction ends when a new one begins or when after a reasonable time, there is no subsequent behavior directed by the target pupil to another person or by another person to the target pupil. We defined the time boundary for determining the end of a given interaction as 30 seconds after the behavior of the previous participant, e.g., if the teacher says, "look at me," remains silent for 30 seconds and obtains no response from the target pupil, then her next behavior directed towards the target pupil would constitute the begining of another interaction. We have chosen this long latency of 30 seconds to reflect the fact that patterns of behavioral exchange involving severely handicapped individuals can involve such latencies between behavior of the participants. Thus an interactio is made up of the exchange of social bids between two persons which continues as long as the same two people are exchanging bids in an uninterrupted manner about the same topic. In all analyses of interaction reported in the results section the rate of social bids constitutes the dependent measure.

III.IV.D.3 Interaction Observation System Record Form -

The basic context information is repeated 3 times per page. Whenever the context for the observation changes, that change was recorded in the next context box down the page. There was room for up to 9 sequences of interactions, each of which could involve 10 interaction opportunities. The observer uses as many pages as are required until the end of the 10 minute observation period.

Since these interactive events should always be recorded next to the appropriate context, each of the interaction lines on the form were not necessarily used, e.g., if the observation started out with only handicapped students, a teacher and an aide present, the context might be described as shown in Figure 7. The teacher approaches the target student and moves him closer to the sink. Nothing happens for several minutes, until three nonhandicapped students enter and one of them approaches the target student. This change of context is noted in the next context box. The nonhandicapped student says, "How are you doing, Walt?" and the target student smiles. This is the second interactive event and it is recorded as shown next to the appropriate context.

STATE | SCHOOL DISTRICT | SCHOOL | TEACHER | TARGET CHILD | DATE | CYCLE | OBSERVER | PAGE

INTERACTION OBSERVATION SYSTEM

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY
10:00	I	C	G	T,A, H					

Pupil Activity: None

Positioning: sitting on table

Orthopedic Equipment: wheelchair

Teaching Activity: row

			Seq.#	Link	Length
Interaction	T-S	S/NR	1		
Social Affect	0				
Interaction					
Social Affect					
Interaction					
Social Affect					

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY
10:08				TA, W, N					

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

			Seq.#	Link	Length
Interaction	NM-S	S-NM	2		
Social Affect	0	+			
Interaction					
Social Affect					
Interaction					
Social Affect					

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

			Seq.#	Link	Length
Interaction					
Social Affect					
Interaction					
Social Affect					
Interaction					
Social Affect					

Figure 7. Sample interaction as recorded on the Interaction Observation System.

An example of the use of the interaction observation system is provided by the following:

Context: The multiply handicapped class and a group of nonhandicapped children who have chosen to be friends to some of the multiply handicapped children are at McDonald's for lunch. The children are in line at the cash register waiting to place their order. The target pupil (Bill) is third in line and is being pushed in his wheelchair by a nonhandicapped friend (Mike). The context description appears in the coding boxes and the top context box of Figure 8.

Behavioral sequence: Mike says to Bill, "Is a Big Mac your favorite sandwich?" Bill smiles and looks at the Big Mac he is holding. Mike says, "I'm getting a Big Mac, too."

This sequence would be recorded in the first interaction sequence box as depicted in Figure 8. Mike's first statement was coded as a neutral behavior (O) and Mike is a nonhandicapped male so NM is used to identify him. Bill's response of smiling and looking at the Big Mac picture is coded as a positive response (+) for the target student (S). Mike then completes the exchange by telling Bill that he's ordering the same kind of sandwich.

Later Bill is placing his order with the McDonald's person at the cash register. The cashier says, "May I help you?" Bill moves his hand holding the Big Mac card. The cashier leans over and takes the card and says, "You want a Big Mac?" Bill smiles. The cashier says, "Do you want anything to drink?" Bill does not respond. Mike says, "We'll just have water." This interaction is coded as a neutral initiation (O) by an adult (O) followed by a neutral pupil response (S) of moving his hand followed by a neutral (O) adult response (O) (Do you want a Big Mac), followed by a positive student response, followed by a neutral adult question about drinks to which the target pupil does not respond.

At the table, Bill is eating his sandwich which has been cut into small pieces. The teacher says to Mike, "Would you give Bill a drink of water?" Mike offers the water to Bill, who moves his lips to the straw and drinks it.

For this interaction, the context has changed since the student activity, the teaching activity and the social setting have changed. The other adult (the cashier) is no longer in the social setting so social setting has been recorded from the point at which Bill took his order back to the table. This interaction is recorded in sequence 3 on Figure 8.

Since the teacher's behavior directs another child to do something with Bill, this is coded first. Such indirect behavior is coded only if it directs another person to the target pupil or provides another with feedback for doing something with the target pupil. Such indirect behavior should be circled as shown in Figure 8.

STATE | SCHOOL DISTRICT | SCHOOL | TEACHER | TARGET CHILD | DATE | CYCLE | OBSERVER | PAGE

INTERACTION OBSERVATION SYSTEM

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY
11:45	NM	C	G	H,NT A Q					

Pupil Activity: waiting in line to order sandwich

Positioning: sitting

Orthopedic Equipment: wheelchair

Teaching Activity: assisting in getting to cash register and placing order.

														Seq.#	Link
Interaction	NM-S	S-NM	NM-S											1	
Social Affect	0	+	0												
Interaction	O-S	S-O	O-S	S-O	O-S	S-NR								2	
Social Affect	0	0	0	+	0										
Interaction															
Social Affect															

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY
11:52				H,NT A					

Pupil Activity: Eating sandwich

Positioning: Sitting at Table in wheelchair

Orthopedic Equipment:

Teaching Activity: NM assists with eating as needed

														Seq.#	Link
Interaction	T-NM-S	S												3	
Social Affect	0	0													
Interaction															
Social Affect															
Interaction															
Social Affect															

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

														Seq.#	Link	Lev
Interaction																
Social Affect																
Interaction																
Social Affect																
Interaction																
Social Affect																

Figure 8. Sample Interaction as recorded on the Interaction Observation System.

III.IV.E APPLE Observational System

The APPLE observtional system is identical in design to the interaction observation system. Thus everything described thus far in terms of rating the observational setting, the immediate social context and the beginning and ending of interactions also apply to the APPLE. The only difference is at the level of recording individual interactive events. The APPLE system provides the same codes for recording the direction of interactions and the participants involved (e.g., S-NM, T-S, S-A). In addition to these codes the APPLE requires a narrative description of the action which was recorded as a social bid. Thus in describing an event using the APPLE the observer records 1) Who did it?, 2) To whom did they do it?, and 3) What did they do?

Events were recorded on the observation sheets in the antecedent, target pupil, consequence sections of the forms. Antecedent events are those behaviors of others which are directed to the target pupil and/or precipitate behavior by the target pupil. If another person directs behavior to the target pupil and there is no response by the target pupil, the observer describes the behavior directed to the target pupil and notes NR (for no response) in the target pupil section. The next event directed to the target pupil would be recorded in the next box under antecedent.

III.IV.E.1 APPLE Observational Record Sheet. - The observational record sheet, see Figure 9, was structured to facilitate consistent recording of the immediate context for the interaction, the participants in the interction and the structure of the interaction.

On each sheet was header information which uniquely identified this observation in terms of state, district, school, teacher, the target student, the date, the cycle (which of the six 10 minute observations), the observer, and the page within this observation. On each APPLE observational form there were three identical fields (see Figure 9) of information each of which was broken into five major sections with each section being further subdivided. The three identical fields per page were used to record each separate interctive event and/or each separate immediate context. In the course of ten minutes as many pages as necessary were used to record all the social interactions and changes in immediate context which occurred.

Within each of the three major fields there were five separate areas as shown on Figure 10. The immediate context information described above was entered in areas 1 and 2 which were identical to the context descriptions for the Interaction Observation System.

Target pupil behavior was recorded whenever the target pupil directs behavior to another person. All smiles and vocalizations by target students were recorded since these behaviors have special social significance. If the vocalization contained words the observer recorded the exact words. Second, any behavior by the target child to which another

STATE | SCHOOL DISTRICT | SCHOOL | TEACHER | TARGET CHILD | DATE | CYCLE | OBSERVER | PAGE

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT
10:45	T	I	N.A.	T, H, NF										

SOCIAL AFFECT + − 0

Pupil Activity: MANIPULATING SPIN RATTLE & LOOKING AROUND ROOM

Positioning: SITTING IN

Orthopedic Equipment: WHEEL CHAIR WITH COMM. BOARD

Teaching Activity: GOING FROM CHILD TO CHILD WORKING ON WHATEVER TASK IS AT HAND

Antecedent Behavior: T-S "I'll is about time we heard from you" and takes rattle from S — 0

Target Pupil Behavior: S-T smiles and looks at T — +

Consequence: T-S says they'll learn some new symbols for communication board — 0

Sequence #: 1

Link #'s:

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT
10:47	I			H, NF, A										

SOCIAL AFFECT + − 0

Pupil Activity: Sitting looking around, has 3 Blissymbols on tray

Positioning:

Orthopedic Equipment:

Teaching Activity: Teacher left to attend to aide has entered group and begins distributing materials

Antecedent Behavior:

Target Pupil Behavior:

Consequence:

Sequence #:

Link #'s:

92 - 1

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT

SOCIAL AFFECT + 0

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

Antecedent Behavior:

Target Pupil Behavior:

Consequence:

Sequence #:

Link #'s:

Figure 9. APPLE Observation Form.

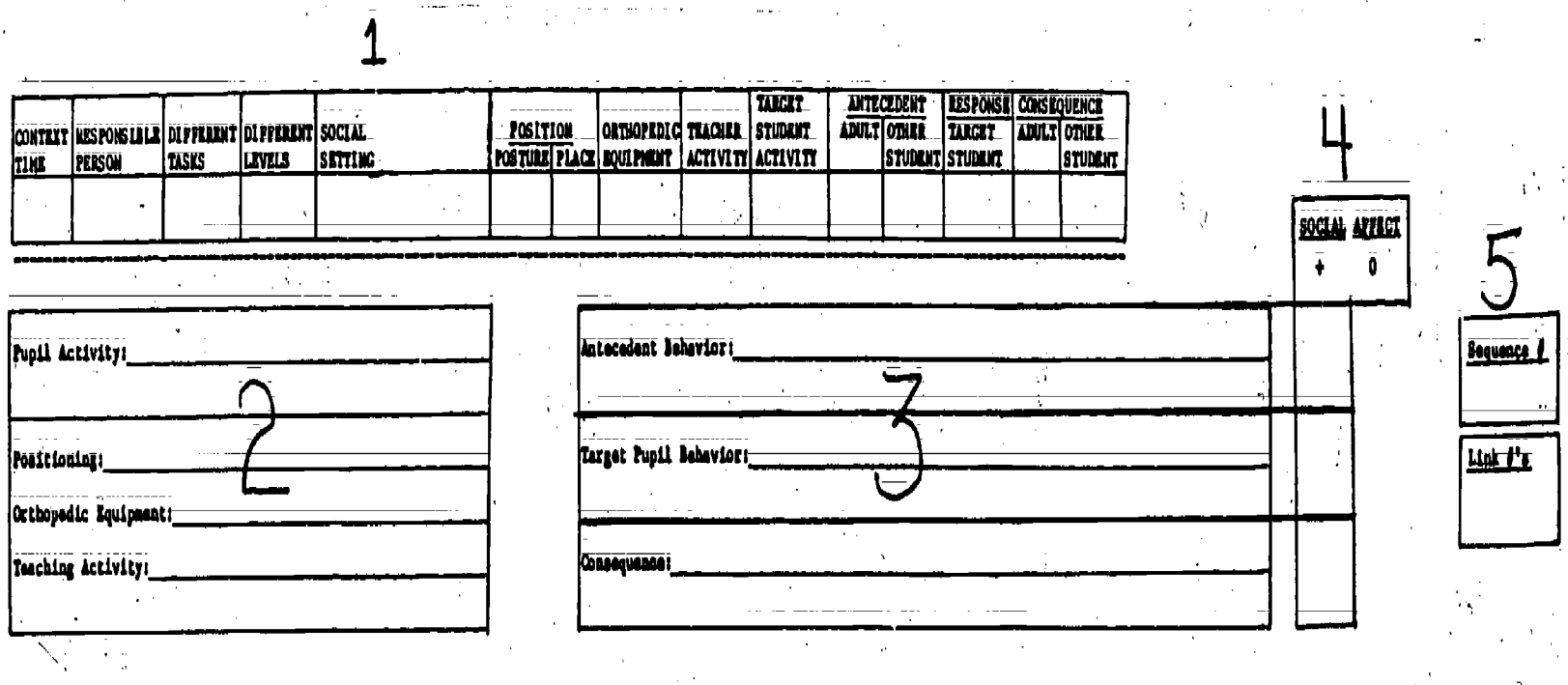

Figure 10. Recording field of context and interaction information on APPLE Observation Form.

person responded was recorded even if the target pupil's behavior did not seem to have a social intent, e.g., the target pupil vomits and the teacher says, "Bill has been sick" and goes to clean him, would be recorded as a target pupil behavior and a consequent behavior.

Consequent behaviors were behaviors of others which followed a target pupil's behavior and were directed to the target pupil. Generally, consequent behaviors would occur within 15 seconds of the target pupil's behavior. However, under some circumstances there may be a longer delay between target pupil behavior and consequence. Such events with longer delays would only be recorded as consequences if the other prson specifically made references to the preceding target pupil behavior.

Thus, all the target pupil social behaviors are recorded in the box next to target pupils. All behavior of others directed to the target pupil are recorded as antecedents or consequences. If the target pupil's behavior was precipitated by the behavior of another, then the other's behavior is recorded in the antecedent behavior box. If another person directs behavior to the target pupil and that behavior was not preceded by a target pupil ehavior then the other person's behavior is recorded in the antecedent section. All behavior of others, which is directed to the target pupil and immediately follows the target pupil's behavior is recorded in the consequent section. We budgeted 30 minutes for producing a complete transcript from each 10 min. observation. This enabled observers to check the completeness of recording and to translate shorthand/telegraphic decriptions of the interactions into readable forms.

Affective Quality of Interaction Opportunities. The affective quality of each antecedent, target pupil behavior and consequence was recorded in area 4 of the observational form. Interaction opportunities, with negative affect, contained an obvious element of sadness or stress such as crying or anger. All interaction opportunities, which were not obviously happy, sad or angry, were recorded as neutral. The mere fact of interaction was not positive within this framework.

Linking events in sequence. Area 5 of the APPLE observational form provides for numbering each event within a social interaction and linking one event to another so that the number of social bids within an interaction bout could be computed. Thus, both the Interaction Observation System and the APPLE system sturcture interactions into a conversational format which can have a variable number of exchanges of social bids within and interaction bout.

Social Behavior and Non-social Responses to Social Behavior. We have defined social behavior as any behavior directed by one person to another. Social behavior has the character of exchanges, as in dialogue or conversation. People take turns speaking. Someone initiates the dialogue the next person reciprocates the first person responds again, etc. In teaching situations, the teacher is continuously emitting behavior towards students, which is therefore social by our definition. However, the behavior of the student in response to the teacher's initiation is not always social, e.g., a teacher puts a spoon of food in a child's mouth is

an example of behavior directed toward the child and is therefore social by our definition. However, swallowing the food is not clearly social, since it is not clearly directed back to the teacher. So the dilemma is what to do with behavior which was not social but which happened in response to teaching. Such behavior was recorded as a target student behavior S but with no recipient of the behavior (e.g., "S" vs. "S-N"). Thus, while a social act normally begins with identification of the participants, non-social behavior in respnse to social behavior will simply be noted in the space for target pupil behavior.

The APPLE oservational system was particularly helpful in training observers since the narrative descriptions helped us to focus them on the same level of behavioral detail in interactions. Such narrative descriptions facilitated the comparison of identical events recorded by two field workers during training.

III.V FUNCTIONAL MEASURES

To describe the functional abilities of our population, the most current measure of adaptive behavior available for each student was obtained. The most commonly used measures included the Adaptive Behavior Scale--School Version (ABSSV), the Assessment Inventory for the Severely Handicapped Child (TARC), the Callier Azusa, the Developmental Profile (Alpern Boll), the Inventory of Early Development (Brigance, 1978) and the Portage Guide to Early Education (Portage). Table 6 outlines for each measure: The number of students for whom the measure was used, mean age, standard deviation of students' ages, and the number of sites in which the measure was used. For 7 of our 245 severely handicapped students, a current measure was not available. For these students information concerning functional abilities was obtained directly from descriptions of current levels of functioning within their individualized education plans (IEPs). Additionally, not all of the scales or inventories contained information on areas of interest to our study. In these cases, we also supplemented information from current IEPs.

Each of the student's level of functioning was described separately for the skill area: 1) mobility, 2) communication, 3) self help, 4) cognition, 5) community/domestic skills. Mobility was conceived of as a person's ability to move about his/her environment. The area of communication dealt with a person's ability to transmit messages which could be understood by others in the environment, including those not familiar with the student's mode or level of communication. Self help referred to the execution of personal independent living skills, such as grooming, dressing, eating, and toileting. Lastly, cognition was conceived within a Piagetian framework to reflect Piaget's levels of development including sensorimotor, preoperational, and concrete operational skills. Cognition also included more traditional academic skills such as reading and counting. The category of community/domestic skills encompassed the ability to function in community or domestic environments. Included within this category would be skills such as cooking, cleaning, traveling in the

Table 6

Functional Measures of Target Students' Skills

Measure	Number of students	Mean age (yrs.)	S.D. age (yrs.)	Number of sites using measures
Adaptive Behavior Scale	79	16.6	3.5	7
TARC	53	13.3	4.9	3
Callier Azusa	39	11.8	3.5	4
Camelot	18	16.0	1.9	1
Brigance	16	11.3	5.6	3
Portage	14	12.0	3.5	2
Alpern Bol	14	11.2	5.7	1
Other Scales	5	8.0	4.0	1
IEP only	7	9.0	2.0	3

community, shopping, etc. Since four of our sites had a strong curricular emphasis on these skills, we felt it important to include this dimension.

To compare the functional abilities of students in our population in each of these five areas, it was necessary to develop a metric for scaling the similar information from the variety of assessment devices and IEPs available. The concept of mediation (Feuerstein, 1979, 1980; Tredgold, 1937) was used to develop a rating system for each domain which reflected the degree of independent functioning, or the degree of mediation or assistance required from others in order to function within each domain. Each skill was rated on a four-point scale. The lowest level, Level 1, referred to the need for complete mediation by others to perform the skill. Level 2 represented the need for frequent mediation by others and Level 3 represented the need for occasional mediation. The highest level, Level 4, referred to no required mediation from others in order to perform the skill. Four of the five domains were conceived along this continuum. The exception was the cognitive domain in which Level 1 referred to sensorimotor skills, Level 2 referred to preoperational skills, and Level 3 referred to concrete operational skills, Level 4 would include formal operational skills and the conceptual relating of dimensions of symbolically encoded information. No students were rated at Level 4 in cognition.

Using information obtained from the most current available functional measure, each child was then rated within each domain. A total score summing across all five domains was also derived. In this way an ordinal ranking of skills in each domain and across all domains was obtained for each student.

Interrater reliability for the rating across all domains was calculated using Pearson correlations. A reliability coefficient of .92 was obtained. Pearson correlations were calculated for each of the ETS domain ratings with associated domains from the Adaptive Behavior Scale--School Version (ABSSV). The ABSSV was seleicted as one of the few available functional measures which included severely handicapped students in the standardization population and published norms for this group permitted such a comparison. Table 7 displays the correlation of ABSSV TMR norm scores with ETS ratings. The correlations ranged from .65 to .90 with half of these falling at or above .85 level. These correlations were computed on only 45 students due to the fact that the remaining students were outside the age range for the published norms.

As there were 34 additional students who were administered the ABSSV but whose ages were outside norm limits, a second correlation matrix was computed. In this second analysis raw ABSSV scores from comparable domains were related to ETS functional ratings.

As Table 8 reflects, all 79 students whose ABSSV we had received were used. The results in Table 8 closely resemble those in Table 7. The range in scores was .67 to .92. The only difference occurred within community/ domestic skills where economic activity was highly correlated when comparing this ETS domain to ABSSV raw scores ($r = .72$, $p < .001$), but

Table 7

Pearson Correlation of ABSSV TMR Norms with ETS Ratings

ETS DOMAINS	MOBILITY	COMMUNICATION	SELF HELP	COMMUNITY DOMESTIC	COGNITION
ABSSV DOMAINS	Physical Development 0.8949 (N = 45) $p < .001$	Language Development 0.7558 (N = 45) $p < .001$	Independent Functioning 0.8610 (N = 45) $p < .001$	Independent Functioning 0.6497 (N = 45) $p < .001$	Language Development 0.8510 (N = 45) $p < .001$ Numbers and Time 0.8510 (N = 45) $p < .001$

Table 8

Pearson Correlation of ABSSV Raw Scores With ETS Ratings

ETS DOMAINS	MOBILITY	COMMUNICATION	SELF HELP	COMMUNITY DOMESTIC	COGNITION
ABSSV DOMAINS	Physical Development 0.9186 (N = 79) $p < .001$	Language Development 0.8449 (N = 79) $p < .001$	Independent Functioning 0.8693 (N = 79) $p < .001$	Independent Functioning 0.6665 (N = 79) $p < .001$	Language Development 0.8442 (N = 79) $p < .001$
				Economic Activity 0.7206 (N = 79) $p < .001$	Numbers and Time 0.8215 (N = 79) $p < .001$

less correlated when looking at ABSSV TMR norm ($r = .55$, $p < .001$). A possible explanation for the difference may be that older students were included in the correlations between ETS ratings and ABSSV raw scores while the TMR standardization sample had a more restricted age range and possibly less experience with domestic/economic activity such as handling money and shopping. Overall, there was a great deal of similarity in the correlations between ETS ratings of functional level and both the TMR standardized score and the ABSSV raw score. This finding suggests that the entire group of 79 students who were administered the scales performed similarly to the normed group and are indeed functioning on a severely handicapped level. Moreover, the correlation between the rating scales and the ABSSV attests to the validity of our rating of target student functional abilities.

III.VI FIELD WORKER RATINGS

III.VI.A Rating Of Teacher And School Support For Integration

At the end of the fall and spring data collection periods, ETS field workers from each site completed a rating scale for the classroom teachers of the severely handicapped target students observed during the study. Although each scale focused primarily on the involvement in and support received by teachers to promote integration, a few questions were also included concerning the behavior of the nonhandicapped students who had been present during the observations. The rating scale was designed in question format to elicit information on teachers' age, sex, efforts to promote integration, degree of outside support received from other school staff or parents, and the teacher's general attitude toward teaching. Additionally, information was obtained on the friendliness toward severely handicapped students which peer tutors or other nonhandicapped students had demonstrated during the observation period.

Aside from providing information on the actual age and sex of teachers observed, responses to questions were rated on a continuum whose range and values varied depending on the nature of the question asked. For questions addressing the friendliness of peer tutors (TUTBEHAV) or other nonhandicapped students (NHBEHAV) toward severely handicapped students, a rating of 0 to 5 was obtained where (0) indicated no opportunity to observe contact with nonhandicapped students, and the remaining ratings (1 to 5) indicated a continuum of hostile (rating of 1) to very friendly (rating of 5) behavior. For questions involving the change in the amount of integration across the school year (INTCHGE) and the change in the quality of integration across the data collection periods (QUALCHGE), a rating of 1 to 5 was obtained where (1) indicated a large decrease in amount or quality of integration, (3) indicated no change, and (5) indicated a large increase across the school year in integration achieved. The remaining questions were answered on a 0 to 4 scale, where (0) indicated an absence of the behavior in question and (4) indicated a high degree of the behavior expressed. Table 9 summarizes the range of ratings for each question as well as the number of teachers rated.

Table 9

Ratings of Teachers' and Nonhandicapped Students' Attitudes and Involvement in Integration

Question	Response Ratings	Number of respondents	Mean	S.D.
1. Teacher's age (TCHAGE)	22 years minimum age - 60 years maximum age	90	31.8	6.7
2. Teacher's sex (TCHSEX)	1 = female - 2 = male	90	1.2	.42
3. Peer tutor's friendliness toward severely handicapped students (TUTBEHAV)	0 No such program; 1 Hostile; 2 Unfriendly; 3 Neutral; 4 Friendly; 5 Very friendly	86	2.78	1.96
4. Other nonhandicapped students' friendliness toward severely handicapped students (NHBEHAV)	0 No such program; 1 Hostile; 2 Unfriendly; 3 Neutral; 4 Friendly; 5 Very friendly	86	3.01	1.29
5. Change in amount of integration across school year (INTCHGE)	1 Large decrease; 2 Small decrease; 3 No change; 4 Small increase; 5 Large increase	65	3.14	.93
6. Change in quality of integration across data collection periods (QUALCHGE)	1 Large decrease; 2 Small decrease; 3 No change; 4 Small increase; 5 Large increase	65	3.22	.86
7. Teacher's efforts to achieve integration (PROINTG)	0 None at all; 1 Very little; 2 Some effort; 3 Actively tries to promote integration; 4 Great deal of emphasis on integration	90	2.84	.89
8. Frequency of regular education teachers in environment (REGT)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	1.29	1.29
9. Frequency of aide in environment (AID)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	3.42	1.24
10. Frequency of other special education teachers in environment (OSPECT)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	2.12	1.40
11. Frequency of consultants in environment (CONSULT)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	.67	.74
12. Frequency of therapists in environment (THERPST)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	2.24	1.07
13. Frequency of principal in environment (PRINPAL)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	.89	.97
14. Frequency of student teachers in classroom (STUDT)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	.98	1.39
15. Frequency of parents in classroom (PARENT)	0 Never; 1 Only one time; 2 Occasionally; 3 Frequently; 4 Very frequently	90	.61	.75
16. Teacher's enthusiasm for and enjoyment of teaching severely handicapped students (ENTHUS)	0 None at all; 1 Very little; 2 Somewhat; 3 A good deal; 4 To a very high degree	90	3.14	.92
17. Degree of prior preparation of nonhandicapped students (NHPREP)	0 None; 1 Very little; 2 Some; 3 A lot; 4 Extensive preperation	89	.70	1.05
18. Ongoing direction to and facilitation of nonhandicapped students during their interactions with severely handicapped students (NHDIREC)	0 None; 1 Very little; 2 Some; 3 A lot; 4 Extensive direction	87	1.5	1.05
Rating for School and Principal Support for Integration				
1. Principal's support for integration of severely handicapped students (MSUPPT)	0 Not at all; 1 Very little; 2 Some; 3 Actively tries to promote integration; 4 Very supportive of integration	42	2.68	.96

Ratings of teachers were averaged across both data collection periods. Where information was obtained only in one data collection period due to staff changes, the rating for the available period was used.

Teacher ratings were obtained in all but one site, Philadelphia. Due to the sensitive political situation which existed in this site, ETS trained members of Philadelphia's evaluation staff to collect all the data for this study. To reduce the burden of involvement for their staff members, ETS did not ask that teacher ratings be completed. Teacher ratings were also not obtained for the first data collection period for Lake Washington due to the sudden departure of our ETS field worker assigned to that site.

As new field workers were needed for the second data collection period in Lake Washington, Madison, and Oregon, these people were unable to respond to questions of change in the amount of integration (INTCHGE), or the change in quality of integration (QUALCHGE) across both data collection periods and thus reducing the number of ratings for those questions. Reduced number of ratings for (TUTBEHAV) and (NHBEHAV) were due to a lack of opportunity to observe this teacher's group of students with nonhandicapped students. This situation occurred primarily in sites where students were in segregated schools and/or where integration occurred in community rather than school environments.

III.VI.B Rating Of School And Principal Support

At the end of the fall `81 and spring `82 data collection period, ETS field workers were also asked to rate the support of the building principal for integration of severely handicapped students in his/her school. The range of the rating was on an 0 to 4 continuum with (0) indicating not at all supportive and (4) indicating very supportive of integration. An average rating of support observed across both data collection periods was computed for each principal. Ratings were completed on 42 of 44 principals across all fourteen sites in whose schools target students were enrolled. Of the two schools in which no rating of support was obtained, one school was located in an institution and the other school located its classes for severely handicapped in a building detached from the regular school. The field worker reported that in these situations, no contact with the principal was observed during the data collection.

III.VII AMOUNT OF SCHEDULED INTEGRATED TIME

Two sources of information were used to collect this data. First, a measure of planned time for integration (TIME1) was obtained through a review of each student's weekly program schedule collected from classroom teachers in October 1981. From these schedules were obtained the number of minutes per week in which teachers had planned for each student to have an

opportunity to be in an integrated setting whether within the school or the community. The second measure was the observed time that students had an opportunity to interact with nonhandicapped students or nonschool staff. This information was obtained during the observations of each student's social interactions within integrated settings. The amount of time each student had a real opportunity for interaction was computed from the number of minutes each student spent in the same immediate social context or grouping as nonhandicapped students or community people.

III.VIII INDIVIDUALIZED EDUCATION PLANS (IEPS)

In October of 1981 each of the 14 sites were asked to provide for each student a copy of the IEP which was in effect for the 1981-82 school year. In this way a copy of the most recent IEP available was obtained for all but five students (n = 240).

Each student's IEP was analyzed to provide information on program planning for severely handicapped students. The level of specificity at which students' programs were palnned was reflected by the total number of IEP objectives written for each student (OWRITTEN). In only one of the 48 schools involved in the study were there no objectives written on students' IEPs. For the 7 students in this school, only a few broad annual goals were specified. Across all the remaining schools, short term objectives were written with considerable variation in length, ranging from under 10 to over 300 short-term objectives. The degree to which interaction with nonhandicapped students or integration within school or community settings was a valued goal was reflected by the number of interaction or integration objectives written (INTWRITTEN) for each student. Here, too, variation in the number of integration objectives written was considerable.

A measure of student progress was derived from counting the number of objectives met for each student at the end of the 1981-82 school year. This information was obtained in May 1982 through available written information contained on IEPs or End-of-Year Performance Reports, supplemented as necessary by information supplied directly by target students' teachers. A final measure derived from IEPs was that of parental involvement in the IEP process which was indicated by whether or not each student's IEP had been signed by their parent or guardian.

III.IX ACCEPTANCE SCALE

The instrument used in this study to measure nonhandicapped students' attitudes toward handicapped students was the Acceptance Scale, 1981 version, developed by Luanna Voeltz (1980, 1982). Validity and reliability studies conducted on the instrument have consistently produced respectable results (Voeltz, 1980) and have demonstrated a positive relationship between regular education students' scores on the Acceptance Scale and their degree of actual contact with severely handicapped students (Voeltz,

1982).

The Acceptance Scale consists of a number of opinion statements which are read to the students in small groups. Students write their responses on answer sheets selecting one of three choices which indicates whether they agree with, disagree, or are unsure about the statements. Separate versions of the scale were administered to students in grades kindergarten to second grade (K-2), third to sixth grade (3-6), and seventh to high school (7-12). The maximum score attainable on the three versions is 30, 60, and 64, respectively. Within ech level there are a core set of questions about attitudes towards the handicapped. These questions are randomly phrased in both positive and negative terms to discourage consistent yes or no responses. Also included are questions to assess students' ability to listen to the questions and respond to the instrument. Failure to respond accurately to these questions results in the invalidation of the scale and removal of that data from analysis. A third set of items, not included in the computation of the Acceptance Score, are those dealing with the students' general feelings about themselves and friends which could affect a student's attitude toward handicapped children and which can be analyzed as a separate factor.

This instrument was administered to two groups of nonhandicapped students. The first group, designated "contact students" were selected from schools in which severely handicapped students were enrolled. These students had been nominated by special education teachers as most likely to have contact with severely handicapped students. Once contact students had been selected, a second group of students designated no-contact students were selected. These students were randomly selected from student rosters from schools in which no severely handicapped students were enrolled. The two groups were matched according to grade level and attendance in schools of similar size and socioeconomic characteristics. The number of contact and no-contact students varied within each site as a function of the number of schools that were involved in the study and the number of students it was possible to include without causing undue disruption to each school.

The 1981 version of Voeltz's (1980, 1982) Acceptance Scale was administered in the fall of 1981 and the spring of 1982 to 530 nonhandicapped students ranging in age from 5 to 18 years. 515 received valid scores on the Acceptance Scale. Of these, 328 students had both pretest and posttest scores. From this subsample, a total of 170 students (125 females and 45 males) had contact with severely handicapped students and a total of 158 students (83 females and 75 males) did not have contact.

III.X STATE LEVEL INFORMATION FROM U.S. DEPT. OF EDUCATION

III.X.A The Fourth Annual Report To Congress On P.L. 94-142.

The Annual Report prepared by the U.S. Department of Education (1982) provided information on enrollment of severely handicapped students in different educational environments for the 1980-1981 school year. The percentages of severely handicapped students attending regular schools (PSHINT) was computed by adding the percentages provided for categories of mentally retarded, multihandicapped and deaf-blind students within regular classes. The percentage of all handicapped students served in regular schools (HPINT) was directly reported for each state. Unfortunately, at the time of analysis, 1981-82 information was not yet available so 1980-81 data was used.

III.X.B The Mid-Year Performance Data For 1981-1982

The U.S. Department of Education provided information on the total special education enrollment within each state (COUNT81) for the 1981-82 school year as well as P.L. 89-313 funding for severely handicapped students (FUND89SH). The proportion of severely handicapped students funded within each state by P.L. 89-313 funds were computed from a ratio of the total number of mentally retarded, multihandicapped and deaf-blind students over the total number of handicapped students in the state.

III.X.C Program Annual Reviews

Each state annually submits a report to the U.S. Department of Education which contains information on the number of hearings at state and local levels and the major issues upon which these hearings were held. The proportion of state level (PSEALRE) and local level (PLEALRE) hearings pertaining to least restrictive environment issues (LRE) was computed from a ratio of LRE hearings to total hearings held at each level for each state. These documents also supplied information on the number of regular educators, special educators, administrators and parents for whom each state provided in-service training in special education (INSERV). The most recently available annual reports were obtained for each state from SEP.

III.X.D Programs For Severely Handicapped And Deaf-Blind Students

The special needs section of SEP provided a listing of the number of severely handicapped projects funded within each state (SEPDEMOS) and nominated federally funded model demonstration sites to be evaluated by our project (MODEL).

III.XI SPECIAL EDUCATION STATE CERTIFICATION PRACTICES

A National Survey was produced by the Policy Research Center of the Council for Exceptional Children in December 1979. From this document information was extracted on the certification requirements for regular and special education teachers in each of our participating states with the exception of Vermont where information was directly obtained from certification materials supplied by that state. Information on the requirement for regular educators to have special education courses in order to obtain certification (REINFOSE) was considered indicative of the state's interest and support in extending understanding of and responsibility for handicapped students' education beyond the boundaries of segregated special education programs. Those states that required special education courses for regular education certification were given codes of (1); those who did not, were coded (0). The notion of separateness was also measured by the certification requirements for special educators. States varied according to whether special education certification was a separate certification and therefore freestanding or whether certification in special education was dependent upon eligibility for regular education certification as well. The first option was seen to indicate that special education was seen as a separate, distinct program apart from general education. States that adhered to this certification practice were given codes of (1). The second option was regarded as integrating special educators within the larger framework of general education as these teachers were required to be as skilled in regular education as in special education programming. States adhering to this practice were coded (0).

III.XII NASDSE REVIEW OF STATE SUPPORT FOR SH PROGRAMS

The National Association of State Directors of Special Education published a report summarizing responses to a national survey of state departments of education (NASDSE, 1979). The survey completed by 43 states contained information for the nine states participating in our study. From this survey were obtained a number of measures of the specificity with which severely handicapped students were identified and treated as a separate group. One measure was the number of categories included in the definition of severely and profoundly handicapped individuals (CATEGORY). This information was not available within this document for Illinois and Wisconsin. A second measure was the number of full-time state level consultants for severely handicapped (FTESPH) whose responsibilities included technical assistance and monitoring of services for this specific population. Our sample ranged from no state consultants so assigned in three of our states to four consultants each spending 80% of their time in this capacity in one of our states. A third measure was whether or not each state-designated federal funds specifically for the severely and profoundly handicapped (SPHFUNDS). States that did designate funding in this way were rated with a rank of (1); those who did not specifically earmark funds for this population were assigned a (0) ranking.

As a measure of the state's professional resources for extending services to severely handicapped students the number of colleges training teachers of the severely handicapped was obtained (COLLEGES) as well as the level of the degree granting program offered at these colleges. The number of colleges within each state granting degrees in the education of severely and profoundly handicapped individuals at the bachelor's level (BASPH), master's level (MASPH) and at the doctoral level (PHDSPH) were recorded.

Information on the number of program options available for delivery of services to severely and profoundly handicapped individuals in each state (PLACEMNT) was obtained. In compiling this information, states were asked to indicate which of six program options were available to their severely and profoundly handicapped students. The options ran along the continuum of restrictiveness, from homebound instruction and special education schools (or centers) to education within regular schools in the form of self-contained classes within regular schools, resource rooms and itinerant services. A sixth option, other, was not specified. For each state the total number of program options available were used to indicate the degree to which alternative services were available to these students based on program need rather than category.

CHAPTER IV

RESULTS

The primary purposes of the integration evaluation project were first, to describe the degree of integration of severely handicapped students with nonhandicapped students, second to find out what facilitates integration of severely handicapped students and third, to determine whether integration is related to other important educational outcomes for severely handicapped students. In order to describe the degree of integration of severely handicapped students, observational methods were developed to record the rate and quality of interactions between severely handicapped and nonhandicapped students. Interactions were broadly defined in terms of social behavior between severely handicapped students and other individuals. Social behavior consisted of any behavior which was clearly directed by the target student to someone else or any behavior by someone else directed to the target student.

Integration defined in terms of social behavior did occur in each of the 14 participating school districts. Moreover, the degree of integration was statistically related to information about a) antecent features of the state education agency (SEA) and local education agency (LEA), b) the people present in the environment when integrated, c) the organization of the environment, d) the rate of social input from nonhandicapped students e) the degree of support for interaction which those students had from the teacher, and f) aspects of the teacher's educational planning process. The social behavior of severely handicapped students differed depending on whether it was directed to other severely handicapped students versus to nonhandicapped students. Finally, the degree of integration was related both to the proportion of objectives achieved on the target students' IEPs and to the attitudes of nonhandicapped students.

IV.I OVERVIEW OF ANALYSES

The following discussion will describe the analyses according to a) the degree and quality of interaction in integrated settings, b) the features of integrated educational contexts which facilitate students' social interactions, and c) the relationship of nonhandicapped students' attitudes and severely handicapped students' achievement to students' social interactions.

IV.I.A Degree And Quality Of Integration

The rate and quality of social interaction of severely handicapped students with nonhandicapped students was the measure for the degree of integration. Since concerns have been raised as to whether integrated environments produce any viable interaction between handicapped and nonhandicaped students, within student comparisons of the rates of social interactions in integrated and segregated environments were made. These comparisons defined integration at two levels of the environment. The first level defined integration based upon the presence of nonhandicapped students or community people in the total observed area or room. The second level of analysis defined integration based upon the immediate social grouping in which the severely handicapped target student was observed. At each level of the environment both the rate and quality of social interactive behavior of handicapped and nonhandicapped students was compared. Specifically, we asked whether severely handicapped students engaged in different rates of interaction with other students in integrated versus segregated settings.

IV.I.B Educational Context

Analyses of antecedent and concurrent features of the educational context were conducted only at the second level in which integration was defined in terms of the severely handicapped students' immediate social groups. These analyses were designed to identify those factors which facilitated integration. Integrated environments were defined at the level of the immediate social setting by the presence of nonhandicapped students within the same social group. Features of the context relevant to integration were selected from a broad ecological framework. These features represented hierarchical levels of information about the environment ranging from the broadest level of state planning down to the immediate social context within which interactions were observed. This continuum included information on local planning, school support and parent involvement as desscribed in Chapter 2, Figure 2.

In order to select the best measures from each level or domain of information in the ecological evaluation model, separate stepwise regression analyses including all available information from each domain were done. The criteria for these regression analyses were the rates of bids to and from other students in integrated settings. After selecting the best predictors from each domain of information this information was combined in a full model to determine the degree to which each variable uniquely accounted for proportions of variance in student interaction. Finally, the predictors from these full ecological models were included in stepwise regression analyses to select the best predictors of degree of integration.

IV.I.C Impact Of Integration

The educational progress of severely handicapped students, and the attitudes of nonhandicapped students toward handicapped students were analyzed as criterion variables for assessing the impact of integration. Educational progress was defined by the proportion of IEP objectives met. This was analyzed using a regression model which included the functional level of the target students, the rate-per-minute of interaction with nonhandicapped students, and the rate-per-minute of interaction with other severely handicapped students. The attitudes of nonhandicapped students were analyzed in two ways. The first analysis compared the attitudes of nonhandicapped students who came from schools in which severely handicapped students were integrated to the attitudes of nonhandicapped students in schools that did not enroll severely handicapped students. The second analysis examined only the attitudes of students in integrated schools and predicted the average posttest attitude scores for an integrated school from the average pretest scores and average rate of interaction with nonhandicapped students within that school.

IV.II SOCIAL BEHAVIOR IN INTEGRATED VERSUS SEGREGATED SETTINGS

The first step in describing integration was to determine if severely handicapped students actually interacted with nonhandicapped students, and if so whether such interaction was in any way different from interaction when the handicapped students were segregated. To address these questions, analyses were conducted on two levels using the Interaction Observation System data. The first level provided a broad view of the environment in which integration or segregation was defined by the presence of nonhandicapped people (other than teaching staff) within the total observed area. In school settings integration was defined in terms of the presence of nonhandicapped students in the same room. For community settings, integration was defined in terms of the presence of community people (i.e., nonschool staff) in the location observed. The second level of analysis focused on the immediate social group in which each severely handicapped student was observed and defined integration in terms of the presence of nonhandicapped students or community people within the same group (i.e., within five feet) as the severely handicapped student. For the first levels of analysis data from the interaction observation system collected in the fall of 1981 was used. For the second level of analysis data from both the fall 1981 and Spring 1982 observaion periods was used.

When integration was defined for the first level of analysis by the observational setting coversheet, the average rate of interactive bids were computed per 10-minute observation period. This average rate per observation was calculated both for bids emitted by severely handicapped students to other students as well as bids directed toward severely handicapped students by other students. The rate of social bids by severely handicapped students to other students and the rate of social bids by other students to handicapped students were compared using paired t-tests to determine if there were significant differences within children either in social output or social input depending upon whether they were in integrated versus segregated social contexts.

IV.II.A Integration Defined By Presence Of NH Students In The Room

Findings from the first level of analysis revealed that interaction between severely handicapped and other students was definitely occurring and that there were differences in the rate and quality of interaction depending upon whether the setting was integrated or segregated. Integrated settings were seen to promote significantly more social behavior between severely handicapped and other students. Severely handicapped students directed significantly more social behavior toward other students in integrated settings. The average number of social bids by the severely handicapped students in integrated settings was 6.79 bids per 10-minute observation (SD = 7.80) in comparison to 3.71 bids per 10-minute observation (SD = 5.97) in nonintegrated settings (t = 5.52, df = 198, $p < .001$). Additionally, other students directed more social behavior to severely handicapped students in integrated settings. The average number of social bids directed by other students to severely handicapped students in integrated settings was 9.93 bids per 10-minute observation (SD = 10.47) compared to 3.07 bids per 10-minute observation (SD = 5.43) in segrated settings (t = 8.68, df = 198, $p < .001$). These results are depicted in Figure 11 which gives the mean number of social bids by severly handicapped students to other students in integrated settings (S-K) and to other severely handicapped students in segregated settings (S-H). In addition Figure 11 depicts the mean number of social bids from other students in integrated settings (K-S) and in segregated settings (H-S).

Finally, defining integration at the level of the total environment, severely handicapped students emitted significantly more social bids to nonhandicapped students in integrated settings than to other handicapped students (t = 4.61, df = 198, $p < .001$) in integrated settings and received more social bids from nonhandicapped students than from other handicapped students (t = 8.04, df = 198, $p < .001$) in those settings.

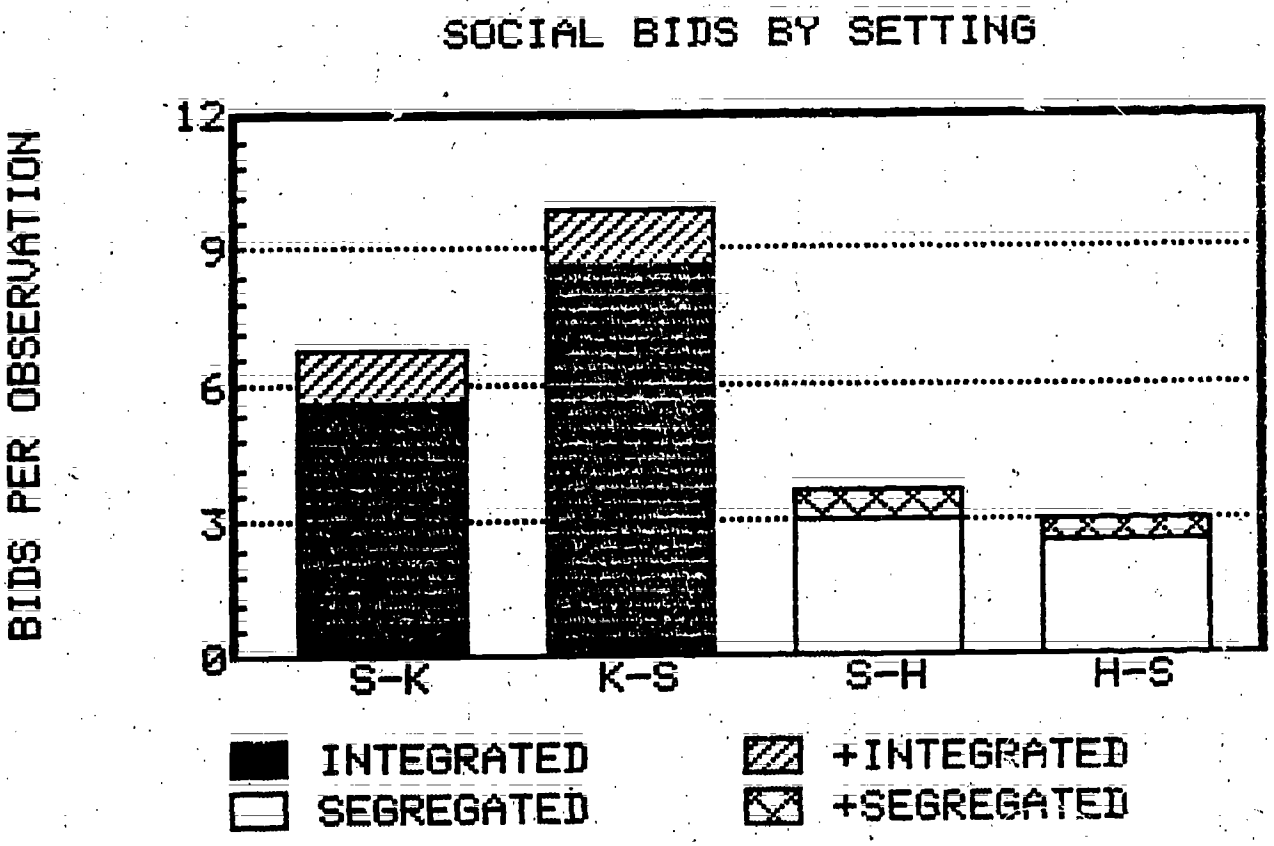

Figure 11. Rate of social bids for target children observed in integrated and segregated places.

IV.II.A.1 Affective Quality Of Social Interactions - A related and important question in studying interaction between severely handicapped and nonhandicapped students concerns the quality of the exchange that occurs. Specifically, concerns have been raised that severely handicapped students will bear the brunt of negative behavior by nonhandicapped students. The data was consistent in reflecting extremely low levels of negative behavior (i.e. between .02 and .20 per 10 minute observation) so that further analyses were not warranted. However, the frequency of positive bids were somewhat higher, permitting

analyses of differences in rate between integrated and segregated settings. Using data from the fall data collection period statistically significant differences were found in the rate of positive interactive bids from target students to other students in integrated versus nonintegrated contexts. In integrated settings, rate of positive bids from severely handicapped target students averaged across all sites was 1.12 (SD = 1.86). In nonintegrated settings these same target students emitted an average of only .69 bids per observation (SD = 2.01) to other students. The difference was statistically significant at $p < .01$ ($t = 2.76$, df = 198). Thus, severely handicapped target students emitted more positive social bids when in integrated than when in nonintegrated settings.

Differences in the quality of behavior which was directed to the severely handicapped students by other students when they were in integrated versus segregated settings were also found. There were significantly more positive social bids from other students when the severely handicapped students were in integrated settings. In integrated settings, an average of 1.26 (SD = 2.34) positive bids per observation from other students were directed to the target students in comparison to .47 positive bids per observation (SD = 1.70) in the segregated context. This difference was statistically significant ($t = 4.55$, df = 198, $p < .001$). The results on positive social output from severely handicapped students (S-K, S-H) and social input to these students (K-S, H-S) are depicted by the crosshatched portions of the bars in Figure 11.

IV.II.B Integration Defined At Level Of Target Student's Social Group

These results were confirmed and extended when the level of analysis was the immediate group in which severely handicapped students were observed. In this second level of analysis, the rate per minute of interactive bids was computed separately for handicapped and nonhandicapped students. The rate per minute was obtained by dividing the total frequency of bids to handicapped or nonhandicapped students by the total number of minutes nonhandicapped students were present in the same social setting as handicapped students. Thus, this rate was obtained across all observations for a given child. Similarly, rates per minute were obtained for social bids from handicapped and nonhandicapped students to severely handicapped target students. Finally, the rate per minute of interaction between handicapped students when nonhandicapped students were not a part of their immediate social group was computed. The mean rate per minute of social bids for Fall, 1981 and Spring, 1982 are depicted in Figure 12. The solid bars represent rate of social bids in integrated groups while the crosshatched bars represent rate of bids in segregated groups.

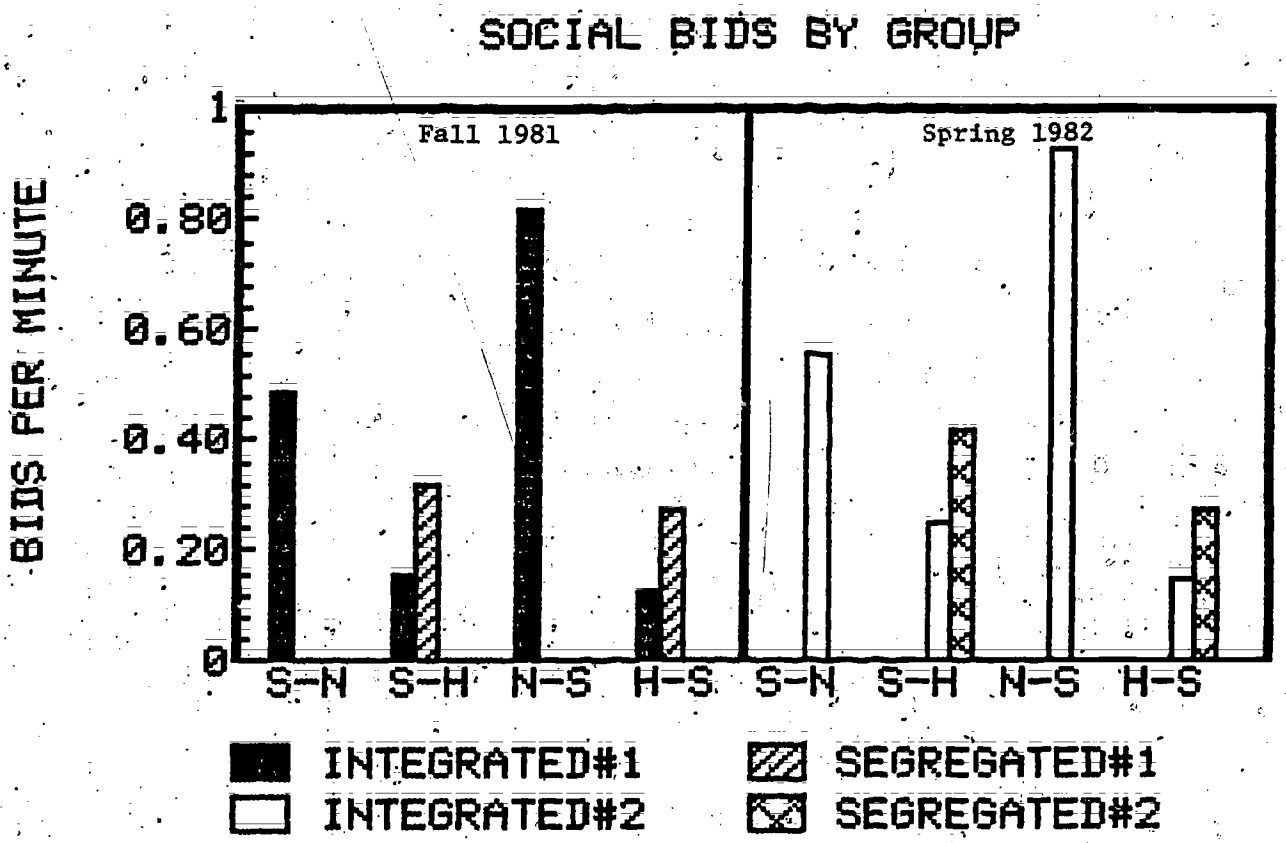

Figure 12. Rate of social bids for target children observed in integrated and segregated groups.

The results from this level confirmed previous results . That is, integration promoted more social behavior than did segregated groupings; and second, within integrated groupings, interaction with nonhandicapped versus other handicapped students predominated.

In the fall 1981 data collection period the social output of severely handicapped students to nonhandicapped students (S-N) was greater than the social output to other handicapped students (S-H) in both integrated ($t = 6.48$, $df=234$, $p < .001$) and segregated ($t = 3.11$, $df = 234$, $p < .002$) groups. These findings were replicated in Spring 1982 when S-N bids also exceeded S-H bids in

integrated (t = 4.84, df = 237, $p < .001$) and in segregated (t = 2.04, df =237, $p < .05$) groups.

The rate of social input from nonhandicapped students to severely handicapped students (N-S) exceeded the social input from other handicapped students (H-S) in both data collection periods. In the Fall, 1981 N-S bids occurred at a significantly higher rate than H-S bids when H-S bids were observed in both integrated (t = 9.29, df = 234, $p < .001$) and in segregated (t = 7.12, df = 234, $p < .001$) settings. In the Spring 1982 N-S bids exceeded the rate of both of H-S bids in integrated (t = 8.56, df = 237, $p < .001$) and H-S bids in segregregated groups (t = 6.99, df = 237, $p < .001$).

IV.II.B.1 Contingencies For Social Behavior - Another analysis was completed on the contingencies for social interaction by handicapped versus nonhandicapped students. Specifically, the rates per minute of social bids by severely handicapped students to which nonhandicapped or handicapped students responded were compared. Such rates were calculated from the frequency with which social bids from severely handicapped target students were followed by social bids from other students back to the target student. These rates of social contingencies are depicted in Figure 13. In integrated settings in the Fall, 1981, nonhandicapped students responded to significantly more bids (M = .30 per min; SD = .50) from severely handicapped students than did handicapped students (M = .08 per min; SD = .23) (t = 6.29, df = 234, p .001). Nonhandicapped children in integrated settings also responded to significantly more (t = 3.79, df = 224, p .001) social bids from severely handicapped students in integrated settings than did handicapped students in segregated settings. The handicapped students in segregated settings only responded to an average of .16 bids per minute (SD = .32). Thus social bids from SH students are responded to by social bids from nonhandicapped students twice as frequently relative to contingencies from other SH students in segregated settings and nearly four times as frequently relative to social contingencies from SH students in integrated settings. Since social contingencies from one's social group are probably one mechanism by which social behavior is acquired (Strain & Kerr, 1981) the integrated environment is clearly superior in reinforcing naturally occurring social behavior.

The fact that nonhandicapped students provided more contingent social responses than handicapped students was replicated in the Spring 1982 data collection period. Thus, nonhandicapped student's responsiveness to social behavior of severely handicapped student's exceeded the responsiveness exhibited by other handicapped students both in integrated (t = 5.49, df = 237, $p < .001$) and in segregated (t = 3.15, df = 237, $p < .002$) settings. As a result, not only are severely handicapped students exhibiting more "social behavior" themselves in integrated settings, they are also being reinforced by more contingent social behavior in these settings.

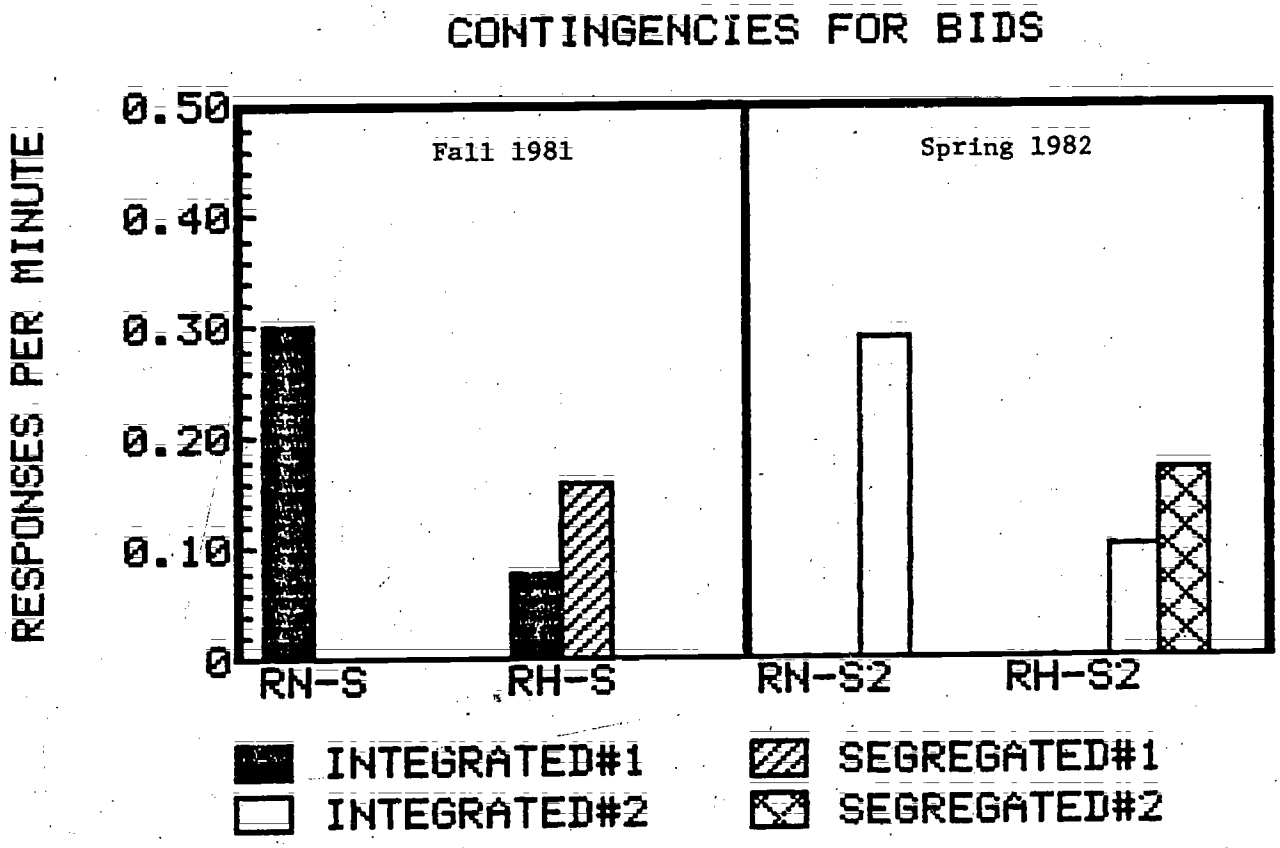

Figure 13. Contingencies for bids from target students in integrated and segregated groups.

IV.II.B.2 Violations Of Assumptions Of Normal Distributions - The distributions of rate of bids per observation and rate of bids per minute were not normally distributed. In order to ensure that the results of the t-tests which have been reported were not artifacts of skewed distributions, the variables were transformed using an arctangent transformation. This transformation has been recommended by Rubin (1980) to normalize skewed distributions. All of the results reported above were significant at the same levels when t-tests were applied to the arctangent transformed scores. Hence, the reported results are

not artifacts of violations in the assumptions underlying the t-tests.

IV.III STEPWISE REGRESSION TO SELECT PREDICTORS FROM DOMAINS

Given that severely handicapped students interact differentially in integrated and segregated environments, what are the major influences on such interactions? Clearly, within a dialogue model of reciprocal social interaction the behavior of the other person in the interaction is a major influence on the rate of interaction. The Pearson Correlation between the rate of social bids from severely handicapped students to nonhandicapped students (S-N) and the rate of social bids from nonhandicapped students to the severely handicapped students (N-S) was $r = .69$ ($df = 244, p < .001$). Similarly, the correlation between the rate of social bids from severely handicapped students to other handicapped students (S-H) and the rate of social bids from other handicapped students to the target students (H-S) was $r = .89$ ($df = 244, p < .001$). In order to address the question of influences on social interaction in addition to the social behavior of the other participants, information was selected at the levels of the state, district, school, teacher, integrated setting, and individual students. At each of these levels there was a wide variety of information from which to select. Therefore, it was necessary to select information from each of these domains which was relatively independent of the other information within the domain but which at the same time accounted for the highest proportion of student interactions. In all subsequent analyses the rate of interaction was computed by dividing the total number of social bids by the total number of minutes that the student was in a social group which included nonhandicapped students. This rate of interaction per minute was averaged across both data collection periods since previous analyses did not indicapt significant differences between data collection periods. Similarly, all variables from the observational procedures which were used as predictors were averaged across the two data collection periods. Thus, the focus for the remainder of this report is upon integrated social settings and the explanation of social behavior of severely handicapped target students within such settings.

In order to select the best predictors of social interactions between handicapped and nonhandicapped students a series of separate stepwise regression analyses were conducted. The analyses included as predictors the information from each domain (e.g., state, district, school, teacher, environment, and student). The criteria for the analyses were the rates per minute of social bids directed to and received from either handicapped or nonhandicapped students within integrated settings. Such rates were averaged across all observations during which nonhandicapped students were in the same social setting as severely handicapped target students.

The types of information included within each of the domains is presented in Table 10. Each of these domains was separately analyzed to predict 1) the rate of social bids from severely handicapped target students to nonhandicapped students (S-N), 2) the rate of social bids from severely handicapped target students to other handicapped students (S-H), and 3) the rate of social bids from nonhandicapped students to severely handicapped target students (N-S). The predictors from each domain which accounted for significant proportions of

Table 10

Variables From Each Domain of Information About the Educational Contexts Included in the Regression Analysis

Domain	Predictors	Source	N	Mean	S.D.	Selection for any full model
STATE	1. Total special education population in state 1981-82 (COUNT81)	SEP	9	89,995.18	74,874.65	out
	2. Number of colleges training teachers of severely handicapped (COLLEGES)	NASDSE	9	3.14	2.55	out
	3. Number of BA degree granting programs for teachers of severely handicapped (BASPH)	NASDSE	9	2.40	2.80	out
	4. Number of MA degree granting programs for teachers of severely handicapped (MASPH)	NASDSE	9	2.49	2.86	in
	5. Number of Ph.D. degree granting programs for teachers of severely handicapped (PHDSPH)	NASDSE	9	.35	.48	out
	6. Proportion of severely handicapped students in state funded by 89-313 (FUND89SH)	SEP	9	.19	.17	out
	7. Number of categories of exceptionality in state definition (CATEGORY)	NASDSE	9	3.40	2.75	in
	8. Proportion of SEA hearings called regarding least restrictive environment issues (PSEALRE)	SEP	9	.52	.31	in
	9. Proportion of LEA hearings within the state called regarding least restrictive environment issues (PLEALRE)	SEP	7	.46	.28	out
	10. Concerns expressed to state by SEP regarding least restrictive environment policy (CITELRE)	SEP	9	.73	.44	out
	11. Percentage of severely handicapped students attending regular schools (PSHINT)	SEP	9	57.72	27.93	out
	12. Percentage of all handicapped students integrated in regular schools (HPINT)	SEP	9	95.64	3.08	out

Table 10 (Continued)

Domain	Predictors	Source	N	Mean	S.D.	Selection for any full model
STATE (Cont.)	13. Certification of regular educators requires special education courses (REINFOSE)	CEC	9	.731	.445	out
	14. Certification of special educators is separate from rather than addition to regular education certification (FREESTAN)	CEC	9	.416	.494	out
	15. Number of SEA consultants for severely and profoundly handicapped (FTESPH)	NASDSE	9	.512	.830	in
	16. State 94-142 funds are specifically earmarked for severely handicapped programs (SPHFUNDS)	NASDSE	9	.722	.449	in
	17. Number of placement options for SPH students (PLACEMNT)	NASDSE	9	4.57	1.13	out
	18. Number of projects funded in state by the special needs section of SEP (SEPDEMOS)	SEP	9	2.23	1.93	out
	19. Average number of people receiving inservice from SEA in special education (INSERV)	SEP	9	64,417.47	66,384.72	out
DISTRICT	1. Federally funded as model project during data collection period (MODEL)	SEP	6	.44	.50	in
	2. Total size of district in terms of student enrollment (ENROLREG)	District	14	40,000	62,534	in
SCHOOL	1. Support by principal for integration (MSUPPT)	Field Worker	42	2.68	.96	in
TEACHER	1. Teacher's age (TCHAGE)	Field Worker	90	31.8	6.7	out
	2. Teacher's sex (TCHSEX)	Field Worker	90	1.2	.42	out
	3. Peer tutors friendliness toward severely handicapped students (TUTBEHAV)	Field Worker	86	2.78	1.96	out

Table 10 (Continued)

Domain	Predictors	Source	N	Mean	S.D.	Selection for any full model
TEACHER (Cont.)	4. Other nonhandicapped student's friendliness toward severely handicapped students (NHBEHAV)	Field Worker	86	3.01	1.29	out
	5. Change in amount of integration across school year (INTCHGE)	Field Worker	65	3.14	.93	out
	6. Change in quality of integration across data collection periods (QUALCHGE)	Field Worker	65	3.22	.86	out
	7. Teacher's efforts to achieve integration (PROINTG)	Field Worker	90	2.84	.89	in
	8. Frequency of regular education teachers in environment (REGT)	Field Worker	90	1.29	1.29	in
	9. Frequency of aids in environment (AID)	Field Worker	90	3.42	1.24	out
	10. Frequency of other special education teachers in environment (OSPECT)	Field Worker	90	2.12	1.40	in
	11. Frequency of consultants in environment (CONSULT)	Field Worker	90	.67	.74	in
	12. Frequency of therapists in environment (THERPST)	Field Worker	90	2.24	1.07	out
	13. Frequency of principal in environment (PRINPAL)	Field Worker	90	.89	.97	out
	14. Frequency of student teachers in classroom (STUDT)	Field Worker	90	.98	1.39	out
	15. Frequency of parents in classroom (PARENT)	Field Worker	90	.61	.75	out
	16. Teacher's enthusiasm for and enjoyment of teaching severely handicapped students (ENTHUS)	Field Worker	90	3.14	.92	in

Table 10 (Continued)

Domain	Predictors	Source	N	Mean	S.D.	Selection for any full model
TEACHER (Cont.)	17. Degree of prior preparation of nonhandicapped students (NHPREP)	Field Worker	89	.70	1.05	out
	18. Ongoing direction to and facilitation of nonhandicapped students during their interactions with severely handicapped students (NHDIREC)	Field Worker	87	1.5	1.05	in
STUDENT	1. Number of objectives written on IEP (OWRITTEN)	IEP	231	47.80	46.32	in
	2. Number of integration objectives written on IEP (INTWRIT)	IEP	231	8.11	21.67	in
	3. Presence of parents' signature on IEP (SIGNED)	IEP	242	1.17	.38	in
	4. Student's ability to communicate independently (TALKING)	TEA	245	1.60	.90	in
	5. Student's ability to move around the environment independently (MOBILITY)	TEA	245	2.89	1.26	in
	6. Student's ability to take care of own personal hygiene (SELFHELP)	TEA	245	2.28	1.04	out
	7. Student's ability to function independently at home and in the community (DOMESTIC)	TEA	245	1.41	.68	out
	8. Student's ability to solve problems and handle academic material independently (COGNITIV)	TEA	245	1.58	.62	in
INTEGRATED SETTING	A. People present during observation					
	1. Number of teachers and aids (MTCHSTAF)	Observation	245	2.91	1.64	in
	2. Number of therapists (MTHERPST)	Observation	245	.25	.38	out
	3. Number of peer tutors present (MPEERTTR)	Observation	245	1.62	2.93	in

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Table 10 (Continued)

Domain	Predictors	Source	N	Mean	S.D.	Selection for any full model
INTEGRATED SETTING (Cont.)	4. Number of nonhandicapped students (MNONHAND)	Observation	245	8.62	7.80	in
	5. Number of severely handicapped students (MHANDICP)	Observation	245	5.96	4.65	in
	6. Number of principals and/or administrators (MADMIN)	Observation	245	.04	.11	in
	7. Number of people from community (MCOMMUN)	Observation	245	1.05	3.03	in
	8. Number of other adults (MOTHADLT)	Observation	245	.50	1.12	out
	B. Organization of environment					
	1. Social density in the room (MSOCDEN)	Observation	45	3.45	.89	out
	2. Noise level within the room (MNOISE)	Observation	236	3.55	.65	in
	3. Number of brightness contrasts in ambient light (MBRIGHT)	Observation	236	2.37	.61	in
	4. Number of students with materials (MMATDEN)	Observation	236	2.70	1.19	in
	5. Grouping of types of materials in a given place (MLRNAREA)	Observation	236	1.71	.86	in
	6. Organization of places in which materials are grouped (MSPASEP)	Observation	235	1.65	.95	in
	7. Accessibility of materials in the environment for the observed student (MMATACES)	Observation	235	2.90	1.38	in
	8. Appropriateness of materials to the chronological age of the target student (MAGEAPP)	Observation	217	3.35	.93	in

Table 10 (Continued)

Domain	Predictors	Source	N	Mean	S.D.	Selection for any full model
SOCIAL BIDS	1. Severely handicapped target students' behavior toward nonhandicapped students (S-N)	Observation	245	.52	.67	criterion
	2. Nonhandicapped students' behavior toward severely handicapped target students (N-S)	Observation	245	.86	1.00	criterion
	3. Severely handicapped target students' behavior toward other severely handicapped students (S-H)	Observation	245	.20	.46	criterion
	4. Other severely handicapped target students' behavior toward severely handicapped target students (H-S)	Observation	245	.14	.33	criterion

variance in the stepwise regression analyses are noted in table 10 by the word IN.

The statistically significant variables which emerged as the best predictors from each of the domains are described in the ensuing sections (Section III). Subsequently, we will examine each of these predictors when placed in the context of information from other domains to determine whether they have unique explanatory value (Section IV). Finally, we will use stepwise regression analysis to reduce the number of predictors from the full ecological model and develop a more parsimonious model which includes the best overall predictors of the degree of integration (Section V). The table of number of cases, means standard deviations of each variable within domains and the correlation matrices for variables within each domain are presented in Appendix D. The table of number of cases, means, standard deviations of each variable within the full model and the correlation matrix including all the variables which are enterred in the full model from the separate domain analyses is included in Appendix E.

IV.III.A State Policy Variables

IV.III.A.1 S-N Bids - Three types of information about state policy were significant predictors of the rate of social bids from severely handicapped students to nonhandicapped students (S-N). These variables were:

1. Funds from 94-142 were specifically earmarked for severely handicapped programs (SPHFUNDS).
2. The number of categories in the state definition of handicapped children (CATEGORY).
3. Proportion of LRE hearings in the state (PSEALRE).

Taken together these three predictors accounted for 13.3% of the variance in the rate of social bids to nonhandicapped students ($F = 5.74$, $p < .005$).

IV.III.A.2 S-H Bids. - State level information was not as predictive of the social behavior of severely handicapped students to one another. The number of master's degree granting programs of colleges within the state did account for a significant proportion of the variance in bids to other severely handicapped students (S-H) in integrated settings. The rate of interaction with other severely handicapped students was positively related to the number of master's degree granting institutions with programs for teachers of the severely handicapped.

IV.III.A.3 N-S Bids. - One state level variable accounted for a statistically significant proportion of the variance in N-S bids: the percentage of full time professionals specifically allocated to severely handicapped programs. This variable accounted for 3% of the variance in rate of N-S bids.

IV.III.B District And Teacher's Support For Integration

IV.III.B.1 S-N Bids. - Local support available to special education teachers and ratings of the teacher's support for integration were made by field workers who had observed the teachers for 6 months. The average rate of social interaction was obtained for each of the 90 teachers of severely handicapped students. Field worker's ratings were analyzed with the average rate of interaction in a teacher's class as the criteria. Four statistically significant predictors of the rate of social bids by severely handicapped students to nonhandicapped students emerged from the stepwise regression analyses. These predictors were 1) the amount of support the teacher had from other special education teachers; 2) the friendliness of nonhandicapped students to the severely handicapped students; 3) the extent to which the teacher was in favor of integrating severely handicapped students with nonhandicapped students; and 4) the amount of support from regular education teachers for integration. Taken together in the stepwise regression analysis these four predictors from the teacher domain accounted for 15% of the variance in social behavior to nonhandicapped students ($F = 8.94$, $p < .005$).

IV.III.B.2 S-H Bids. - Only one statistically significant predictor of social bids to other severely handicapped students emerged at the level of the teacher. The amount of enthusiasm for teaching severely handicapped students was a significant predictor of the rate of social bids to other severely handicapped students in integrated settings. This predictor accounted for 10.5% of the variance in S-H bids ($F = 5.77$, $p < .025$).

IV.III.B.3 N-S Bids - Analysis of the social input to severely handicapped students from nonhandicapped students revealed three statistically significant predictors. The rate of social bids from nonhandicapped students to severely handicapped students was accounted for by three variables at the teacher level: 1) the amount of direction provided to nonhandicapped students when they were interacting with handicapped students; 2) the amount of assistance to the teacher from other special educators; and 3) the amount of assistance to the special educator from district level consultants. Taken together these variables accounted for 38% of the variance in rates of social behavior by nonhandicapped students to severely handicapped students.

IV. III. C Organization Of The Physical Environment

At the beginning of each observation field workers rated the observed environments in terms of eight aspects of the physical organization. These ratings were averaged across all observations and used as predictors of social interactions by severely handicapped students with other students.

IV. III. C. 1 S-N Bids. - The organization of the environment differentially influenced social bids to nonhandicapped students versus social bids to other handicapped students. Three variables were significant predictors of social bids by severely handicapped students to nonhandicapped students The number of clearly defined groupings of materials in the environment, the separation of groups of materials from one another and the chronological age appropriateness of materials in these areas accounted for 5% of the variance in S-N bids ($F = 3.54$, $p < .02$).

IV. III. C. 2 S-H Bids. - Aspects of the physical environment which were predictive of the rate of social bids to other handicapped students included 1) the accessibility of materials to the severely handicapped target students; 2) the proportion of severely handicapped students occupied with materials at the time of the observation; 3) the number of clearly defined groupings of materials in the environment; 4) the number of brightness contrasts of ambient light within the environment. These aspects of environmental organization accounted for 12% of the variance in social bids from severely handicapped students to other students ($F = 7.52$, $p < .001$).

IV. III. C. 3 N-S Bids. - The social behavior by nonhandicapped students to severely handicapped students appeared to be under the control of the same features of the environment as the behavior by the handicapped toward the nonhandicapped students. The age appropriateness of materials and the spatial separation of groups of materials accounted for a significant proportion of N-S bids. In addition the amount of noise in the environment significantly predicted the rate of N-S bids. These three variables accounted for approximately 9% of variance in N-S bids ($F = 6.68$, $p < .001$).

IV. III. D Persons In The Social Environment

The number and type of people present were related consistently to the social output of severely handicapped students to other students. The average number of teaching staff present and the average number of nonhandicapped students present accounted for significant proportions of the variance in rate of social bids to both handicapped and nonhandicapped students. In addition the number of persons from the community significantly predicted rate of bids to nonhandicapped students. The number of handicapped students present was a third

significant predictor of rate of bids to other handicapped students.

IV.III.D.1 S-N And S-H Bids. - Thus the three aspects of the social environment which predicted S-N bids were 1) number of teaching staff present; 2) number of nonhandicapped students present; and 3) number of community persons present. These three predictors accounted for 20% of the variance in S-N bids ($F = 18.77$, $p < .001$). The three significant aspects of the social environment which predicted bids to other handicapped students (S-H) were 1) number of teaching staff present; 2) number of handicapped students; and 3) number of nonhandicapped students present. These three variables accounted for 14% of the social behavior towar s other severely handicapped students ($F = 12.14$, $p < .001$).

IV.III.D.2 N-S Bids. - In comparison to the social bids by severely handicapped students, a broader array of information about the social environment was predictive of the social behavior of nonhandicapped students toward the severely handicapped (N-S bids). Five aspects of the social context predicted a statistically significant 21% of the N-S bids ($F = 12.22$, $p < .001$). The five social environment variables accounting for significant amounts of N-S bids were 1) number of peer tutors in the environment; 2) number of handicapped students in the environment; 3) number of other community persons in the environment; 4) number of administrators in the environment; and 5) number of therapists in the environment.

IV.III.E IEP Objectives And Target Student's Functional Skills

Separate ratings were made of each target student's functional abilities in the areas of communication, self-help, domestic, mobility and cognitive/academic skills. In addition the number of objectives written on the target student's IEPs, the number of integration objectives, and whether the IEP was signed by the target student's parents were included as predictors of the degree of integration.

IV.III.E.1 S-N Bids. - The best predictors of the rate of social bids to nonhandicapped students were 1) the number of IEP objectives written for the target student, and 2) the cognitive/academic skills of the student. These two predictors accounted for 6% of the variance in S-N social bids ($F = 7.47$, $p < .001$).

IV.III.E.2 S-H Bids. - The social behavior of severely handicapped students to other handicapped students (S-H) were best predicted by 1) the communicative ability of the severely handicapped student and 2) the mobility of the severely handicapped student. These two variables accounted for 12% of the variance in S-H bids ($F = 14.82$, $p < .001$).

IV.III.E.3 N-S Bids. - The rate of social behavior by nonhandicapped students (N-S) to target students was significantly predicted by four variables:

1. The number of objectives written on the IEP
2. The mobility of the target student
3. The number of integration objectives written
4. Whether or not the target student's IEP was signed by his parents

IV.IV FULL ECOLOGICAL MODELS PREDICTING INTEGRATION

Everyone is familiar with the maxim "correlation does not imply causality." Indeed, there are many dangers in concluding that x causes y when x is only correlated with y. An example of such an error would be Sir Francis Galton's conclusion that intelligence was genetically inherited on the grounds that many of the most successful people in the history of Britain were from a relatively small number of families. Clearly, an alternative explanation was that these family environments differed and such differences in resources and access to experiences are as plausible an explanation of social achievement as genetic-inheritance.

Since the two types of information are confounded one cannot decide which is the most plausible explanation unless there is some variation in environment relative to genetic endowment.

Any conclusion about a statistically significant correlation must be qualified in two ways:

1. If in fact there is an underlying causal relationship, the direction of effect is unknown (i.e., x may cause y or y may cause x.
2. A third causal variable may be producing the relationship between x and y and hence both x and y may be the effects of this unknown causal variable.

The multiple linear regression approach is designed to reduce the likelihood that the relationship between two variables is spurious by examining that relationship within the context of a variety of other potential causal factors. This reduces the impact of the second qualification which must be made regarding correlational analyses. However, true causal modelling requires some additional assumptions in

order to determine the direction of effects. Multiple linear regression analysis was used within the integration evaluation project for isolating key predictors of integration rather than for causal explanation of integration (Pedazhur, 1982).

The regression models which combine the significant predictors from each of the separate domains are presented in Tables 11, 12 and 13. In addition, we added to these predictors 1. the rate of social bids from the other participants within an interaction; 2. the size of the school district in terms of total enrollment; 3. whether the district was federally funded as a demonstration model for severely handicapped students and 4. the total amount of integration scheduled per week for each target student. Table 11 presents data predicting S-N while Table 12 presents data predicting N-S. Table 13 presents the variables which emerged as the best predictors of the rate of S-H bids from each domain of information. These tables provide RSQ (squared multiple correlation coefficient) change when each variable is individually eliminated from the full model and F tests of the statistical significance of such a change. In all these analyses pairwise elimination of missing data was utilized. This method eliminates a target student's information in the calculation of each correlation between predictors and criteria when a predictor is not available but includes the remaining information which is available for the target student. The test of the full model is presented at the bottom of each table.

Thus, from Table 11, 68% of the variance in social bids by severely handicapped students to nonhandicapped students (S -N) was accounted for by the 19 predictors indicated. The 20 predictors in Table 12 accounted for 70% of the variance in social bids by nonhandicapped students to severely handicapped students (N -S). The 15 predictors in Table 13 accounted for 83% of the variance in social bids to other handicapped students.

To determine whether a single type of information was statistically significant in its own right, that information was subtracted from the full model. If the elimination of that information produces a significant reduction in RSQ, then one can conclude that such information is significant in its own right over and above all the other information.

Although at this point we have reduced the number of possible explanations of social interaction with severely handicapped students in integrated settings , the arrays of predictors (between 15 and 20) for each full model is still rather unwieldly. In order to find a more parsimonious set of information for predicting the degree of integration, the three full models were reduced through the use of stepwise regression analysis.

Table 11

Predictors of the Average Rate Per Minute of Social Bids from Severely Handicapped Students to Nonhandicapped Students (S-N)

DF	SUM OF SQUARES	RSQ CHANGE	F	SIG F	SOURCE
1	.06	.001	.35	.552	PSEALRE
1	.11	.001	.67	.413	CATEGORY
1	.56	.006	3.52	.062	SPHFUNDS
1	2.77	.032	17.41	.000	ENROMENT
1	1.74	.020	10.90	.001	MODEL
1	.49	.006	3.07	.081	PRINCIPAL
1	.95	.011	5.96	.016	OSPECT
1	.00	.000	.05	.820	REGT
1	.96	.011	6.05	.015	PROINTG
1	1.54	.028	9.70	.002	TIME1
1	.15	.002	.97	.326	OWRITTEN
1	.14	.002	.88	.349	COGNITIV
1	.64	.007	4.02	.046	MTCHSTAF
1	2.81	.033	17.62	.000	MNONHAND
1	.13	.002	.82	.366	MCOMMUN
1	.00	.000	.04	.838	MSPASEP
1	.00	.000	.00	.983	MLRNAREA
1	.14	.002	.89	.346	MAGEAPP
1	25.60	.297	160.62	.000	N-S
19	58.89	.68	19.45	.000	FULL MODEL
171	27.24				RESIDUAL
190	86.13				TOTAL

Table 12

Predictors of the Average Rate Per Minute of Social Bids from Nonhandicapped Students to Severely Handicapped Target Students (N-S)

DF	SUM OF SQUARES	RSQ CHANGE	F	SIG F	SOURCE
1	4.87	.026	14.54	.000	FTESPL
1	1.69	.009	5.05	.026	ENROLREG
1	.67	.004	1.99	.160	MODEL
1	1.63	.008	4.87	.029	MSUPPT
1	.22	.001	.65	.420	OSPECT
1	.41	.002	1.22	.272	CONSULT
1	5.36	.028	16.02	.000	DIREC to NH
1	1.90	.010	5.68	.018	OWRITTEN
1	2.63	.014	7.85	.006	INTWRIT
1	.80	.004	2.40	.123	SIGNED
1	1.09	.006	3.25	.073	MOBILITY
1	1.30	.007	3.88	.050	MADMIN
1	.07	.000	.21	.649	MTHERPST
1	6.36	.033	18.99	.000	PEERTUTOR
1	.01	.000	.03	.872	MHANDICP
1	.28	.001	.82	.365	MCOMMUN
1	.12	.001	.37	.546	MSPASEP
1	.15	.001	.44	.508	MAGEAPP
1	2.39	.012	7.14	.008	NOISE
1	52.70	.277	157.43	.000	S-N
20	133.32137	.70	19.91409	.000	FULL MODEL
170	56.90602				RESIDUAL
190	190.22739				TOTAL

Table 13

Predictors of the Rate Per Minute of Social Bids from Severely Handicapped Students to Other Severely Handicapped Students in Integrated Settings (S-H)

DF	SUM OF SQUARES	RSQ CHANGE	F	SIG F	SOURCE
1	.31	.007	7.80	.006	MASPH
1	.00	.000	.00	.979	ENROLREG
1	.02	.000	.43	.511	MODEL
1	.00	.000	.04	.839	MSUPPT
1	.43	.010	10.93	.001	ENTHUS
1	.00	.000	.04	.836	TALKING
1	.02	.000	.42	.518	MOBILITY
1	.00	.000	.00	.949	MTCHSTAF
1	.02	.000	.43	.514	MNONHAND
1	.04	.001	.99	.320	MHANDICP
1	.01	.000	.01	.919	MBRICHT
1	.00	.000	.06	.807	MLRNAREA
1	.17	.004	4.38	.038	MMATACES
1	.08	.002	2.01	.158	MMATDEN
1	23.80	.546	606.19	.000	H-S
15	36.16	.830	61.38	.000	FULL MODEL
189	7.42				RESIDUAL
204	43.58				TOTAL

IV.V OBTAINING THE BEST PREDICTORS OF INTEGRATION

To recount the findings thus far:

1. The social behavior of severely handicapped students does differ in integrated and segregated settings.

2. The rate of interaction with nonhandicapped students within integrated settings is significantly related to information about state special education policy, district size and local support of integration, to special educator's attitudes about integration, to aspects of the special education planning process and to characteristics of the severely handicapped students.

The analyses to be discussed in this section, combine the rate of behavior of others toward the target student with the predictors delineated from the stepwise regression analyses to determine which of them are the best predictors of degree of integration.

The variables which emerged as the best predictors of social interactions between severely handicapped children and other children from each of the separate domains of information were included in a stepwise regression analysis. The goal was to account for as much as possible of the variation in rates of social interaction using the smallest array of information.

The stepwise regression analyses entered variables from any domain which accounted for a statistically significant proportion ($p < .10$) of the variance in criteria until a variable was encountered with a first order correlation and a statistically significant beta weight which differed in sign. At that point, the stepwise regression analysis was stopped. This procedure was used to prevent the inclusion of variables with unstable regression weights and to prevent post hoc speculation about effects of "suppressor" variables in the absence of an adequate theory about integration of severely handicapped students (Cohen & Cohen, 1975; Pedazhur, 1982; Rock, 1982).

The social output of severely handicapped students to nonhandicapped students in integrated environments was best predicted by the social input from nonhandicapped students. Other factors which also accounted for a significant amount of S-N bids were the organization of the environment and the external supports and attitudes of special education teachers in those environments. However, social behavior of severely handicapped students to other severely handicapped students was not so well understood in terms of the information at the state, district, school and environmental levels. The best predictors of social behavior of severely handicapped students to other handicapped students was 1) the H-S social bids 2) the enthusiasm of the special education teacher 3)the number of masters degreee granting colleges offering specialization for severely handicapped students; and 4)the accessibility of materials in the special education classroom.

However, these last three predictors of S-H bids accounted for very small, albeit statistically significant, proportions of the variance.

IV.V.A Social Behavior From SH Students To NH Students (S-N)

The significant predictors from each of the domains were combined in a stepwise regression analysis to derive a reduced model with the overall best predictors of social bids from severely handicapped students to nonhandicapped students (S-N). This model is presented in Table 14. The table provides for each predictor the degrees of freedom, sum of squares, RSQ change, the F value for that amount of change in predictability, and the statistical significance of F. This model which includes five predictors accounts for 62% of the variance in rate of S-N bids. These 5 variables offer a considerably less complex model than the one which emerged from the separate domain analyses and included 19 variables which accounted for 68% of the variance in S-N bids. Bids from nonhandicapped students (N-S) was the best predictor of bids to severely handicapped students (S-N). The rate of N-S bids uniquely accounted for 40.9% of the variance in S-N. The next most significant predictor of S-N was the average number of nonhandicapped students in the integrated environment. This variable uniquely accounted for 8.4% of the variance in S-N. The number of hours per week the teacher had scheduled the target student to be integrated was the third best predictor of social bids from severely handicapped students to nonhandicapped students. The amount of scheduled integration time accounted for 3.4% of the variance in rate of S-N bids. The number of special education teaching staff in the environment during the observation was the fourth best predictor of S-N bids and accounted for 2.8% of the variance. Finally, the size of the school district also accounted for 2.8% of the variance in rate of S-N bids. These results are depicted in the pie chart presented in Figure 14.

Of the statistically significant predictors of S-N behavior, four had a positive relationship, and one had a negative relationship. The Pearson correlations and Beta weights for each variable are provided in Table 14. The positively related predictors were: 1) the rate of N-S bids, 2) the number of nonhandicapped students in the integrated environment, 3) the number of hours of scheduled integration per week, 4) the size of the school district in terms of student enrollment. The statistically significant negative predictor was the number of special education teachers and aids in the integrated environment.

Table 14

Full Models Including Best Predictors of Interactions

Between Severely Handicapped and Nonhandicapped Students

A. Predicting Social Bids From Severely Handicapped Target Students to Nonhandicapped Students (S-N)

DF	SUM OF SQUARES	RSQ CHANGE	F	SIG F	SOURCE	BETA	S.E. BETA	CORREL.
1	38.92	.409	221.77	.001	N-S	.66	.04	.69
1	2.63	.028	14.99	.001	ENROLREG	.17	.04	.16
1	2.72	.028	15.48	.001	MTCHSTAF	-.18	.04	-.27
1	7.96	.084	45.37	.001	Nonhandicapped	.20	.04	.20
1	3.29	.034	18.77	.001	Time	.19	.04	.19
5	59.23	.62	67.51	.001	Full Model			
205	35.97				Residual			
210	95.20				Total			

B. Predicting Social Bids From Nonhandicapped Students to Severely Handicapped Target Students (N-S)

DF	SUM OF SQUARES	RSQ CHANGE	F	SIG F	SOURCE	BETA	S.E. BETA	CORREL.
1	72.21704	.35015	202.92139	.0000	S-N	.61	.04	.69
1	15.81781	.07669	44.44617	.0000	PEERTUTOR	.28	.04	.31
1	15.27638	.07407	42.92483	.0000	DIREC TO NH	.30	.05	.28
1	10.65639	.05167	29.94319	.0000	FTESPH	-.26	.05	-.18
1	2.45244	.01189	6.89107	.0093	NOISE	-.11	.04	-.12
5	134.71329		75.70570	.0000	Full Model			
201	71.53324	.65			Residual			
	206.24653				Total			

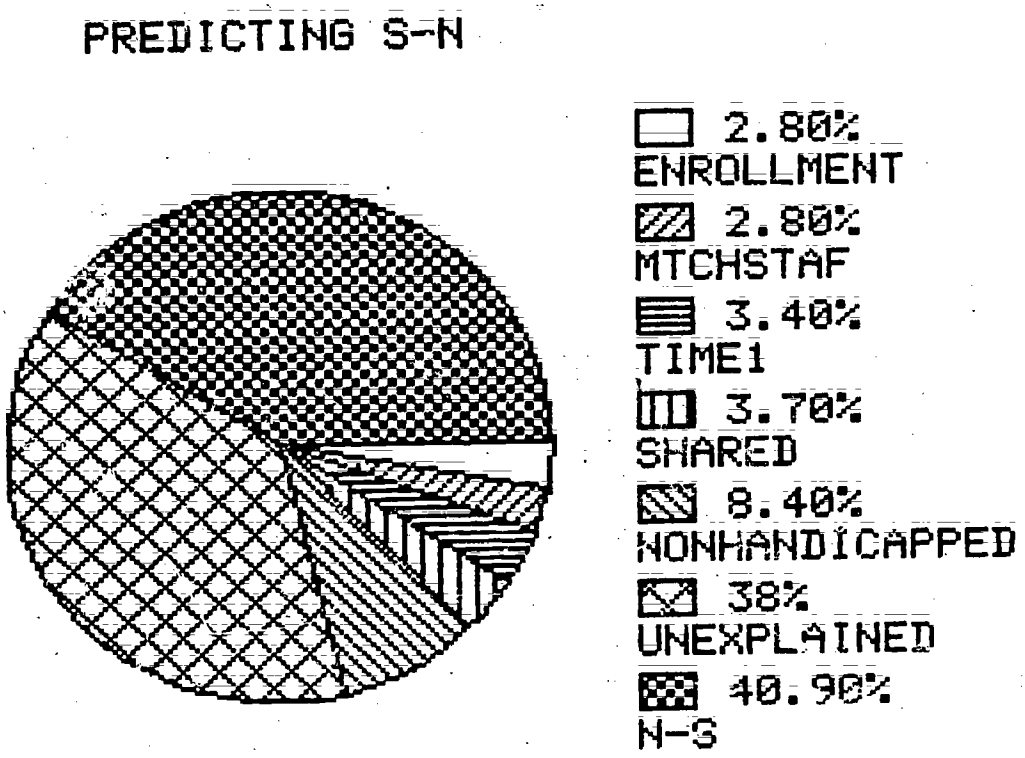


Figure 14. Best predictors of S-N bids.

IV.V.B Social Behavior From NH Students To SH Students (N-S)

Since the best predictor of interaction by severely handicapped students in integrated settings was the behavior of nonhandicapped students, the next question was, "What accounts for the behavior of nonhandicapped students when integrated with the severely handicapped?" The model which was built from the best predictors from each separate domain of information included 20 variables and accounted for 70% of the variance in rate of social bids from nonhandicapped to severely handicapped students

N-S). Stepwise regression analysis of the 20 predictors from each separate domain resulted in a less complex model. The resulting model included 5 predictors and accounted for 65% of the variance in rate of N-S bids. The full model for answering this question is presented on the bottom half of Table 14.

The rate of bids from the severely handicapped to nonhandicapped students accounted for 35% of the bids from nonhandicapped students. Holding this information constant, four additional variables uniquely accounted for statistically significant proportions of the variance in rate of social bids by nonhandicapped students to severely handicapped students. In order of the amount of variance uniquely explained, the statistically significant predictors of N-S, holding S-N constant, were:

1. the average number of peer tutors in the environment when it was integrated accounting for 7.7% of variance in N-S bids;
2. the amount of direction provided by the teacher to nonhandicapped students in their interactions with the handicapped which accounted for 7.4% of the variance in N-S bids;
3. the number of full-time persons specifically designated in the state department of education as consultants for severely handicapped programs (FTSDH) which accounted for 5.2% of the variance in N-S bids;
4. the amount of noise in the integrated environment which accounted for 1.2% of the variance in N-S bids;

These results are depicted in the pie chart presented in Figure 15.

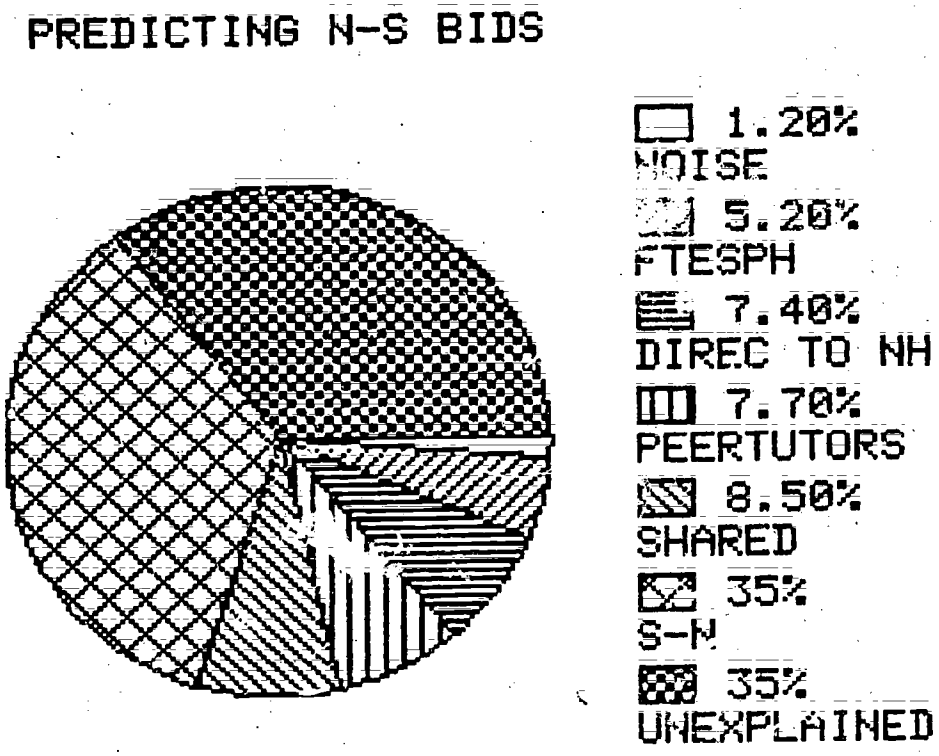


Figure 15. Best predictors of N-S bids.

Three of the predictors accounting for significant proportions of N-S bids had a positive relationship to the rate of N-S bids. These were, in the order of explanatory power: 1) rate of S-N bids, 2) number of peer tutors present at the time of the observation, 3) amount of direction provided by the teacher to the peer tutors. Thus the higher the level on these predictors the greater the rate of social bids to severely handicapped students from nonhandicapped students. Two of the statistically significant predictors had negative relationships with the rate of N-S bids: 1) the number of SEA staff designated specifically for severely handicapped programs, 2) the amount of noise in the environment. Thus, the higher the levels of these two variables the lower the rate of

social behavior from nonhandicapped students to severely handicapped students.

IV.V.C Social Bids From Target Students To SH Students (S-H)

As noted at the outset, significantly less behavior is directed to other severely handicapped students when nonhandicapped students are present in the social setting. Five predictors uniquely accounted for the behavior which was directed to other severely handicapped students (S-H). Over half (63.2%) of the variance in S-H social behavior was accounted for by H-S social behavior. These results are presented in Table 15.

The four additional predictors which uniquely accounted for S-H social behavior in integrated settings were: 1) the enthusiasm of the special education teacher which accounted for 1.3% of the rate of S-H bids, 2) the number of colleges and universities in the state granting master's degrees in special education with specialization in severely handicapped populations which accounted for .3% of S-H bids 3) the accessibility of materials to severely handicapped target students at the time of the observation which accounted for .4% of the variance in S-H bids and 4) the number of handicapped students in the environment who were using materials which also accounted for .4% of the variance in S-H bids. These results are depicted in the pie chart presented in Figure 16.

Table 15

Full Model Including Best Predictors of Interactions From Severely Handicapped Target Students to Other Severely Handicapped Students (S-H)

DF	SUM OF SQUARES	RSQ CHANGE	F	SIG F	SOURCE	BETA	S.E. BETA	CORREL.
1	28.86896	.63150	758.86557	.0000	H-S	.83	.03	.89
1	.16358	.00358	4.30002	.0393	Density of Materials	.07	.03	.25
1	.18243	.00399	4.79544	.0296	MATACESS	.08	.04	.29
1	.36860	.00806	9.68928	.0021	MA Programs	.09	.03	.22
1	.60606	.01326	15.93115	.0001	Enthusiasm	-.12	.03	-.25
5	37.76401		198.53714	.0000	Full Model			
209	7.95083	.83			Residual			
214	45.71484				Total			

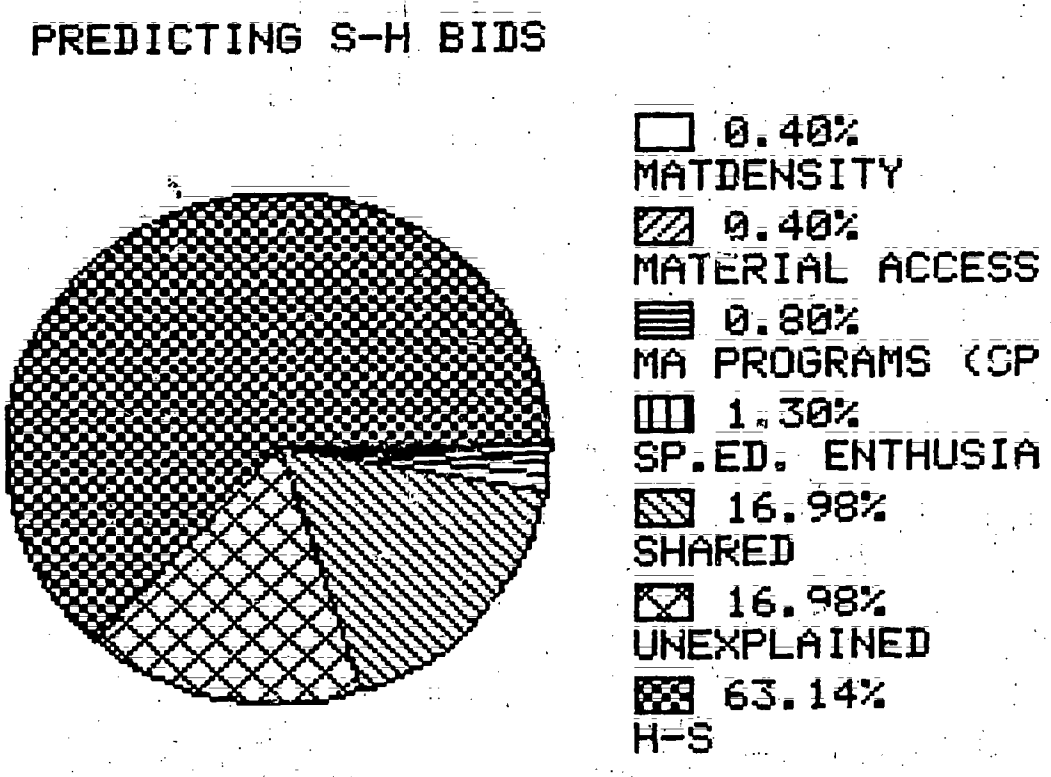


Figure 16. Best predictors of S-H bids.

The variables which were positively related to rate of S-H were a) rate of H-S bids; b) number of master's degree granting programs for teachers of severely handicapped students, and c) the accessibility of materials to severely handicapped target students, d) the accessibility of materials for other severely handicapped students. The teacher's enthusiasm for teaching severely handicapped students was negatively related to the amount of interaction among such students in integrated environments. Table 15 provides a summary of the results for regression analyses to select the best predictors of S-H bids.

IV.VI PROPORTION OF IEP OBJECTIVES ACHIEVED

To summarize, we have argued based on the literature that social skills are critical to the development of severely handicapped students. The results have shown that:

1. more social opportunities are realized in actual social interaction in integrated versus in segregated settings;

2. a wide variety of variables influence the rate of social interaction of severely handicapped students with nonhandicapped students;

3. information which was significant in its own right, statistically controlling for other relevant influences, included a) the social behavior of other members of the dyad, b) the number of nonhandicapped students, especially students who were tutors prepared for interaction with severely handicapped students, c) the amount of integration planned per week; d) the direction which teachers provided to nonhandicapped students to facilitate the interaction; e) less presence of specialized staff during the integrated time.

A notable exception to the above list of statistically significant predictors is any measure of the target students' functional abilities. Although such measures were significantly correlated with social interaction the importance of this form of information was overshadowed by the information listed above which was more predictive of social interaction with nonhandicapped students.

The next question is whether social interaction with nonhandicapped students accounts for any educational improvement in severely handicapped students. To address this question, the proportion of objectives met on the target students' IEP's over the 1981-82 school year was computed. Teachers provided each target student's IEP identified by the ETS student number to protect the confidentiality of the information. The IEP was obtained in October 1981 and again in May 1982. The number of objectives which the teacher recorded as achieved in May 1982 was divided by the total number of objectives written on the IEP in October 1981 to give the proportion of educational objectives attained.

The proportion of objectives met was used as the criterion in a full model which included the functional level of the target students, the rate per minute of interaction with nonhandicapped students, and the rate per minute of interaction with other severely handicapped students in the integrated setting.

The three variables were computed in the following ways. The average rate of S-N bids per minute was added to the rate of N-S bids per minute to obtain an overall rate of interaction involving both severely handicapped and nonhandicapped students. The measure of functional level for each severely handicapped target student was obtained by adding the scores from the ratings of teacher's assessments in the areas of self-help, communication, mobility, independent living and cognition. Finally, the rate of interaction with other handicapped students in integrated settings was obtained by adding the rate per minute of S-H bids to the rate of H-S bids.

These three variables accounted for 14.6% of the variance in the proportion of objectives met. The target student functional level uniquely accounted for 9.7% of the variance in proportion of objectives met ($F = 24.69$, $p < .001$). However, controlling for the effect of functional level, the rate of interaction with nonhandicapped students accounted for a statistically significant 2.1% of the variance in proportion of IEP objectives met ($F = 5.43$, $p < .025$). Thus, rate of interaction with nonhandicapped students was related to the educational achievements of severely handicapped students, independently from the functional abilities of the severely handicapped students.

The rate of interaction with other severely handicapped students was included in the model to separate social interactive abilities per se, as predictors of objectives met from the effects of interactions specifically with nonhandicapped students. Although the rate of interaction with nonhandicapped students was a significant predictor of the proportion of educational objectives met, statistically controlling for the rate of S-H bids, the rate of interaction with other handicapped students in integrated settings did not itself account for a significant proportion of the variance in objectives met ($RSQ = .004$; $F < 1.0$).

IV.VII IMPACT OF INTEGRATION UPON ATTITUDES OF NH STUDENTS

Thus far the results have shown that integration does lead to social interaction between severely handicapped students and nonhandicapped students, that such interaction can be explained by a variety of variables over and above the severity of a student's handicap, and that the amount of social interaction which a severely handicapped student has with nonhandicapped students predicts the proportion of educational objectives met by the severely handicapped student at the end of the school year. An additional question of importance is whether integration of severely handicapped students influences nonhandicapped students in any way. We chose to address this question by examining the attitudes of nonhandicapped students toward handicapped individuals. Two analyses were conducted to determine whether there was a relationship between integration and the attitudes of nonhandicapped students. The first analysis addressed the question of whether students in schools which were integrated with severely handicapped students had different attitudes toward handicapped students than students in comparable schools with no severely handicapped students.

The second analysis examined for integrated schools the average attitude scores at the end of the school year as a function of average pretest scores for the school and the average rates of interaction with handicapped and nonhandicapped students in integrated groups in that school.

IV.VII.A Contact Versus No-Contact Schools

A total of 321 students had both pretest and posttest scores. Of these 170 students (125 females and 45 males) had contact with severely handicapped students and a total of 158 students (83 females and 75 males) did not have contact.

Repeated measures analysis of variance were separately conducted for each of the three versions of the Acceptance Scale. The two between groups factors were sex and group (contact versus no contact with SH students). Testing was the within subjects factor.

At the upper elementary (3-6) and high school (7-12) levels nonhandicapped students who had the opportunity to have contact with SH students had significantly more positive acceptance scores than students who did not have such contact. The effect of contact upon acceptance scores was significant at $p < .001$ (for grades 3-6, $F = 32.42$, $df = 1, 136$; for grades 7-12, $F = 25.68$, $df = 1, 147$). There was no difference between the contact and no-contact groups in acceptance of the handicapped in grades K through 2.

Regardless of the grade level of students, girls responded more positively to opinion statements about handicapped students than did boys. For the K-2 students, the effect of sex was statistically significant at $p < .025$ ($F = 5.95$, $df = 1, 33$). For the grades 3-6 and for grades 7-12 the effect of sex was significant at $p < .001$. Female students in grades 3-6 had more positive attitudes ($F = 11.46$, $df = 1, 136$) as did female students in grades 7-12 ($F = 11.85$, $df = 1, 147$). There were no significant pretest versus posttest differences and no significant interactions between testing and contact groups or sex nor were there significant interactions between sex and groups. Means for pretest and posttest scores are depicted for groups by sex in Figures 17 and 18. Thus, the data clearly refute the notion that contact with severely handicapped students has a negative effect upon the attitudes of nonhandicapped students toward the handicapped.

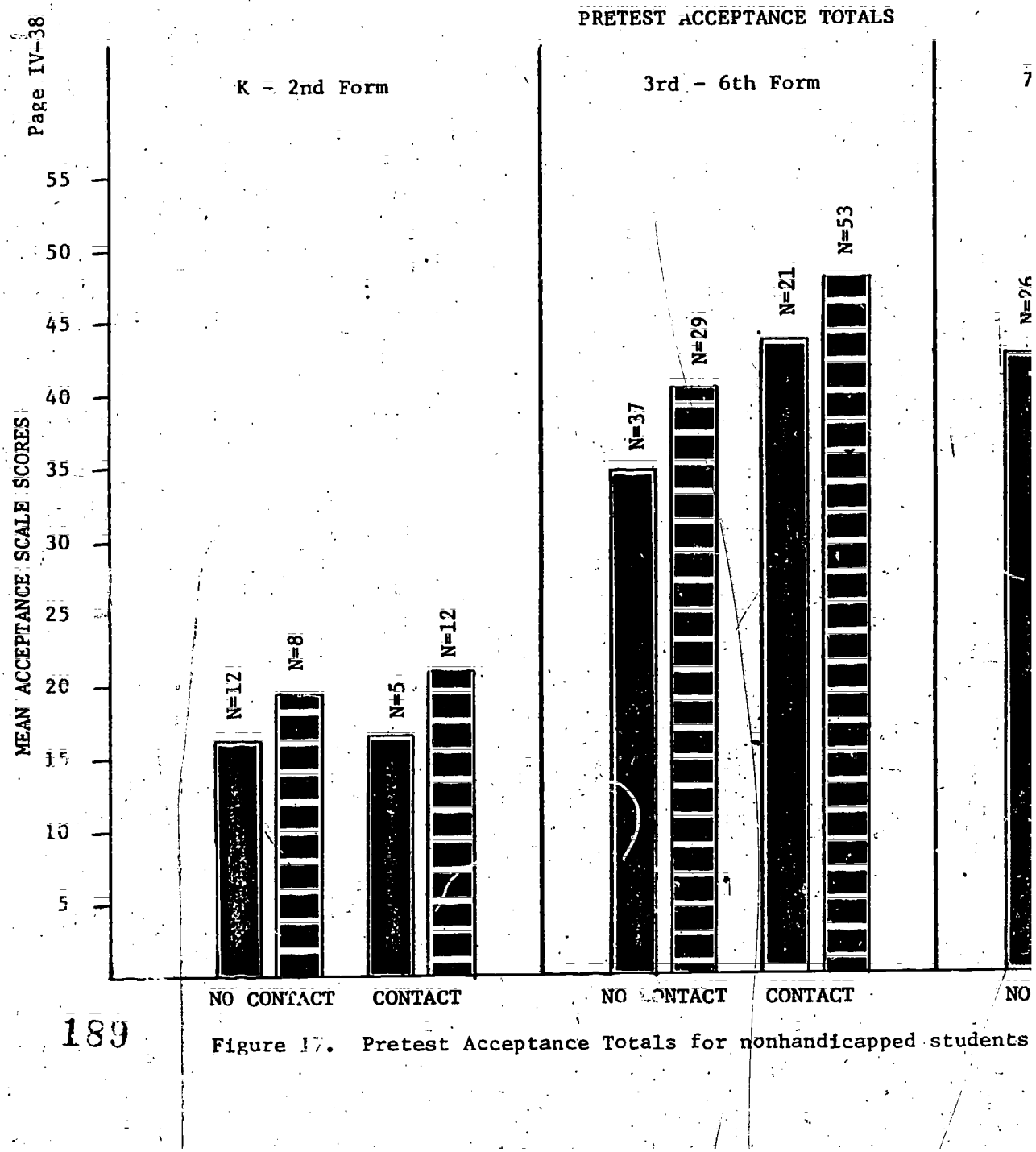
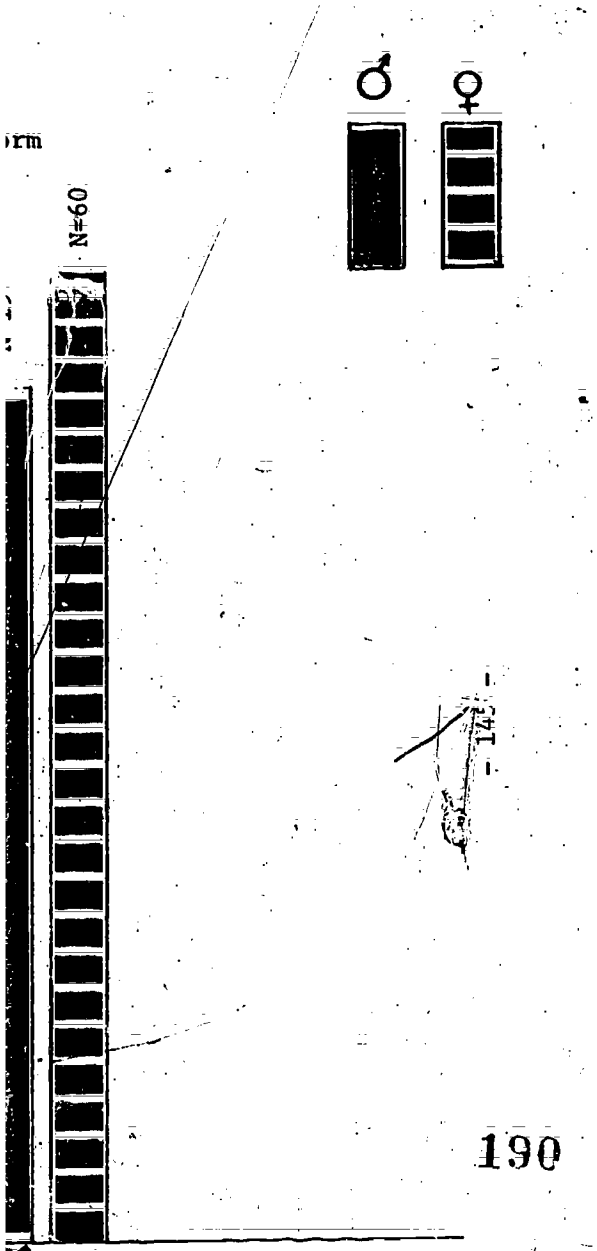


Figure 17. Pretest Acceptance Totals for nonhandicapped students



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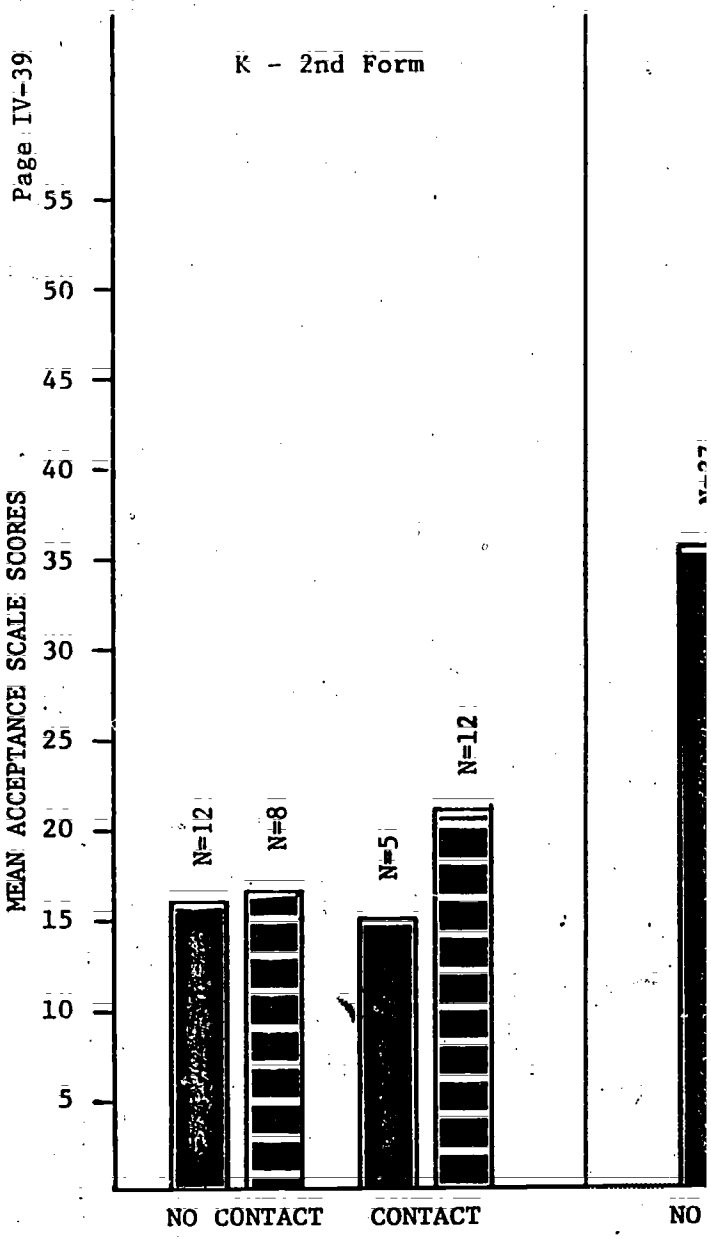

Figure 18. Post-test Acceptance To

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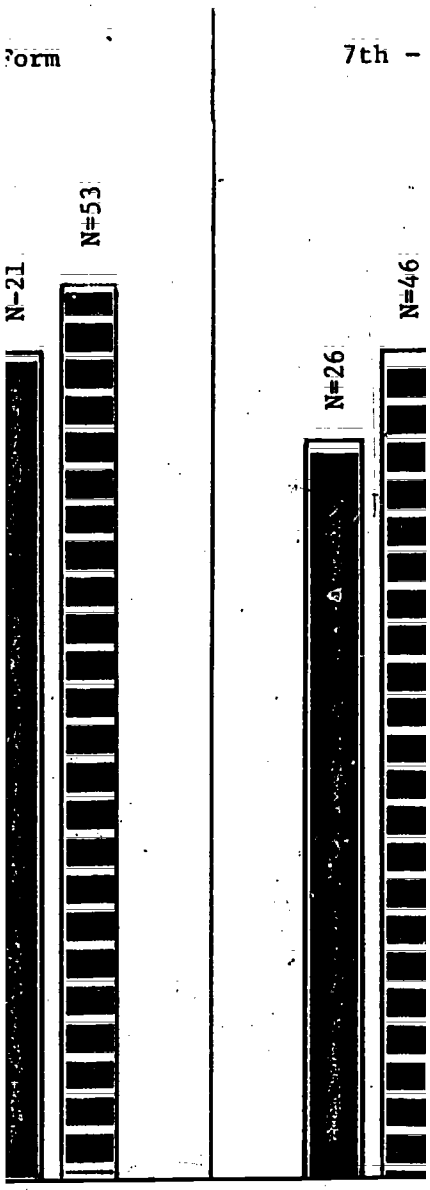

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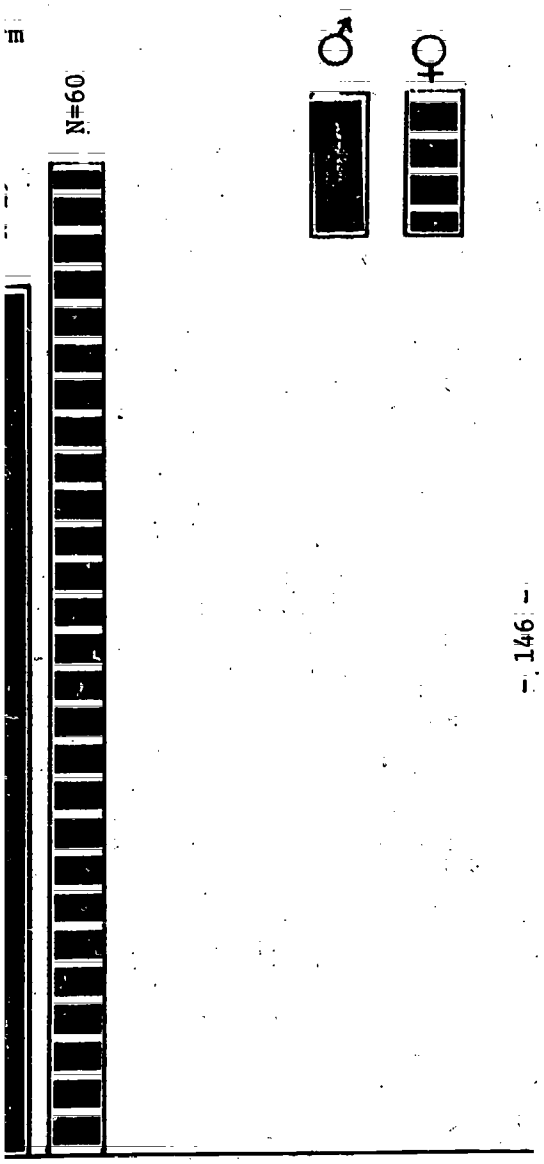

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and no-contact schools.

IV.VII.B Predicting Attitudes Within Schools From Interactions

Since the attitudes of nonhandicapped students differed at pre-year testing in contact versus no-contact schools, it could be argued that other features might differentiate the schools rather than the integration of severely handicapped students in some schools versus others. Hence, by not randomly selecting target students in integrated schools the sample was biased relative to segregated schools and this bias may not have been related to the integration process. It should be noted that district administrators had matched the no-contact schools to the contact schools on dimensions such as resources, socioeconomic status, size, and neighborhood. Such matching should have reduced, experimentally, the probability that segregated schools contained nonhandicapped students who were more negative to handicapped students for reasons other than lack of contact with severely handicapped students.

In the second analysis of attitudes of nonhandicapped students toward the handicapped, only integrated schools were examined. Both the data on attitudes toward handicapped students and the rate of social interaction amongst handicapped and nonhandicapped students were aggregated at the level of the school. In order to combine the three forms of the Acceptance Scale, z-scores were computed separately based on the standard deviations for the ETS sample on each form. A total of 32 integrated schools had both pretest and posttest scores from nonhandicapped students.

A regression model was computed which predicted average posttest acceptance score in an integrated school from the average pretest acceptance score, the average rate of interaction with nonhandicapped students in an integrated school, and the average rate of interaction in a school with other severely handicapped students during integrated times in that school. These three predictors accounted for 82% of the variance in end-of-year attitudes of nonhandicapped students toward handicapped students. The average rate of interaction with nonhandicapped students did not predict a statistically significant proportion of variance in end-of-year acceptance scores. However, the average rate of interaction between severely handicapped students in integrated settings accounted for 5% of the variance in post-year attitude scores ($F = 7.71$, $p < .01$). This finding is over and above the amount in end-of-year score which is predicted by beginning-of-year score. Finally, there was a negative relationship between rate of interaction with other handicapped students in integrated settings and the end-of-year attitude scores. The more severely handicapped students interacted with other severely handicapped students in integrated settings, the less positive the attitudes of nonhandicapped students in that school at the end of the year.

CHAPTER V

DISCUSSION: INTEGRATION FOR SEVERELY HANDICAPPED STUDENTS

The purpose of the national project to evaluate integration of severely handicapped students was threefold:

1. To describe the degree and quality of integration in terms of the interactions between handicapped and nonhandicapped students when they were integrated.

2. To explore features of the antecedent and concurrent educational context which influenced the degree and quality of integration.

3. To determine whether integration as measured by the rate of interaction with nonhandicapped students had an impact a) on the educational progress of severely handicapped students and b) on the attitudes of nonhandicapped students toward severely handicapped students.

The evaluation provided statistically significant evidence that a) social interactions with other students occur at a higher rate in integrated settings when compared to the same students' rate of interaction in segregated settings b) these interactions are more frequently reinforced by nonhandicapped than by handicapped students c) social interactions of severely handicapped students in integrated settings are influenced more by antecedent and concurrent features of the educational contexts than by the degree of severity of these students' handicaps, d) the rate of interaction with nonhandicapped students was significantly related to the proportion of educational objectives achieved at the end of the year, even when the severity of students' handicap was controlled for statistically, e) the amount of interaction between severely handicapped students in integrated settings was a significant negative predictor of the attitudes of nonhandicapped students in integrated schools.

V.I INTEGRATED VERSUS SEGREGATED CONTEXTS FOR SOCIAL BEHAVIOR

The results suggest that integrated contexts are more conducive to social interactions of severely handicapped students with other students than are segregated contexts. This is probably the case because severely handicapped students are not so adept at reading the social signals of other severely handicapped students and conversely don't provide adequate signals themselves. When both members of an interactive dyad are impaired, it is not surprising that the dialogue structure of social interaction breaks down (Bell, 1968; Beveridge & Brinker, 1980; Kogan, 1980). However, the nonhandicapped child is capable of making the necessary adjustments to compensate for some interactive deficiences (Guralnick, 1981; Guralnick & Paul-Brown, 1977; 1980; Timm, Strain & Eller, 1979). This is reflected in the present results that nonhandicapped students' rate of social responsiveness was higher than the rate of handicapped students social responsiveness in either integrated or segregated settings. The data refutes the notion that severly handicapped students are better-off, at least in a social interactive sense when they are "with their own kind" in "special places".

Second, the data showed that in integrated settings more social output to other students by nonhandicapped students was positive, i.e. severely handicapped students were smiling or laughing more. In addition, more social input from other students was positive in the integrated setting in comparison to the segregated settings. Clearly, this provides evidence which refutes a commonly held belief that integration will be a negative experience for severely handicapped students. Relative to their own experience in segregated settings, the social interactions with other students in integrated settings are richer. Social interactions occur more frequently, they are reinforced by the reciprocity of nonhandicapped students, and they more frequently have a positive affect in the integrated settings.

This finding apparently stands in contrast to previous studies which have shown that handicapped students are not preferred as friends and are not the preferred social interaction partners of nonhandicapped students in integrated settings (Gottlieb, 1978, 1980; Porter, et.al. 1978; Ray, 1974; Beckman, in press). However, the contradiction between the present findings and previous research is more apparent than real. The previous research has asked a somewhat different question than the one addressed in this evaluation. These earlier studies asked whether handicapped students would be selected by nonhandicapped students as preferred or equal interaction partners. The results consistently have been that nonhandicapped students more frequently selected other nonhandicapped students as targets for social bids. It would be surprising if there were a preference for handicapped over nonhandicapped students as interaction partners. As noted in the literature review, handicapped students by definition are different enough to evoke a social response which confirms and in a sense institutionalizes that difference (Hobbs, 1975; Rhodes & Paul, 1980). Such societal responses are not, especially in the case of severely handicapped students, pure fictions. The severely handicapped student is different from other students of the same age who are not

handicapped. A political action which eliminates the societal response to differences clearly will not eliminate the cerebral palsy, the sensory impairments, the genetic and physical anomalies. However, such political action, for example, in some parts of Italy (Chatelanat, 1982; Milanni-Comparetti, 1979) have eliminated social institutional responses to some handicaps. Nevertheless, handicapped individuals remain in need of some adaptive response from others in order to be more fully integrated into society. Thus the issue is whether such accommodation by nonhandicapped persons can be facilitated and whether this provides an improved situation for handicapped individuals.

To address this question requires a comparison between segregated environments in which a few specialists are experts at making accommodations for the handicapped person and situations in which a broader social group is required to make accommodations. From the point of view of the handicapped individual the critical question is whether there are more opportunities in segregated environments versus integrated environments. To answer this question, it is not critical to know whether handicapped individuals will be "best friends" of nonhandicapped individuals but rather whether nonhandicapped individuals will make some accommodations which result in richer experiential opportunities for handicapped individuals.

The present study demonstrates that across 14 school districts in 9 of the United States such accommodations result in more student-student interactive opportunities. This does confirm other findings which have used comparisons within handicapped populations in different settings rather than comparisons between handicapped and nonhandicapped populations. Gampel et al. (1974) also found more prosocial behavior when EMR students were in integrated versus segregated environments. Meyers, et al. (1975) found that EMR students who were integrated achieved more academically than comparable students who were not integrated. In a similar vein we found that severely handicapped students who had more interaction opportunities with nonhandicapped students achieved a higher proportion of their IEP objectives.

V.II

Accommodations Affecting the Social Output of SH students

It is important to remember that this evaluation of integration included only severely handicapped students and not mildly retarded or mildly handicapped students. A different pattern of accommodations by educational planners teachers, and nonhandicapped students may be necessary in order to integrate mildly handicapped students into regul- educational and community settings. Clearly, the social behavior of nonhandicapped students toward the severely handicapped students was the most significant predictor of social behavior of the severely handicapped student toward them. What then was associated with higher rates of social input from nonhandicapped students? The number of peer tutors in the environment and the amount of direction provided to them by the teachers

were the best predictors of the rate of social input to severely handicapped students. Thus, integration which best results in social interaction by even the most severely handicapped students involves the presence of peer tutors who have been identified as consistent interaction partners for these severely handicapped students. In addition, these peer tutors provide the best scaffolding for social interaction when they are provided with ongoing support and direction from teachers. This finding is consistent with much of the literature demonstrating the effectiveness of peer tutors in facilitating social interactions with handicapped students.

The amount of experience in integrated settings which has been scheduled for severely handicapped students is predictive of their rate of social output in integrated settings. These findings are significant in that such information proved to be a better predictor of the rate of social behavior than the functional skills of these severely handicapped students. This suggests that not only can integration be achieved with any severely handicapped student, it can also lead to progressively more social interaction. The planning of the process through specific scheduled integration time and the recruitment of a consistent group of peer tutors who are provided with ongoing direction in integrated settings determines whether integration will result in social interaction.

An interesting and consistent finding throughout several levels of the data analysis was the negative relationship between student interactions and direct teacher involvement and the involvement of specialists within the antecedent and concurrent features of the educational context. Thus, the more special education teaching staff in the integrated environment the less the social bids from severely handicapped students to nonhandicapped students. At a much more general level, ratings of the amount of professional support special educators had from other special educators was negatively related to the frequency of social bids severely handicapped students directed to nonhandicapped students. Just the opposite relationship was obtained between the frequency of social bids and ratings of the amount of support from regular education teachers. The greater the support to the special educator from regular educators, the greater the interaction of handicapped and nonhandicapped students. The negative relationships between degree of specialist involvement and rate of interaction with nonhandicapped students in integrated settings is reflected even at the state level. Those states which had more personnel associated specifically with severely handicapped programs had sites in which there was less social behavior from nonhandicapped students to severely handicapped students. Obviously, such information as the percentage of professional time allocated for severely handicapped programs in the state department of education is a function of many other things about the organization of services for severely handicapped students. Until those things are better understood, it would be premature to make any conclusions about what such a variable might represent. One hypothesis which we offer is that the allocation of staff at the state level for severely handicapped programs is related to a more general compartmentalization of services. If that is the case, then further research should be conducted to determine if such compartmentalization is negatively related to the degree and quality of integration in that state.

Certainly, a number of researchers have suggested such a possibility (Hobbs, 1974; Rhodes & Paul, 1980).

The fact that greater numbers of special educators in the integrated environment is related to less social interaction between handicapped and nonhandicapped students suggests that teachers need assistance and training in supporting and indirectly facilitating such interaction. Recent reviews of curricula for severely handicapped students have noted a general failure to base curricular approaches on observations of students' ongoing behavior (Brinker, in press). Doug Guess (in press) raises similar questions about the traditional emphases in programs for severely handicapped students. The present results should provide strong justification for support and training of special education teachers in methods of indirectly facilitating social interactive skills of severely handicapped students in integrated contexts. Those special education teachers who were rated as providing the most support and direction to nonhandicapped students had higher rates of N-S bids. The rate of N-S bids was the best predictor of rate of social output of severely handicapped students to nonhandicapped students.

V.II.A Differential Predictors Of S-N And S-H Bids When Integrated

The rate of social bids by severely handicapped students to either handicapped or nonhandicapped students are best predicted by the rate of social bids by these other students back to the target students. Thus, the social behavior of severely handicapped students has the reciprocal quality of most social behavior (Bruner, 1975). However, when one looks beyond the interactional dialogues at other predictors of social interaction a different pattern emerges for the prediction of interactions with nonhandicapped students versus interactions with other handicapped students.

One such difference was the way in which environmental factors were related to bids to nonhandicapped and handicapped students. The accessibility of materials to severely handicapped students was a significant predictor of the rate of interaction amongst severely handicapped students in integrated environments. The only environmental variable which predicted the rate of bids to nonhandicapped students was the number of nonhandicapped students in the setting. A number of studies in early childhood education have shown that play materials provide the first bases for social interactions among developmentally young children (Smith & Connolly, 1980). Recent studies (Beckman & Kohl, in press; Kohl & Beckman, in press) have shown that provision of attractive play materials to mildly handicapped students both facilitated the amount of interaction with nonhandicapped students and enhanced the complexity of play behavior emitted by the handicapped students. For severely handicapped students whose repertoires are developmentally less advanced, the availability of objects seems to be similiarly related to the amount of interaction. The availability of objects does not seem to provide the same basis for interaction with nonhandicapped students of similar chronological ages.

Developmentally, it would also be the case that older students primarily would structure their interactions around social rules or games rather than around materials. Thus, the differential value of information about material availability for predicting social behavior to other handicapped students but not to nonhandicapped students is consistent with current theories about play and social interaction.

Finally, the degree of teacher enthusiasm for teaching severely handicapped students was negatively related to the amount of interaction which severely handicapped students directed to other handicapped students in integrated settings. Although somewhat paradoxical, this might suggest that teachers enthusiasm and committment results in better discrimination of contextual environmental features by severely handicapped students. This discrimination leads to discernment of the relatively richer social contingencies from nonhandicapped students than from handicapped students in integrated environments. Strain (1982) has reported that autistic students discriminate quite clearly between a) teacher mediated prompting and reinforcement of interaction with peers and b) generalization settings in which such teacher contingencies are not being applied. It could be that the rating of teacher enthusiasm and commitment to teaching severely handicapped students reflects a level of direct teacher involvement with severely handicapped students which is not characteristic of the integrated settings. Thus, the most enthusiastic teachers provide their input to nonhandicapped students in integrated settings rather than directly to severely handicapped students. The plausibility of such an interpretation is bolstered by the statistically significent positive correlation between teachers enthusiasm and amount of direction to nonhandicapped students ($r=.36$, $df=84$; $p<.001$).

V.III THE IMPACT OF INTEGRATION OF SEVERELY HANDICAPPED STUDENTS

As we noted in the first chapter of this report, the way in which one conducts an evaluation of any innovation is a function of the purpose for that innovation. We noted three potential frameworks from which to discuss the purpose of integration of severely handicapped students into regular school and community settings. The ranking of priorities which we had selected was: first, integration is a social goal; second, integration is a legal right; and third, integration is an educational tool. The extent to which integration is an educational goal has already been treated in our discussion of the extent to which interactions between severely handicapped and nonhandicapped students were being achieved.

Only one of the districts had a legal challenge regarding least restrictive environment issues which resulted in a local hearing. The issue was whether the least restrictive environment for a severely deaf student was a segregated school emphasizing sign language for the deaf or a special class utilizing the total communication approach (sign language plus speech) in an integrated school. The hearing upheld the districts placement in a total communication program in an integrated school rather than the residential school for the deaf. Apart from this one case, the 14

districts involved in the integration evaluation did not have legal challenges regarding integration as a legal right.

The third framework is that integration is an educational tool through which severely handicapped students better achieve their educational objectives without jeopardizing objectives for nonhandicapped students. The evaluation provided tentative support for the notion that integration can be an educational tool which has impact upon the objectives attained by severely handicapped students and upon the attitudes of nonhandicapped students toward handicapped students. The rate of interaction with nonhandicapped students uniquely accounted for a significant proportion of the variance in percent of educational objectives met. Thus over and above the level of severity of a student's handicap, the amount of integration experienced in actual interaction with nonhandicapped students is positively related to the target students' educational progress. Some have suggested that this finding simply shows that the more capable students interact more and the fact that they achieve a higher percentage of educational objectives is related more to their general ability level of which social interaction is a result. This interpretation reflects a fundamental misunderstanding of the present results and requires further clarification.

Abilities in the areas of communication, cognition, self help skills, domestic skills, and mobility certainly do influence the rate of progress of severely handicapped students. Functional level accounted for most of the variance in percentage of IEP objectives met. Nevertheless, the rate of interaction with nonhandicapped students accounted for a statistically significant amount over and above functional level. Can this finding be interpreted to mean that the most social students simply meet a higher percentage of their IEP objectives and that this social factor is not related to integration per se? If there were some underlying social trait, then one would expect that the more socially interactive students would demonstrate more social interaction with both handicapped and nonhandicapped students. Thus, we should have found that interactions with handicapped students were also predictive of proportion of objectives met. However, interaction with other handicapped students did not account for a unique proportion of variance in objectives met. Thus, we can conclude that something about the interaction with nonhandicapped students is related to educational progress of severely handicapped students. We will discuss some of the possible hypotheses which, from a theoretical perspective, might be tenable explanations of the educational impact of integration.

However, it is important to note at this point that the model which included functional level and rates of interaction with handicapped and nonhandicapped students only accounted for 15% of the variance in percentage of IEP objectives met. No doubt that the other 85% includes the specialized educational techniques which have evolved as professionals have had increasing contact with severely handicapped students (Haring & Brown, 1976; 1977; Sailor, Wilcox, &Brown, 1980; Sontag, Smith, &Certo, 1977). Clearly, many of these goals require very well planned teaching in settings which are uniquely designed for severely handicapped individuals. Such

settings often require one to one instruction to establish skills in very limited repertoires. Thus, such settings usually are not integrated with nonhandicapped students. No one doubts the necessity of such individualized, specialized settings for educating severely handicapped students. The present results suggest that integration can be an addendum to such individualized, specialized educational settings and that integration can have positive educational benefits.

Any interpretation that the present results justify "dumping" severely handicapped students into unprepared educational environments, lowering of standards in teacher training or reducing levels of specialist support are clearly in error. Rather, the results suggest that integration can be a positive addition to existing approaches to the education of severely handicapped students. This addition will take careful and systematic planning and will probably require additional resources to prepare personnel and settings for integration. The fact that the identification of a program as a federally funded model uniquely accounted for significant proportions of S-N bids (see Table 11) provides some support for plans which allocate additional resources to achieve integration of severely handicapped students.

V.IV THE IMPACT OF INTEGRATION ON ATTITUDES OF NH STUDENTS

The results shed some light on the conflicting findings which have been reported regarding the effects of integration upon the attitudes of nonhandicapped students toward handicapped students. Our results demonstrate that the attitudes of nonhandicapped students in schools in which severely handicapped students were integrated were more positive than were the attitudes of students in comparable schools which did not contain severely handicapped students. This confirms findings from several other previous studies (Friedman, 1975; Peterson, 1974; Voeltz, 1980; 1982). Taken together the present results and previous studies clearly refute the notion that contact with severely handicapped students inevitably fosters negative attitudes of nonhandicapped students toward the handicapped.

However, our data also sheds some light upon the mechanism by which negative attitudes can result. Looking within the integrated schools and controlling for initial differences in attitudes, we found that the amount of integration amongst severely handicapped students when in integrated settings was related to less positive attitudes of nonhandicapped students in those schools. This has implications which support and extend our findings about the factors contributing to interaction between handicapped and nonhandicapped students in integrated settings. If severely handicapped students are taken as a group into settings with nonhandicapped students and interact separately from nonhandicapped students, then the attitudes of nonhandicapped students will be less positive. The implication is that in order to truly transform the attitudes of society about handicapped students, they should be introduced to nonhandicapped students as individuals rather than as a group. A similar practice has been recommended in the area of integrating deaf students into classrooms

with hearing students. The most positive interactions with hearing students result if only one deaf student is integrated in a given environment (Turnbull & Blacher-Dixon, 1981). The present results therefore suggest that the attitudes of nonhandicapped students toward handicapped students can be shaped in a positive direction. This will be accomplished by planning contacts with severely handicapped students on an individualized basis rather than planning such contacts for groups of severely handicapped students.

V.V CONCLUSION: TOWARD AN INSTRUCTIONAL THEORY OF INTEGRATION

The evaluation of integration of severely handicapped students in regular school and community settings shows that integration with nonhandicapped students can be a positive part of the educational program for severely handicapped students. If nonhandicapped students are supported in their interactions with severely handicapped students, then the severely handicapped students will practice social interactive skills which are critical for their educational progress. The data indicate that such practice is provided if peer tutors with a continuity of experience with severely handicapped students are involved.

The discussion thus far leads directly to a consideration of those aspects of social interaction with nonhandicapped students which might be particiularly important for severely handicapped students. Clearly other kinds of interactions, especially the interaction between severely handicapped students and teachers or parents has received considerably more attention in educational research and policy for this population (Strain, 1982; Reichle et al., 1980). What might be the unique features of social interactive experience with nonhandicapped students which simply cannot be replaced by special educational technology implemented by adults? This question is a rephrasing of the notion that integration can be an educational tool. We do not believe that this question requires an answer before integration of severely handicapped students is pursued as a social goal and as a legal right. However, we do believe that educational planners and policy makers will more enthusiastically pursue integration as a social goal if they can articulate a theory upon which the positive educational benefits of integration might be based. Since our data has provided statistically significant support for the notion that more integration is related to the achievement of more educational goals by severely handicapped students, regardless of the degree of their severe handicap, we will outline a first step towards the development of an instructional theory of integration for severely handicapped persons. We believe an instructional theory of integration should specify the benefits both for severely handicapped students and for nonhandicapped students. Such a theory should also provide a rationale by which educational teams can be guided in deciding upon the necessary mixture between highly structured teaching situations utilizing specially trained professionals and less structured situations in which severely handicapped students have the opportunity to demonstrate their skills interacting with nonhandicapped students.

It is far too early in the history of integrating severely handicapped students into regular schools and community settings to fully articulate an instructional theory of integration. Very little is known about the interactions between nonhandicapped students or between siblings. Thus, it is difficult to specify the important developmental functions of such interactions for the general population. However, an empirical foundation of research is beginning to appear which suggests that peer and sibling interactions have important developmental implications for children (Dunn, 1983; Eisenberg, 1982; Light, 1979; Perret-Clermont, 1980; Wells, 1981; Youniss, 1980). In order to apply these studies of interaction among normal children to interaction with severely handicapped students, we must begin a program of basic and applied research in that small but growing number of ecologies where integration is becoming a reality. An instructional theory of integration will not emerge in two or three cycles of three-year research grants. Consider that a theory of development incorporating peer and sibling interactions is only beginning to emerge in spite of the long term ubiquity of those phenomena. Social interactions between severely handicapped and nonhandicapped students cannot be so widely witnessed so the development of the theory for which we are calling will perhaps be quite slow. Nevertheless, the research program for such a theory should explore at least the following phenomena:

1. The development of imitation and peer modeling in terms of the parameters controlling both the model's and the imitator's behavior.

2. Generalization of social behavior to different social environments.

3. The development of cooperation, altruism, and leadership with special attention to the differences in such development within settings involving different degrees of social heterogeneity.

V.V.A Imitation And Peer Modelling

Several authors have noted the importance of imitation as an important mechanism by which new skills become established in a child's behavioral repertoire (Baer & Sherman, 1964; Bricker, 1978; Cooke, Cooke, & Apolloni, 1977). From this perspective imitation and peer-modelling have been conceptualized as techniques by which very specific skills can be taught. An alternative perspective is that imitation is a technique for maintaining a social dialogue (Uzgiris, 1981). It is used especially by young children because it may be easier to reproduce a behavior which has just been witnessed than to search through memory and generate a behavior pattern from long-term memory. Thus, imitation is a social-cognitive strategy by which interaction is maintained and information is obtained.

Strain and Kerr (1981) have provided a comprehensive review of the literature on peer modelling and imitation. They concluded that one of the problems with studies of imitation as an intervention technique is that investigators have focused too specifically on the topography of imitative behavior. Thus, little is known about the more general interactive effects of imitation training. However, the available studies do suggest that generalization of imitation to broader classroom ecologies is better if nonhandicapped students within that ecology have been involved in the training. The adult role was most effective in demonstrating for peers within a role playing situation the appropriate modelling behavior and reinforcement strategies rather than becoming directly involved in the interactions between handicapped and nonhandicapped students (Strain, Shores & Timm, 1977). In fact Strain (1981) reported that the most immediate effect of direct adult involvement in social interactions between handicapped and nonhandicapped students was termination of the student interactions.

Clearly if the social goal is for severely handicapped students to become involved in a social culture of people their own age, then the more effective route to such involvement appears to be through the use of peer rather than adult models. If the social goal is for the severely handicapped persons to become more involved in a culture of older specially trained adults then adult modeling would be more effective in establishing social skills. As Bronfenbrenner (1970) has pointed out the United States differs from some other cultures, such as the USSR, in that in the United States the student-peer group culture is distinctly different from the larger adult culture. A greater synchrony between the children's and adult subcultures has been fostered by the educational system in the USSR. Thus, in that country the educational system has capitalized on the influence among peers to ensure a greater homogeneity of social outcome.

Diversity has always been a fundamental social value within the United States so that it is not surprising that the educational system has not capitalized upon peer influences to achieve its educational goals. With regard to peer involvement with severely handicapped students, however, the basic thrust of the modelling-imitation research has been to recruit peers as teachers. Notable exceptions to this have been within the preschool studies of play between handicapped and nonhandicapped students and leisure-time integration activities (Guralnick, 1982; Voeltz, Wuerch & Wilcox, 1982). It would appear more consistent with the organization of American education vis-a-vis peer influences, to concentrate research in this latter area of leisure time activities in studying the modelling of appropriate social behavior by nonhandicapped students and imitation of this behavior by severely handicapped students. This is especially true given the other very pressing educational needs of severely handicapped students which can only be met by highly specialized professionals.

In order to better understand peer influences in leisure time activities, studies should be designed which describe the adjustments which nonhandicapped students make when interacting with severely handicapped students. Such adjustments are designed to facilitate interaction and may be conceptualized as "implicit" modelling with the behavior of severely

handicapped students being conceived as imitative or nonimitative using the broader use of those terms from a social interactive perspective (Uzgiris, 1981). Studies by Guralnick and Paul-Brown (1977, 1980) have shown that in fact nonhandicapped students do sensitively adjust their level of language complexity to match the level of handicapped student's functioning at younger developmental levels. This process has been interpreted as similar in kind to the adjustment made by mothers interacting with their infants. For an instructional theory of integration it will be necessary to specify the differences in processes of matching behavioral complexity to severely handicapped students when children as opposed to adults utilize such processes. Without understanding such differences it will be difficult to articulate the advantages or disadvantages of peer versus adult modelling of social behavior.

V.V.B Generalization Of Social Skills To New Social Contexts

A major concern in intervention research has been the failure to demonstrate that skills trained and used in one context will be utilized appropriately in contexts different from the training context (Beveridge & Brinker, 1980; Stokes & Baer, 1975). The failure to generalize skills to new situations is quite serious. Without generalization the efforts of special educators are truly questionalbe (Brown, et al., 1976; Dunn, 1968). An elaborate system of knowledge and techniques is systematically and conscientiously applied with the results that student progress can only be identified by those within the system and only then on some occasions (Guess & Siegel-Causey, in press). Thus it becomes imperative for special educators to demonstrate that what has been taught is in fact an important behavioral change outside of the special education environment (Voeltz & Evans, 1983). Yet woefully little information is available about the behavioral repertoires of severely handicapped persons outside of laboratory or special education environments (Brinker, in press; Brooks & Baumeister, 1977).

Effective programming for generalization seems to include systematic incorporation of variability in social and physical contexts (Stokes & Baer, 1975). When variability in training is increased with regard to time of training and participants, the effectiveness of the training and the generalization of training is superior (Cavallaro & Bambara, 1982; Halle, 1982; Mulligan, Lacey & Guess, 1982; Wulz, Myers, Klein, Hall & Waldo, 1982).

A plausible hypothesis regarding the instructional advantages of integration is that children provide a more variable social interactive environment than adults. The reason for such variability would be that children develop from a state of relatively little cognitive planning to a state in which their social behavior is increasingly under the control of plans and scripts for specific situations (Karniol, 1982; Nelson, 1981; Schank & Abelson, 1977). The variability of situations produces various reactions depending upon which aspects of the situation can be assimilated. In adult-child interactions the dominant role of the adult is immediately

established, thus selection and responding to situational stimuli requires less processing by the child. In interactions among children, selection of different stimuli from the same situation frequently occurs without any one perspective becoming the de-facto accepted perspective. Thus, interactive situations among children require a level of cooperation which is greater if the interaction is to continue (Youniss, 1980). Since there is a higher probability that children will have divergent perceptions of situations and since children seek a coordination of perspectives when interacting with other children, they provide a greater variety of signals across several interactions within an otherwise constant situation. This variety prevents the type of discrimination learning which others have reported characterize handicapped students in social learning situations (Guralnick, 1982; Strain & Kerr, 1981). The probability is higher that adults will provide such consistent cues within a particular training format that the child learns "now it's time to talk" or "now it's time to imitate actions." Brinker (in press) has provided several examples of ways that special educators have created highly discriminable yet idiosyncratic curriculum plans. Thus research should be conducted to determine whether student-student interactions provide a better context for generalization simply because a repeated interaction theme ocurs in a context of less consistent and less discriminable cues.

V.V.C Cooperation And Prosocial Behavior

While the previous discussion has emphasized primarily the benefits of integration to severely handicapped students, the present area reviews the potential benefits to nonhandicapped students which should be articulated within an instructional theory of integration. Promising areas of research include research on the development of prosocial behavior (Eisenberg, 1982), research on peer tutoring (Allen, 1976) and research on the interactions between siblings (Dunn, 1983).

In the research on the development of prosocial behavior, Karniol (1982) has argued that children develop social scripts for how to behave in helping situations based upon a direct response to the cues in the situations. More typically, theories of prosocial behavior have emphasized that a prerequisite for such behavior is development beyond the ego-centric levels of concrete operational thought (Hoffman, 1982; Kohlberg, 1969; Piaget, 1948). These theories hold that prosocial behavior is based upon the child's ability to put himself in the other person's shoes, so to speak, and to make a response on behalf of the other person as if the child were himself in need of assistance. From either Karniol's (1982) or Hoffmann's (1982) perspectives the child must be able to interpret the situational cues either directly or by cognitively transferring himself into that situation in order to make a response. Although it has generally been assumed that perceptions of other's needs is based upon a prerequisite cognitive level, it is not clear that participation in helping situations could not itself facilitate cognitive development. This is especially unclear since the available research on prosocial behavior and its cognitive prerequisites have used episodic, contrived situations which are

not comparable to the ongoing prosocial contact which, for example, peer tutors in our evaluation study had in integrated schools.

Horrocks and Jackson (1972) have argued that parents influence whether children will use generic labels to classify helping situations and that this socialization process is related to prosocial behavior in such situations. The use of such labels is related to development of the concept of self (Carver, 1979). It would appear that in situations involving severely handicapped students the cues as to the need for help could be made very clear by a good teacher. The relationship between our ratings of degree of direction provided by teachers and the rate of social bids from nonhandicapped students raises the possibility of enhancing perceptions by nonhandicapped students of needs of handicapped students. If this were the case, then clearly research on the development of self-concepts by nonhandicapped students participating in integrated programs is warranted. Whichever the direction of causality, a positive relationship between prosocial behavior and cognitive levels has generally been found. Perret-Clermont (1980) presents preliminary data demonstrating the positive impact on concrete operational skills as a function of interactions between children of different developmental levels. Allen & Feldman (1973) have also demonstrated that peer tutoring produced cognitive improvements in the peer tutors. Thus, a basis exists for suggesting that nonhandicapped students engaging in prosocial interactions with severely handicapped students may have something to gain in the process.

Finally, research on the developmental functions of sibling relationships and the impact of interactions on these functions is beginning to shed some light on issues which may be relevant to an instructional theory of integration. Dunn (1983) reviews research on sibling interactions from two perspectives. First, the mutual reciprocity in interactions implies that older siblings are able to transcend their status and interact in a cooperative, sharing manner which requires an ongoing give and take. Youniss (1980) has noted that this type of reciprocity is the unique feature of peer interaction differentiating its important developmental functions from the functions of adult-child interaction. On the other hand, siblings differ from peers in that one of the siblings is older, except in the case of twins. Thus, there is a complementarity within sibling relationships which may not be characteristic of peer relationships. The complementarity includes clear role differences with the older sibling acting as teacher, protector, giver of comfort, interpreter of needs, and manipulator.

This mixed role of siblings as both equal and unequal interactive partners has interesting parallels when nonhandicapped students are integrated with severely handicapped students. In fact, this mixture of roles may separate the research on integration of severely handicapped students from research on mainstreaming mildly handicapped students. In mainstreaming mildly handicapped students, nonhandicapped students have a role which is not so clearly mixed as the roles of siblings, a peer tutors, or a special friend of a severely handicapped student. This lack of role differentiation may be because the differences between nonhandicapped student and mildly handicapped student is not so apparent. The unequal

developmental levels of severely handicapped students and their nonhandicapped peers places the peers in mixed role relationships to the severely handicapped students. It is important that an instructional theory of integration investigate the reciprocal elements of this role which would include the discovery of mutual interests, sharing, and interaction on an equal status. The more typical role within peer tutoring situations is a complementary role in which the nonhandicapped student is clearly directing the interaction. If the complementary role becomes the only role for nonhandicapped students within an instructional theory of integration, then we might legitimately question whether integration provides any significant revision to a general theory of instruction. If the focus is exclusively upon a teaching and caretaking role for nonhandicapped students then many of the existing teacher training programs simply await translation for children. However, it seems to us that the important feature of integration is that nonhandicapped students are not specialized instructional personnel but they have a rich social world in which a place can be made for severely handicapped students. Thus, it is important to develop an instructional theory of integration which incorporates both interactive roles, the complementary and the reciprocal. Very little research on the reciprocal nature of interactions of nonhandicapped students with handicapped students has been done. Wuerch & Voeltz (1982) have suggested that highly attractive play materials such as adapted computer games could provide the context in which status was equalized and interaction between severely handicapped and nonhandicapped students had a reciprocal quality. Two recent studies (Beckman & Kohl, in press; Kohl & Beckman, in press) provide some support for this strategy albeit with less handicapped students. Dunn's (1983) review of sibling interactions provides a fruitful starting place for conceptualizing both recirpocal and complementary roles within interactions involving partners of unequal status.

V.V.D Beyond The Information Given

The data presented have provided a broad empirical basis which supports the concept of integration of severely handicapped students in regular education and community settings as part of the definition of an appropriate education in the least restrictive setting. Such support has been badly needed in order to take the discussion of services for the severely handicapped beyond the level of alternative position papers and individual successes or failures. Nevertheless, we should not get lost in the numbers and the plethora of variables examined. Many true stories of what integration means, stories such as the cases of Gillian and Lisa with which we started this report, lie behind these numbers and inevitably tell more to those people who witness them than numbers ever can.

The contexts for integrating severely handicapped students were conscientiously created in a variety of ways. Our ninth quarterly report offers explanations by each of the participating districts of the process by which integration evolved in each locale. In no case was integration accomplished haphazardly. Nor did there appear to be a single common theme

to this accomplishment. Yet much of what districts presented at our Second Advisory Committee meeting had a strong resonance across situations. A somewhat surprising feature of that meeting was the strong sense of commonality of purpose in spite of large variations in processes and resources. Names, addresses and phone numbers of the district level administrators who collaborated with ETS to conduct this evaluation are presented in Appendix B.

It would be incorrect to believe that the fourteen school districts involved in the evaluation of integration of severely handicapped students were so unique that their innovations in integrating severely handicapped students could not be replicated elsewhere. However, these districts are unique in their interest in objectively evaluating their innovations in integrating severely handicapped students. They made substantial commitment to such an evaluation and for that we should all heartily thank them.

Nevertheless, the approaches to integration, the degree of commitment to integration within various schools, and the actual degree of integration achieved varied considerable--even within districts. For that reason we believe it is important to conceptualize the process of integration in terms of ecological dimensions which can be applied to every district but which are idiosyncratic to none. Certainly educational ecologies will differ in terms of degree to which they are rated relative to other settings on a particular dimension. Though the dimensions we evaluated do not necessarily distinguish the unique aspects of individual districts, they do reflect varying efforts to create opportunities for interaction with nonhandicapped students. The evaluation data do provide an empirical basis on which educational environments across the nation might be analyzed and modified to achieve integration of severely handicapped students. In general these efforts lead to more student-to-student interaction in integrated contexts than is afforded in segregated settings. Our data suggest that certain features of these educational contexts are more related than other features to the realization of these interaction opportunities. We believe that further exploration will be most fruitful if it incorporates an ecological perspective which attempts to characterize the influences and relationships among the many different aspects and participants at a particular level of the educational enterprise. The present evaluation, in conjunction with discussion with those engaged in integrating severely handicapped students, should provide an impetus to other districts interested in integrating severely handicapped students as well as initial direction regarding the nature of some of the critical influences on such integration.

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APPENDIX A

Sample Letter of Agreement

INSTITUTE FOR THE STUDY OF EXCEPTIONAL CHILDREN

EDUCATIONAL TESTING SERVICE

June 30, 1981

Dr. Donald Sherrill
Director of Special Education
Lincoln Public Schools
P.O. Box 82889
Lincoln, Nebraska 68501

Dear Dr. Sherrill,

This letter and our subsequent correspondence on these matters will constitute the formal agreement between ETS and Lincoln public schools regarding the implementation of the plan to evaluate integration of severely handicapped children/youth in regular educational settings. Please respond to these specific details and indicate any amendments which might be required.

The time line for on-site data collection in Lincoln for the fall of 1981 will be as follows:

October 5 - 9	Train fieldworker.
October 12 - 16	Observe target children in schools and develop preliminary observation schedules.
October 19 - 23	Complete observation and interview schedules, interview principals, obtain IEP goals for severely handicapped children.
October 26 - 30	Observe severely handicapped students and begin interviews with teachers of severely handicapped.
November 2 - 6	Observe severely handicapped students and continue teacher interviews.
November 9 - 13	Observe severely handicapped students and conduct attitude interviews with NH students.
November 16 - 20	Observe severely handicapped students, complete nonhandicapped children's attitude measures, obtain adaptive behavior information for severely handicapped students.
November 23 - 25	Obtain nonhandicapped achievement scores and any incomplete information.

INFANT LABORATORY
CATIONAL TESTING SERVICE
EDALE ROAD
ICETON, NJ 08541

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THE ROOSEVELT HOSPITAL
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NEW YORK, NEW YORK 10019

We will propose the time line for the spring 1982 data collection period (March-April 1982) in January. The following information provides details of the data collection process as well as the necessary preliminary information for collection of data regarding:

1. Severely handicapped students
2. Nonhandicapped students
3. Special education director
4. Principals
5. Special education teachers
6. Regular education teachers

I. Severely Handicapped (SH) Students

A. Number of Students and Site Schools

A total of 20 severely handicapped students will be selected from three (3) integrated schools within Lincoln. The schools from which the children will be selected and the number of children will be as follows:

SCHOOL	NO. OF STUDENTS	AGE RANGE
Preschool Center	4 - 5	3 - 5
Hawthorne Elementary (K-6)	10	5 - 14
Lincoln East High School (7-12)	5	14 - 21

To allow for possible changes in the student population, we ask that two additional students be selected as an alternate at each school.

B. Identification of Severely Handicapped Students

We would ask for nominations of the most severely handicapped students within each of the above schools. The definition of severely handicapped students which we are using in our study is derived from the federal definition of severely, multiply handicapped children and youth which reads as follows: "Severely handicapped children" are those who because of the intensity of their physical, mental or emotional problems, or a combination of such problems, need educational, social, psychological, and medical services beyond those which are traditionally offered by regular and special educational programs, in order to maximize their full potential for useful and meaningful participation in society and for self-fulfillment.

1. The term includes those children who are classified as seriously emotionally disturbed (including children who are schizophrenic or autistic), profoundly and severely mentally retarded, and those with two or more serious handicapping conditions, such as, the mentally-retarded, blind, and the cerebral-palsied deaf.

2. "Severely handicapped children" (1) may possess severe language and/or perceptual-cognitive deprivations, and evidence abnormal behaviors such as: (i) Failure to respond to pronounced social stimuli, (ii) Self-mutilation, (iii) Self-stimulation, (iv) Manifestation of intense and prolonged temper tantrums, and (v) The absence of rudimentary forms of verbal control, and (2) may also have extremely fragile physiological conditions.

--20 U.S.C. 1401 (7): 45 CFR 121.2--

According to the American Association on Mental Deficiency Manual on Classification and Terminology, a severely retarded person would have severe impairments in adaptive behavior and a measured IQ between 20 and 36. Using impairments in adaptive behavior as a general guideline, we might conclude along with AAMD that persons would be severely handicapped as long as they were dependent on others for assistance in adaptive functioning. For example, in the areas of independent functioning and social skills a person would be classified as severely handicapped if that person could not perform the following behaviors by the indicated ages.

Age	Independent Functioning
3 years	Attempts finger feeding, cooperates in dressing, bathing and toiletting.
6 years	Tries to feed self with spoon.
9 years	Feeds self with spoon, drinks unassisted, indicates soiled pants or toilet needs.
12 years	Puts on clothing but needs help with zippers and buttons, can wash and dry hands.
	Social Behavior
3 years	Responds to others in predictable fashion, communicates needs by gestures, noises or pointing; occupies self alone with toys for a few minutes.
6 years	Plays in parallel with others for short periods under direction, recognizes others and shows preferences for some persons over others.
9 years	Interacts with others in simple play activities, usually with one or two others unless guided into group activity.
12 years	Participates in group activities and simple group games, interacts with others in simple fantasy.

play (e.g., "store," "house") and expressive activities (e.g., art and dance).

These are suggested guidelines which we are providing across projects for a common framework for subject selection. Whenever possible, we would hope to insure selection of the lowest functioning children in the integrated schools. An additional criteria for selection of students is the availability of current functional level information through AAMD Scales, Portage or other developmental assessment.

C. Selection Process

In order to select participants for the study, we propose the following process:

Activity	Responsible Agency / Target Date
1. ETS will now send drafts of parent permission letters for both severely handicapped and nonhandicapped students to Lincoln.	ETS/now enclosed
2. Lincoln will then modify the letters and notify ETS of such revisions.	Lincoln/July 30
3. ETS will supply Lincoln with self-addressed prepaid return envelopes as well as consent forms to include with the parent letter.	ETS/July 30
4. Lincoln will send a list of the most severely handicapped students (includes 2 alternates) at each of the selected schools which contains:	
1. Student name or number 2. Birthdate 3. School 4. Description (A chart is enclosed for your convenience.)	Lincoln/July 30
5. Lincoln will mail the letters to parents of severely handicapped and nonhandicapped students.	Lincoln/August 10 letters--parents of SH students Lincoln/October 2 letters--parents of nonhandicapped

6. Parent consent forms will be returned directly to ETS. ETS will copy these and send them to Lincoln.

7. ETS will confirm the students who agree to participate and notify Lincoln of their selection. — ETS/August 20 - SH; ETS/October 11 - NH

8. ETS will prepare a confidential roster of these students. — ETS/August 8 - SH; ETS/October 16 - NH

D. Data to Be Collected

1. Observations of Social Interactions

a) Each of the 20 severely handicapped students will be observed in their learning environments in October-November 1981 and again in March-April 1982. — ETS/Oct.-Nov. 1981; ETS/March-April 1982

b) Each student will be observed for 2 hours in the fall and 2 hours in the spring. At each data point, each student will be observed using 2 instruments.

1) One hour using the APPLE observation instrument.

2) One hour using the ETS Interaction Observation System.

c) Each hour of observation will be divided into six 10-minute intervals scheduled over a number of different days and times. Observations will occur in integrated and nonintegrated contexts.

1) Four 10-minute observations will be in integrated settings.

2) Two 10-minute observations will be in nonintegrated settings.

d) Selection of observational contexts: We would like to observe each student in 2 integrated and highest interactive contexts and 1 nonintegrated context.

1) Two Highest Integrated Interactive Contexts: We would like — Lincoln/October 12

your staff to identify for each severely handicapped target student the 2 integrated contexts in which the SH student has the highest degree of interaction with nonhandicapped students.

2) One Nonintegrated Context: We would also like to observe each student in a nonintegrated context. This context will be selected by the ETS fieldworker. — ETS/October 16

Each student will be observed twice within the same nonintegrated context, though different nonintegrated contexts will be selected for different students to ensure observation of a range of nonintegrated contexts.

e) Observation schedule

1) In order for the ETS fieldworker to select the nonintegrated context and to develop the observation schedule, the ETS fieldworker will need to obtain from your staff a weekly activity schedule for each student. — Lincoln/ October 12-23

2) During the week of October 12-23 the fieldworker will do preliminary observations in site schools to become familiar with target students and their contexts. — ETS/October 12-23

3) The ETS fieldworker will develop the observation schedule for the actual data collection period which will begin October 26. — ETS/October 19

4) The actual data collection period for observations will be conducted during the following weeks:

October 26 - 30
November 2 - 6
November 9 - 20

5) The ETS fieldworker will discuss the observation schedule with Lincoln staff and decide on a process of letting teachers and principals know when to expect the observer. — Lincoln/October 19

2. Student Functional Level

Lincoln will advise ETS of the recency and frequency of AAMD and Portage measures for target students. The fieldworker will obtain available measures of student functional level for each of the target severely handicapped students. — ETS/November 16

3. IEP Goals

The ETS fieldworker will review target students' IEPs in effect during the fall 1981-1982 school year collection period. (IEPs for the school year 1982-1983 will be collected in the second data collection period.) — ETS/October 22, 23

II. Nonhandicapped (NH) Students

A. Number of Students and Site Schools

We propose to include 20 nonhandicapped students according to their active involvement in integrated activities with SH students and their opportunity for such participation. Since some parents may not agree to the participation by their children in this project, we will initially contact parents of 40 nonhandicapped students.

B. Selection Process for NH Students

1. NH students will be selected to form two groups.

   a) Contact group - composed of 20 NH students.
   b) No contact group - composed of 20 NH students.

2. Contact Group: Twenty NH students (selected in the same proportion as SH students in their schools) would be nominated by the

teachers of the SH students. These NH students would be selected because they were known to engage in the most frequent interaction with the SH students.

3. No Contact Group: Twenty NH students would be randomly selected by ETS from one nonintegrated elementary school and one nonintegrated secondary school.

4. ETS will randomly select students from the no contact group. In order to make this selection, ETS will contact you so that we first may select the two nonintegrated schools and find out when next year's rosters of students will be available. We would like to select one elementary school comparable to Hawthorne and one high school comparable to East in grades served, size and SES characteristics. Because East is the only school in Lincoln which spans grades 7-12, the matching site for the no contact group will have to come from either a 7-9 or a 10-12 grade school. Whichever school is selected, the no contact group and the contact group should match in grade level. Therefore, if the no contact group came from a 7-9 school, the contact group in East should be selected from these same grades. — ETS/July 30

5. In order to select the NH students in the no contact group, ETS will send Lincoln a list of random numbers which can be applied to class lists in these two schools. — ETS/September 10

6. When both groups have been identified, Lincoln will send letters to their parents asking for permission for their child's participation. (ETS will have supplied you with a form letter, consent forms and return envelopes in August 1981.) ETS will pay for postage. — Lincoln/October 2

7. Parent consent forms will be returned directly to ETS. ETS will copy these and send them to you.

8. ETS will compile a list of NH students who agree to participate and send the list — ETS/October 16

along with copies of the returned consent forms to you.

9. ETS will prepare a confidential roster of these NH students. — ETS/October 16

C. Data to Be Collected: Attitude Measure & Achievement Scores

1. Attitude toward Handicapped

a) For each nonhandicapped student, we would like to administer the acceptance scale developed by Luanna Voeltz.

b) These measures would be administered by our project in November 1981 and April 1982 during school hours if possible. — ETS/November 9-13 and April 1982

c) The students can be assessed in a group; the assessment takes 20-30 minutes.

d) As some items in the Acceptance Scale are specific to Hawaii, we would like your help in replacing these locally appropriate references. We have enclosed copies of the Acceptance Scales (at the different levels) and circled the items to be changed. We would appreciate it if you could return them by the end of July. — Lincoln/July 30

2. Achievement Scores

a) We propose a change in collection of achievement test data. Instead of collecting this information for each nonhandicapped student participating in the study, we propose to collect this information for selected grades at Hawthorne and East and the 2 nonintegrated schools.

b) We would like to collect and compare achievement test scores for available grades from each school for the next year ('81-82) and the current school year ('80-81).

c) If you will tell us when the '81-82 achievement test data will be — ETS/when available

available, we propose having our fieldworker compile this data.

III. Special Education Director

An hour-long interview will be conducted by the ETS fieldworker to obtain information on district level planning for integration of severely handicapped students. The interview will be scheduled in November 1981 at the Director's convenience with a short follow-up interview in April 1982. — ETS/November 1981 April 1982

IV. Notification and Involvement of LEA Staff (Principals and Teachers)

ETS will prepare and send for your review a brief overview of the ETS project and information we will discuss with each staff person. This summary will serve to inform them about the project, prior preparation of information that would be required, and alert them that an ETS fieldworker will be contacting them in October to schedule an interview. — ETS/July 30

If the overview meets with your satisfaction, we would appreciate your assistance in disseminating it to LEA participants. — Lincoln/ early September

The interview schedule for nonhandicapped students and all LEA staff will be prepared by the ETS fieldworker by October 21 and shared with Lincoln. — ETS/October 21

V. Principals

A. Principals of Site Schools

1. For each of the 3 site schools, the ETS fieldworker will conduct an interview concerning building level planning and integration of SH students. The hour-long interviews will be conducted from October 19 to November 23, 1981 with a brief follow-up interview in March 1982. — ETS/November 1981 March 1982

2. The ETS fieldworker will schedule the interviews with each principal at their convenience.

B. Principals of Nonintegrated Schools

1. Principals of two nonintegrated schools will also be interviewed during the same time periods by an ETS fieldworker.

2. We would like these principals to be from the same 2 schools where the nonhandicapped no contact group is selected. — ETS/November 1981 March 1982

C. Confidential Roster

ETS will contact you for the names of both groups of principals so that we may prepare our confidential roster of participants. — ETS/July 30

VI. Special Education Teachers

A. Teachers of Severely Handicapped and Other Special Education Teachers: up to 9

ETS will interview all teachers of severely handicapped target students. When target students have been identified, we will ask that you indicate the teachers of each target student. If there are fewer than 9 teachers of target students, we will interview up to a total of 9 other special education teachers. If other special education teachers are to be included, we would like to select them randomly from teacher lists.

B. Confidential Roster

When target students are finally selected, we would like to have the names of their teachers as well as other special educators in order to prepare our confidential roster. — Lincoln/September 8

C. Scheduling Interviews

The ETS fieldworker will schedule teacher interviews in conjunction with Lincoln special education staff. These interviews would be interspersed through the weeks of October 26-November 20. ETS can pay for substitute teachers while interviews are being conducted. — ETS/Lincoln October 26-November 20

D. Data to Be Collected

Each SH teacher will be seen for approximately one hour and fifteen minutes. Approximately one hour will be for an interview, and fifteen minutes will be for completion of the Program Options Questionnaire. This information will be repeated in the spring.

VII. Regular Education Teachers

A. Number of Teachers: 8

We would like to interview 4 regular education teachers from each of the 2 integrated schools for a total of 8 teachers.

B. Selection Process

1. We would like to randomly select these teachers from lists of teachers at each school. — ETS/as available

2. Please advise us when these lists would be available and what process we should use to approach selected teachers in order to secure their participation. — Lincoln/July 30

C. Information Pertaining to Confidential Roster, Scheduling Interviews and Data to Be Collected

The information discussed for special education teachers applies to this group.

VIII. School Superintendent

We are considering ~~your suggestion~~ to interview the school superintendent and will make a decision on that by July 30. — ETS/July 30

Don, our intent in detailing the process was to provide you with specific steps that would be taken to plan and conduct the data collection process. We will need your help in supplying us with information to select participants, notify your school personnel, and schedule interviews. Once the data collection period has begun, we will make every effort to avoid making additional demands upon your time.

In our conversation, you indicated that you thought you knew several people who might be appropriate for the fieldworker position. We have enclosed a brief description of this position, and we would appreciate it if you could give us your nominations as soon as possible. We are interested in interviewing several candidates for this position.

We would appreciate it if you could respond to the details in the agreement and indicate any amendments that might be needed by July 30.

We look forward to hearing from you.

Sincerely,

Richard P. Brinker, Ph.D.
Coordinator of Intervention
and Evaluation
Integration Evaluation Project

Lincoln, Nebraska

ETS INTEGRATION EVALUATION PROJECT
SUMMARY TIME LINE OF DELIVERABLES AND MAJOR EVENTS

INFORMATION	TARGET DATE
ETS will send drafts of parents' letters to you.	Now Enclosed
You will respond to the Agreement.	July 30
You will advise ETS about availability of regular teacher listings and process to secure their participation.	July 30
You will nominate individuals for fieldworker position.	July 30
ETS will contact you for information to select the 2 nonintegrated schools.	July 30
ETS will prepare and send to you an overview of the ETS project and information to prepare each person for ETS contact and interview.	July 30
You will return Acceptance Scale revisions and revisions of parent letters to ETS.	July 30
ETS will contact you for the names of principals in the 3 site schools and the 2 nonintegrated schools.	July 30
You will supply ETS with a list of severely handicapped students.	July 30
You will send consent letters to parents of severely handicapped to ask permission to participate.	August 15
ETS will confirm SH students who agree to participate and notify you.	September 1
You will send ETS names of teachers of the SH target students.	September 8
You will disseminate overview to selected LEA staff.	Early September
ETS will send Lincoln a list of random numbers in order to select the no contact group.	September 10
You will send consent letters to parents of both nonhandicapped groups.	October 2
Teachers will give ETS fieldworker the activity schedules for each student and indicate the two highest interactive contexts for each student.	October 12
ETS fieldworker will conduct preliminary observations and select one nonintegrative context in which to observe each student.	October 12-16

INFORMATION	TARGET DATE
ETS will compile a list of nonhandicapped students who agree to participate and send it to you.	October 16
ETS fieldworker will develop observation schedule and share it with your teaching and administration staff.	October 19
ETS fieldworker will develop interview schedule and share it with your staff.	October 21
ETS fieldworker will conduct interviews with principals.	October 19-23
ETS fieldworker will conduct interviews with teachers of severely handicapped.	October 26-30
ETS fieldworker will begin observations of sev ·ely handicapped students.	October 26-November 20
ETS fieldworker will conduct interviews with regular teachers and other special education teachers.	November 2-6
ETS fieldworker will conduct interviews with non-handicapped students.	November 9-13
ETS fieldworker will collect information on functional level of severely handicapped students, IEP goals and nonhandicapped achievement scores.	November 23-December 1

ETS INTEGRATION EVALUATION PROJECT
FOR PARENTS OF NH STUDENTS

Dear _____,
Parents' Name

Lincoln School District is participating in a national study funded by the Office of Special Education in Washington, D.C., and directed by Educational Testing Service in Princeton, New Jersey. The purpose of the project is to study different settings in which students with severe handicaps are enrolled in regular public schools. From this study we hope to provide information that will be useful in planning programs for these students.

As part of this effort, we are asking students in regular education to tell us about their experiences and views regarding students in special education.

We are writing to request _____'s participation
Child's Name
in this project. If you agree, a representative from Educational Testing Service will ask _____ to complete a brief questionnaire that will take approximately 20-30 minutes. The questionnaire will be given once in November 1981 and in April 1982.

This information will be kept strictly confidential by Educational Testing Service. Your child's name will not appear on this questionnaire. Only general information about the responses of students who take this questionnaire will be given school personnel without identification of any specific child.

You are free to choose not to participate in this project, and this decision will not affect your child's educational program. We hope, however, that you and your child will be willing to help us with this effort. If you agree to participate, please sign and return the consent form in the enclosed self-addressed envelope as soon as possible.

Thank you.

Sincerely,

Richard P. Brinker, Ph.D.
Project Director
Integration Evaluation Project
Educational Testing Service

Donald Sherrill, Ph.D.
Director of Special Education
Lincoln Public Schools

ETS INTEGRATION EVALUATION PROJECT
FOR PARENTS OF SH STUDENTS

Dear _____,
Parents' Name

Lincoln School District is participating in a national study funded by the Office of Special Education in Washington, D.C., and directed by Educational Testing Service in Princeton, New Jersey. The purpose of the project is to study different settings in which students with severe handicaps are enrolled in regular public schools. From this study we hope to provide information that will be useful in planning programs for these students.

We are writing to request _____'s participation
Child's Name
in this project. If you agree to participate, we, at Educational Testing Service will be doing the following things. First, we would like to observe your child during the school day when there are opportunities to interact with nonhandicapped students. We also will be observing _____
Child's Name
in activities during which nonhandicapped children are not present. Each observation will be about 10 minutes long. The total amount of observation time will be 2 hours in the fall of 1981 and 2 hours in the spring of 1982. During this observation time we will take special care not to interrupt or interfere with _____'s educational program in any way.

Second, we would like to review your child's records which include assessment information and your child's IEP. We need to see these records to get some idea of your child's abilities and to understand the educational program which is planned for your child.

Finally, we would like to interview you at your convenience in the spring of 1982 to find out your feelings about your child's educational program, your own participation in that program, and the kinds of behavior which your child may have learned through contact with nonhandicapped children.

All of the information about your child which we obtain will be held in the strictest confidence by Educational Testing Service. Your child's name will not appear on the record forms or observation sheets. Only general information about the degree and quality of integration of handicapped children will be given to school personnel without mention of any specific child.

You are free to choose not to participate in this project, and this decision will have no impact upon your child's educational program. We hope that you do choose to participate and thereby help evaluate and improve

services for children like _____. If you choose to participate, please sign the attached consent form and return it in the enclosed self-addressed envelope as soon as possible.

Thank you.

Sincerely,

Richard P. Brinker, Ph.D.
Project Director
Integration Evaluation Project
Educational Testing Service

Donald Sherrill, Ph.D.
Director of Special Education
Lincoln Public Schools

Lincoln, Nebraska

ETS INTEGRATION EVALUATION PROJECT ENCLOSURES

1. Integration Evaluation Agreement.
2. Summary Time Line of Deliverables and Major Events.
3. Letter for Parents of Severely Handicapped Students.
4. Letter for Parents of Nonhandicapped Students.
5. Student Acceptance Scales.
6. Fieldworker Descriptions.
7. List of Severely Handicapped Students.

APPENDIX B

Integration Evaluation Project

Directory of Sites

INTEGRATION EVALUATION PROJECT

DIRECTORY OF SITES

BIRMINGHAM PUBLIC SCHOOLS

CONTACT PERSON:

Dr. Jeannine Spann
Teacher/Coordinator
Special Education
Birmingham Public Schools
P.O. Drawer 10007
Birmingham, AL 35202

(205) 252-1800 X 260

DEKALB COUNTY SPECIAL EDUCATION ASSOCIATION and NORTHERN ILLINOIS UNIVERSITY

CONTACT PERSONS:

Mr. William Peters
Director of Special Education
DeKalb County Special Ed. Assoc.
145 Fisk Avenue
DeKalb, IL 60115

(815) 756-8589

Dr. Sharon Freagon, Asst. Professor
Dept. of Learning, Development &
Special Education
Northern Illinois University
Graham Hall
DeKalb, IL 60115

(815) 753-0650

LAGRANGE AREA DEPARTMENT OF SPECIAL EDUCATION and LYONS HIGH SCHOOL DIST. # 204

CONTACT PERSONS:

Mr. Paul Ericksen, Coordinator
Secondary Schools Programs & Services
LaGrange Area Dept. of Special Education
1301 West Cossitt
LaGrange, IL 60525

(312) 354-5730

Mr. Richard Yena
Chairman, Special Education
Lyons Township High School Dist. 204
100 So. Brainard Avenue
LaGrange, IL 60525

(312) 354-4220

SPRING LAKE PARK PUBLIC SCHOOLS

CONTACT PERSONS:

Ms. Gladys Murray
Director of Special Education
Spring Lake Park Public Schools
8000 Highway 65
Spring Lake Park, MN 55432

(612) 786-5570

Ms. Cheryl Norman
School Psychologist

(612) 786-5570

Ms. Joanne Myers
Special Education Teacher

GRAND ISLAND PUBLIC SCHOOLS

CONTACT PERSONS:

Mr. Jim Werth
Director of Central Nebraska Support
Service Programs
Grand Island Public Schools
318 South Clark
Grand Island, NE 68801

(308) 381-5928

Mr. Doug Eicher
Supervisor of Severe & Profound Programming
Grand Island Public Schools
318 South Clark
Grand Island, NE 68801

(308) 381-5925

LINCOLN PUBLIC SCHOOLS

CONTACT PERSONS:

Dr. Donald Sherrill
Director of Special Education
Lincoln Public Schools
P.O. Box 82889
Lincoln, NE 68501

(402) 475-1081

Mr. William Falls
Administrative Assistant
for Special Education
Lincoln Public Schools
P.O. Box 82889
Lincoln, NE 68501

(402) 473-0340

JACKSON COUNTY EDUCATION SERVICE DISTRICT

CONTACT PERSON:

Ms. Beverly Proulx
STEPS Coordinator
Jackson County Education Service District
101 North Grape Street
Medford, OR 97501

(503) 776-8551

PHILADELPHIA PUBLIC SCHOOLS

CONTACT PERSONS:

Dr. Win Tillery
Director of Special Education
Philadelphia Public Schools
Administration Center
13th and Spring Garden Streets
Philadelphia, PA 19123

(215) 351-7221

Dr. Cynthia Janssen
Project Administrator
School District of Philadelphia
Administration Center
13th and Spring Garden Streets
Philadelphia, PA 19123

(215) 627-8414

Dr. Kenneth Prusso
Philadelphia Public Schools
Board of Education
Department of Research and Evaluation
Room 405
21st Street and the Parkway
Philadelphia, PA 19123

(215) 299-8946

BARRE CITY PUBLIC SCHOOLS

CONTACT PERSON:

Mr. William Rochon, Director
Pupil Personnel & Special Ed. Services
Barre City Public Schools
Mathewson School
Elm Street
Barre, VT 05641

(802) 476-6456

SOUTHWEST VERMONT SUPERVISORY UNION

CONTACT PERSON:

Ms. Shirley Tawney
Assistant Superintendent for
Special Services
Southwest Vermont Supervisory Union
604 Main Street
Bennington, VT 05201

(802) 447-7501

LAKE WASHINGTON SCHOOL DISTRICT - # 414

CONTACT PERSONS:

Dr. Ralph Bohannon
Director of Special Services
Lake Washington School District 14
6511 112th Avenue N.E.
Kirkland, WA 98033

(206) 828-3210

Ms. Joyce Vanden Hoorn
Program Specialist/Project Coordinator
Special Services
Community Liason Instructional Program
Lake Washington School District 14
6511 112th Avenue, N.E.
Kirkland, WA 98033

(206) 828-3201

UNIVERSITY OF WASHINGTON, SHORELINE SCHOOL DISTRICT # 412 AND FIRCREST SCHOOL

CONTACT PERSONS:

Dr. Marie Thompson
Assistant Professor
Experimental Education Unit WJ-10
Child Development and Mental Retardation Center
College of Education
University of Washington
Seattle, WA 98195

(206) 543-4011 and 1827

Ms. Sandra Hannes
Project Coordinator
Experimental Education Unit WJ-10

(206) 543-4011

TACOMA PUBLIC SCHOOLS

CONTACT PERSONS:

Dr. Henry Bertness
Director of Special Education
Special Services
Tacoma Public Schools
8th & Tacoma Ave., Box 1357
Tacoma, WA 98401

(206) 593-6968

Mr. Richard C. King
Program Coordinator
Pupil Personnel Services

(206) 593-6684

MADISON METROPOLITAN SCHOOL DISTRICT

CONTACT PERSONS:

Dr. Lee Gruenewald
Director of Specialized Education
Madison Metropolitan School District
545 West Dayton Street
Madison, WI 53703

(608) 266-6150

Mrs. Ruth Loomis
Program Coordinator
Specialized Educational Services

(608) 266-6175

APPENDIX C

Coding Descriptions for

Pupil Activity and Teaching Activity

PUPIL ACTIVITY

0	Doing nothing/waiting
1	Personal living
2	Domestic
3	Work or Vocational
4	Community contact
5	Dyadic and group games
6	Solitary leisure/play
7	Preoperational School Readiness Tasks
8	Sensorimotor
9	Academic school work
10	Watching/Passive Attention (Listening)
11	Social Exchanges/conversation
12	Other

Pupil Activity

0 Doing nothing/waiting: Student is not engaged in a purposeful activity. It includes: looking around the room (not focused on individuals or activity), starring into space, wandering around, waiting.

1 Personal Living: Includes engaging in self-help skills such as dressing, grooming, eating, bathing, toileting and mobility training (learning to move about the environment).

2 Domestic: Activities normally done around the home to maintain upkeep of the home such as meal preparation, cleaning, laundry, tidying up, washing dishes, etc.

3 Work (Vocational or prevocational) Preparing for or learning job skills and/or carrying out job activities

4 Community Contact: Preparation for and/or using skills needed to cope in a community environment such as shopping, ordering in a restaurant, going to the movies, buying a dress.

The preparation activities can include activities done in the classroom. Learning about money would be considered a community contact skill.

5 Dyadic and Group Games: Leisure activities involving 2 or more people that are not clearly educational.

Example Tickling, tossing a ball back and forth, peek-a-boo

6 Solitary Leisure/Play: The target student is engaged in play by himself.

7 Preoperational School Readiness Tasks: Includes school readiness activities such as sorting, labeling, matching, classifying, following commands. These are activities where the child is first beginning to understand and use language.

8 Sensorimotor Tasks: Includes the earliest motor activities where a young child or infant is beginning to explore his environment and/or his own body. It would include: reaching, grasping, touching, kicking, manipulating objects, mouthing objects, banging objects.

It would also include vocalizations (from random vocalizations to vocalizations (not words) with communicative intent.

Additionally, self stimulatory behaviors such as rocking, head banging, twirling, etc. would be included.

9 Academic School Work: Traditional school subjects - reading, writing, math, art, music, discussion of calendar and daily activities. It would include doing workbooks or worksheets if the content of these papers was not specified.

10 Watching/Passive Attention (Listening): Focused watching and listening. The target of the attention should be specified to separate this from doing nothing.

11 Social Exchanges/Conversation: Noninstructional social discourse.

12 Other: Anything that doesn't fit in the above categories. It includes

1) Transition activities - movement to a new place or location.
2) Exercises
3) Active physical activities - running, hopping, jumping.

TEACHER ACTIVITY

0 None

1 Caretaking

2 Direct Physical Teaching

3 Verbal Teaching (Lecturing/Discussing/Questioning)

4 Observing and Monitoring (Supervising)

5 Facilitation of interaction and student activity

6 Playing/Conversing with students

7 Other

8 Combination of Teaching Techniques

TEACHING ACTIVITY

1. Caretaking

The child is passive. Personal living skills are being fulfilled by another person. It is not a teaching situation.

It includes things like diapering, feeding, washing, grooming and other acts of personal hygiene.

It also includes physical positioning (moving the child's arms, legs, etc).

Example feeding the target student

2. Direct Physical Teaching

Teaching a task using physical means.

It includes using physical prompts, pointing, demonstration, manipulation of materials, gesturing and physical therapy.

Example Assists subject to eat with hand over hand guidance

3. Verbal Instruction

Teaching a task using verbal means.

It includes lecturing, discussing, questioning

4. Observing, Monitoring and Supervising

Watching the ongoing activity of the target student without intervening.

Example Watching students while they are having lunch

5. Facilitation

It's a brief adjustment or change to encourage

a) the interaction of others to work with subject

b) the continuation or extension of the students' own activity

Example T praising student's behavior

NF is writing S's responses in a notebook

6. Playing and/or Conversing with students

Play: Usually a turn taking exchange in a fun situation. (The S may not always respond however)

Example Tickling, playing ball

Conversation: Social verbal exchange which is not instructional in content

7. Other includes:

a. Ambiguous activities: Where you can't tell what is being taught and it is not clearly play.

Example Holding head, pulling through pool, talking

Rocking and singing to S

b. Movement to a new place or location:

Example Leading S down hallway to art

0 None No one is teaching or interacting with target student

8. Combination of Teaching Techniques (Combination of 2 and 3)

Both verbal and physical instruction is occuring with target student.

It includes general statements of instruction where it is clear that something is being taught but it may not be what or how.

Example "working with individuals"

APPENDIX D

Correlations for Variables in Separate Domains

31 AUG 92 APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
16:29:43 STATE POLICY VARIABLES

VARIABLE	CASES	MEAN	STD DEV
SN	245	.5161	.5733
SH	245	.1755	.4622
NS	245	.8566	1.0006
HS	245	.1396	.3304
COUNT81	245	89995.1755	74874.6536
COLLEGES	245	3.1388	2.5457
BASPH	245	2.4041	2.8044
MASPH	245	2.4898	2.8581
PHDSPH	245	.3510	.4783
FUND89SH	245	.1901	.1681
CATEGORY	245	3.4041	2.7543
PSEALRE	245	.5248	.3110
PLEALRE	188	.4639	.2794
CITELRE	245	.7306	.4445
PSHINT	245	57.7258	27.9331
HPINT	245	95.6403	3.0824
REINEOSE	245	.7306	.4445
FREESTAN	245	.4163	.4940
FTESPH	245	.5117	.8305
SPHFUNDS	245	.7224	.4487
PLACEMNT	245	4.5673	1.1274
SEPDEMOS	245	2.2286	1.9261
INSERV	173	64417.4740	66384.7153

APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
STATE POLICY VARIABLES

- - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

SN	SH	NS	HS	CCUNTRI	COLLEGES	BASPH	MASPH	PHDSPH	FUND89SH
1.0000	.1091	.6908**	.1341	.1377	-.1507*	-.2042**	-.1194	-.1294	.0654
.1091	1.0000	-.0043	.8867**	.0256	.2211**	.1695*	.2230**	.1562*	.0388
.6908**	-.0043	1.0000	-.0410	.0116	-.0398	-.0531	-.0321	-.0588	.0546
.1341	.8867**	-.0410	1.0000	.0811	.1402	.0619	.1411	.0753	.0572
.1377	.0256	.0116	.0811	1.0000	-.0992	-.3895**	.0567	-.2790**	-.1109
-.1507*	-.2211**	-.0398	.1402	-.0992	1.0000	.8945**	.9504**	.6398**	.1167
-.2042**	.1695*	-.0531	.0619	-.3895**	.8945**	1.0000	.8403**	.7005**	-.0232
-.1194	.2230**	-.0321	.1411	.0567	.9504**	.8403**	1.0000	.5213**	-.0850
-.1294	.1562*	-.0588	.0753	-.2790**	.6398**	.7005**	.5213**	1.0000	.2549**
.0654	.0388	.0546	.0572	-.1109	.1167	-.0232	-.0850	.2549**	1.0000
-.0734	.0145	-.1043	-.0494	-.0612	.1276	.3529**	.1268	.5390**	-.0471
.0891	-.1844*	.0580	-.1137	-.1325	-.8067**	-.7233**	-.8950**	-.4286**	-.0038
.2515**	-.1220	.0580	-.0209	.1899*	-.7937**	-.9138**	-.8122**	-.5343**	.2680**
-.0517	.1070	.0364	.0778	-.0397	.4460**	.3244**	.3365**	.0996	-.1726*
-.0090	.1264	.0945	.0813	-.5574**	.5452**	.4863**	.3792**	.2892**	.5777**
-.0929	-.0140	.0346	-.0734	-.9323**	.0898	.3776**	-.0462	.2349**	-.0843
-.0517	.1070	.0364	.0778	-.0397	.4460**	.3244**	.3365**	.0996	-.1726*
.2150**	-.0539	.1271	-.0094	.6915**	-.5155**	-.6367**	-.3540**	-.6211**	-.3091**
-.1343	-.0323	-.1795*	.0025	.0552	-.0685	-.0737	.0241	.2084**	-.4129**
-.2827**	.0102	-.1373	.0309	-.1314	.4357**	.3761**	.4771**	-.0025	-.1953*
-.1124	.0175	-.0499	.0135	.3583**	.0924	.0970	.1016	.4196**	-.0232
.0103	.2099**	.0660	.1453	.0187	.7424**	.5807**	.5990**	.6600**	.6168**
.2021*	-.0118	.0899	-.0385	.9738**	-.2806**	-.2315*	-.1722	-.0791	-.0763

LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
STATE POLICY VARIABLES

- - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

CATEGORY	PSEALRE	PLEALRE	CITELRE	PSHINT	HPINT	REINFOSF	FREESTAN	FTESPH	SPHFUNDS
-.0734	.0891	.2515**	-.0517	-.0090	-.3929	-.0517	.2152**	-.1343	-.2827**
.0145	-.1844*	-.1220	.1070	.1264	-.0140	.1070	-.0539	-.0323	.0102
-.1043	.0580	.0580	.0364	.0945	.0246	.0364	.1271	-.1795*	-.1373
-.0464	-.1137	-.0209	.0778	.0813	-.0734	.0778	-.0094	.0025	.0309
-.0613	-.1325	.1869*	-.0047	-.5574**	-.9323**	-.0397	.6915**	.0553	-.1214
.1276	-.8067**	-.7937**	.4460**	.5452**	.0899	.4460**	-.5155**	-.0685	.4357**
.3539**	-.7233**	-.9138**	.3244**	.4863**	.3776**	.3244**	-.6367**	-.0737	.3761**
.1258	-.8950**	-.8122**	.3365**	.3792**	-.0462	.3365**	-.3540**	.0241	.4771**
.5390**	-.4208**	-.5043**	.0996	.2892**	.2349**	.0996	-.6211**	.2084**	-.0025
-.0471	-.0038	.2680**	-.1726*	.5777**	-.0843	-.1726*	-.3091**	-.4123**	-.1953*
1.0000	-.3626**	-.4078**	-.3927**	-.3323**	-.0415	-.3927**	-.4073**	.2461**	-.3334**
-.3626**	1.0000	.6980**	.0484	-.2372**	.2394**	.0484	.4126**	-.0866	-.3785**
-.4078**	.6980**	1.0000	-.2069*	-.2503**	-.2041*	-.2069*	.3601**	.1132	-.5557**
-.3927**	.0484	-.2069*	1.0000	.3184**	.2929**	1.0000**	.0649	-.2912**	.1167
-.3323**	-.2372**	-.2503**	.3184**	1.0000	.5025**	.3184**	-.5057**	-.4915**	.1958*
-.0415	.2394**	-.2041*	.2929**	.5025**	1.0000	.2929**	-.4804**	-.1398	.0255
-.3927**	.0484	-.2069*	1.0000**	.3184**	.2929**	1.0000	.0649	-.2912**	.1167
-.4073**	.4126**	.3601**	.0649	-.5057**	-.4804**	.0649	1.0000	-.2311**	-.2901**
.2461**	-.0866	.1132	-.2912**	-.4915**	-.1398	-.2912**	-.2311**	1.0000	.3094**
-.3334**	-.3785**	-.5557**	.1167	.1958*	.0255	.1167	-.2901**	.3094**	1.0000
.1780*	.0307	-.3582**	.0118	-.3484**	-.3061**	.0118	.2512**	.1502*	.0857
.0783	-.4699**	-.4290**	.3594**	.6359**	-.0228	.3594**	-.2986**	-.4297**	-.0591
.5065**	.0172	-.6472**	-.3015**	-.5509**	-.8445**	-.3015**	.7369**	-.3159**	-.9011**

LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

- - - - - - - P E A R S O N C O R R E L A T I O N C O E F F I C I E N T S - - - - - - - - - - - - -

PLACEMNT	SEPDEMOS	INSERV
-.1124	.0103	.2021*
.0175	.2099**	-.0118
-.0499	.0660	.0899
.0175	.1453	-.0385
.3582**	.0187	.9728**
.0924	.7424**	-.2806**
.0970	.5807**	-.2315*
.1016	.5990**	-.1722
.4196**	.6600**	-.0791
-.0232	.6168**	-.0763
.1780*	.0783	.5065**
.0307	-.4695**	.0172
-.3582**	-.4290**	-.6472**
.0118	.3594**	-.3015**
-.3484**	.6359**	-.5509**
-.3061**	-.0228	-.8445**
.0118	.3594**	-.3015**
.2512**	-.2586**	.7369**
.1502*	-.4297**	-.3159**
.0857	-.0591	-.9011**
1.0000	.2458**	.4955**
.2458**	1.0000	.0540
.4955**	.0540	1.0000

. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

31 AUG 83 16:29:49 APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
DISTRICT AND TEACHER SUPPORT

VARIABLE	CASES	MEAN	STD DEV
TCHAGE	90	31.7667	6.7058
TCHSEX	90	1.2222	.4181
TUTBEHAV	86	2.7791	1.9548
NHBEHAV	86	3.0116	1.2879
INTCHGE	65	3.1385	.9334
QUALCHGE	65	3.2154	.8568
PRGINTG	90	2.8444	.8857
REGT	90	1.6944	1.2871
AID	90	3.4167	1.2367
CSPECT	90	2.1167	1.3963
CONSULT	90	.6667	.7420
THERPST	90	2.2389	1.0711
PRINPAL	90	.8944	.9729
STUDT	90	.9778	1.3920
PARENT	90	.6111	.7487
ENTHUS	90	3.1444	.9248
NHPREP	89	.6966	1.0543
NHDIREC	87	1.5000	1.0538
SN	78	1.1061	1.2615
SH	78	.3994	.9561
NS	78	1.8240	1.7389
HS	78	.3116	.7807

- - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - -

	TCHAGE	TCHSEX	TUTREHAV	NHREHAV	INTCHGE	QUALCHGE	PRDINTG	REGT	AID	OSPECT
TCHAGE	1.0000	-.0615	-.0864	-.0401	-.1124	-.0212	-.2389	-.0733	.0660	.0173
TCHSEX	-.0615	1.0000	-.0404	.1046	.2335	.1619	-.0118	-.0188	.1123	.0994
TUTREHAV	-.0864	-.0404	1.0000	.2954*	.2981*	.3154*	.4203**	-.0800	.1413	.0914
NHREHAV	-.0401	.1046	.2954*	1.0000	.3423*	.3471*	.3341**	.2160	-.1777	.2921*
INTCHGE	-.1124	.2335	.2981*	.3423*	1.0000	.7827**	.1547	-.0573	.0560	.0663
QUALCHGE	-.0212	.1619	.3154*	.3471*	.7827**	1.0000	.2907*	-.1365	-.0663	.0208
PRDINTG	-.2389	-.0118	.4203**	.3341**	.1547	.2907*	1.0000	.1195	-.0863	.0625
REGT	-.0733	-.0188	-.0800	.2160	-.0573	-.1365	.1195	1.0000	-.0744	.2448
AID	.0660	.1123	.1413	-.1777	.0560	-.0663	-.0863	-.0744	1.0000	.3099*
OSPECT	.0173	.0994	.0914	.2921*	.0663	.0208	.0625	.2448	.3099*	1.0000
CONSULT	-.2732*	.0604	.4228**	.2787*	.1683	.1113	.2983*	.0804	.0765	.3172*
THERPST	-.0938	-.1199	.2580*	.0534	.0196	.0521	.3002*	-.0129	.1255	.2948*
PRINPAL	-.1921	.0169	-.1920	.2058	.2069	.0924	.0850	.3907**	-.1241	.3028*
STUDT	-.1119	-.1748	-.3630**	.2429	.1590	.2334	.4574**	.0068	-.0321	.1068
PARENT	-.0843	-.1157	.2167	.2164	.4428**	.2829	.0814	.2397	.0860	-.0018
ENTHUS	-.1050	.0178	.2479	.1268	.2197	.3449*	.6004**	.0134	-.1514	-.0023
NHPREP	-.0563	-.2037	.2865*	.0242	.0533	.2683	.4781**	.0238	-.3545**	-.3191*
NHDIREC	-.1639	-.1825	.2946*	.2655*	.2498	.3116*	.4833**	.2510*	.0368	.0644
SN	-.0716	.0171	.0832	.2471	.0180	.0246	.3021*	.1647	-.3066*	-.3941**
SH	.1846	.0217	-.1701	.0266	-.0913	-.0425	-.1186	-.1181	.0875	-.0870
NS	-.1151	-.1241	.2202	.0683	.0299	.0190	.2087*	.0800	-.2001	-.3818**
HS	.1415	-.0558	-.1849	.0012	-.1134	-.0756	-.0746	-.1132	.0091	-.1140

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	CONSULT	THERPST	PRINPAL	STUDT	PARENT	ENTHUS	NHPREP	NHDIREC	SN	SH
TCHAGE	-.2732*	-.0938	-.1821	-.1119	-.0843	-.1050	-.0563	-.1639	-.0716	.1846
TCHSEX	.0604	-.1199	.0169	-.1749	-.1157	.0178	-.2037	-.1825	.0177	.0217
TUTBEHAV	.4228**	.2580*	-.1920	.3630**	.2167	.2479	.2865*	.2946*	.0832	-.1701
NHBEHAV	.2787*	.0534	.2058	.2429	.2164	.1268	.0242	.2655*	.2471	.0266
INTCHGE	.1683	.0196	.2068	.1590	.4428**	.2197	.0533	.2496	.0180	-.0918
QUALCHGE	.1113	.0521	.0924	.2336	.2829	.3449*	.2683	.3116*	.0246	-.0425
PRCINTG	.2963*	.3002*	.0850	.4574**	.0814	.6004**	.4781**	.4833**	.3031*	-.1186
REGT	.1804	-.0129	.3907**	.0068	.2397	.0134	.0238	.2510*	.1647	-.1181
AID	.0765	.1255	-.1241	-.0221	.0860	-.1514	-.3545**	.0268	-.3066*	.0075
OSPECT	.3172*	.2548*	.3028*	.1068	-.0018	-.0023	-.3191*	.0644	-.3941**	-.0870
CONSULT	1.0000	.2886*	.0870	.3191*	.0522	.2224	.0537	.0959	.0357	-.2419
THERPST	.2886*	1.0000	.1862	.3446**	.3133*	.1945	.0578	.2209	-.1555	-.0034
PRINPAL	.0870	.1862	1.0000	.1704	.3865**	.0546	.0047	.1754	.0908	-.1639
STUDT	.3191*	.3446**	.1704	1.0000	.2638*	.4542**	.3432**	.1780	-.0374	-.1230
PARENT	.0522	.3133*	.3865**	.2638*	1.0000	.1632	.1356	.3760**	-.0079	-.1743
ENTHUS	.2224	.1945	.0546	.4542**	.1632	1.0000	.3385**	.3584**	.1566	-.3245*
NHPREP	.0537	.0578	.0047	.3432**	.1356	.3385**	1.0000	.3460**	.1898	-.0699
NHDIREC	.0959	.2209	.1754	.1780	.3760**	.3584**	.3460**	1.0000	.0942	-.2894*
SN	.0357	-.1555	.0908	-.0374	-.0079	.1566	.1898	.0942	1.0000	.1041
SH	-.2419	-.0034	-.1639	-.1230	-.1743	-.3245*	-.0699	-.2894*	.1041	1.0000
NS	.1657	-.1184	.0317	-.0647	.1362	.1689	.3682**	.3929**	.6869**	-.1226
HS	-.2373	.0195	-.1015	-.084	-.1235	-.2021	-.0547	-.2713	.1598	.9063**

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PEARSON CORRELATION COEFFICIENTS

	NS	HS
TCHAGE	-.1151	.1415
TCHSEX	-.1241	-.0558
TUTBEHAV	.2202	-.1849
NHBEHAV	.0683	.0012
INTCHGE	.0259	-.1134
QUALCHGE	.0190	-.0756
PRCINTG	.3087*	-.0746
REGT	.0800	-.1132
AID	-.2001	.0091
OSPECT	-.3818**	-.1140
CONSULT	.1657	-.2273
THERPST	-.1184	.0195
PRINPAL	.0317	-.1015
STUDT	-.0647	-.0841
PARENT	.1362	-.1235
ENTHUS	.1689	-.2021
NHPREP	.3682**	-.0547
NHDIREC	.3929**	-.2713
SN	.6869**	.1598
SH	-.1224	.9063**
NS	1.0000	-.0746
HS	-.0746	1.0000

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31 AUG 83 APPENDIX D CORRELATIONS [illegible] IES IN SEPARATE DOMAINS
16:29:52 IEP AND FUNCTIONAL LEVELS

VARIABLE	CASES	MEAN	STD DEV
OWRITTEN	221	47.8009	46.3252
INTWRIT	232	P.1121	21.672P
SIGNED	242	1.1694	.3759
TALKING	245	1.6000	.9038
MOBILITY	245	2.8857	1.2633
SELFHELP	245	2.2776	1.3424
DOMESTIC	245	1.4122	.6756
COGNITIV	245	1.5755	.6202
SN	245	.5161	.6733
SH	245	.2975	.4622
NS	245	.8546	1.0006
HS	245	.1396	.3304

PEARSON CORRELATION COEFFICIENTS

	DWRITTEN	INTWRIT	SIGNED	TALKING	MOBILITY	SELFHELP	DOMESTIC	COGNITIV	SN	SH
DWRITTEN	1.0000	.7978**	.0741	.0481	.2122**	.2181**	.2519**	.0900	.2043**	.0085
INTWRIT	.7978**	1.0000	.2108**	.1884*	.2016*	.2801**	.3680**	.1818*	.1178	.0145
SIGNED	.0741	.2108**	1.0000	-.0090	-.0927	-.0706	.0796	-.0661	.0198	-.0464
TALKING	.0481	.1884*	-.0090	1.0000	.3806**	.5845**	.7017**	.7277**	.0787	.3239**
MOBILITY	.2122**	.2016*	-.0927	.3806**	1.0000	.7032**	.4015**	.3618**	.0542	.2377**
SELFHELP	.2181**	.2801**	-.0706	.5845**	.7032**	1.0000	.5992**	.5887**	.1054	.2904**
DOMESTIC	.2519**	.3680**	.0796	.7117**	.4015**	.5992**	1.0000	.6150**	.1048	.1896*
COGNITIV	.0900	.1818*	-.0661	.7277**	.3618**	.5887**	.6150**	1.0000	.1891*	.2051**
SN	.2043**	.1178	.0198	.0787	.0542	.1054	.1048	.1891*	1.0000	.1091
SH	.0085	.0145	-.0464	.3239**	.2377**	.2904**	.1896*	.2051**	.1091	1.0000
NS	.2369**	.0873	.1235	-.1031	-.1247	-.0954	-.0680	-.0115	.6908**	-.0843
HS	.0580	.0684	-.0178	.3181**	.2230**	.2777**	.2130**	.1997**	.1341	.8867**

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31 AUG 82 APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
14:29:52 IEP AND FUNCTIONAL LEVEL

PEARSON CORRELATION COEFFICIENTS

	NS	HS
CWRITTEN	.2369**	.0580
INTWRIT	.0873	.0684
SIGNED	.1225	-.0178
TALKING	-.1031	.3181**
MOBILITY	-.1247	.2230**
SELFHELP	-.0954	.2777**
DOMESTIC	-.0680	.2130**
COGNITIV	-.0115	.1997**
SN	.6908**	.1341
SH	-.0843	.8867**
NS	1.0000	-.0410
HS	-.0410	1.0000

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
SOCIAL AND PHYSICAL ENVIRONMENT

VARIABLE	CASES	MEAN	STD DEV
MTCHSTAE	236	2.8998	1.6343
MTHERPST	236	.2555	.3773
MPFERTTR	236	1.6324	2.9369
MNONHAND	236	8.5719	7.7736
MHANDICP	245	6.0215	4.6447
MADMIN	236	.0399	.1091
MCOMMUN	236	1.0504	3.0271
MOTHADLT	236	.5075	1.1264
MSCCDEN	236	3.4522	.8897
MNOISE	236	3.5539	.6527
MBRIGHT	236	2.3695	.6083
MMATDEN	236	2.6949	1.1875
MLRNAREA	236	1.7153	.8597
MSPASEP	235	1.6456	.9509
MMATACES	235	2.8999	1.3808
MAGEAPP	217	3.3462	.9350
SN	245	.5161	.6733
SH	245	.1975	.4622
NS	245	.8546	1.0006
HS	245	.1396	.3304

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - -

	MTCHSTAF	MTHERPST	MPEERTTR	MNONHAND	MHANDICP	MADMIN	MCOMMUN	MCTHADLT	MSCCDEN	MNCISE
MTCHSTAF	1.0000	.1259	-.1166	.1948*	.5972**	.0081	-.0859	.0825	.2550**	.3219**
MTHERPST	.1259	1.0000	.2807**	-.3295**	.1085	-.0580	-.1648*	.2353**	-.0313	-.1370
MPEERTTR	-.1166	.2807**	1.0000	-.3610**	.2215**	-.1140	-.1739*	.0653	.0944	-.0572
MNONHAND	.1948*	-.3295**	-.3610**	1.0000	.0248	.1919*	.0021	-.1517*	.3811**	.6311**
MHANDICP	.5972**	.1085	.2215**	.0248	1.0000	-.1301	-.0712	.0293	.3026**	.2315**
MADMIN	.0081	-.0580	-.1140	.1919*	-.1301	1.0000	.2115**	.0751	-.0703	.1098
MCOMMUN	-.0859	-.1648*	-.1739*	.0021	-.0712	.2115**	1.0000	.0107	-.1125	.0308
MCTHADLT	.0825	.2353**	.0653	-.1517*	.0293	.0751	.0107	1.0000	-.0265	.0341
MSCCDEN	.2550**	-.0313	.0944	.3811**	.3026**	-.0703	-.1125	-.0265	1.0000	.5374**
MNCISE	.3219**	-.1370	-.0572	.6311**	.2315**	.1098	.0308	.0341	.5374**	1.0000
MARIGHT	.0845	-.2130**	-.2830**	.2075**	-.1864*	.3276**	.1057	-.0473	-.1373	.1606*
MMATDEN	-.1634*	-.1551*	-.2310**	.0907	.0265	.1147	.1588*	-.0843	.0939	.0101
MLRNAREA	-.0531	-.2229**	-.1716*	-.1816*	-.1680*	-.0440	.0399	-.1356	.1069	-.2823**
MSPASEP	.1360	-.1581*	.0453	-.2176**	.0393	-.0463	-.0520	-.0802	.0157	-.2287**
MMATACES	-.1682*	-.1766*	-.1859*	.1765*	.1427	.1670*	.1636*	-.1091	.1066	.1351
MAGEAPP	-.2102**	-.2752**	-.1513	-.0148	.0603	-.0490	.3512**	-.0793	-.0700	.0624
SN	-.2697**	-.1249	.0514	.1996*	-.2318**	.0491	-.2051**	-.1209	.0600	.0161
SH	-.1864*	-.0923	-.0121	.1228	.0857	.0191	-.0802	-.0512	.1039	.0752
NS	-.2152**	-.0137	.2062**	-.0576	-.1584*	.0985	-.2178**	-.0779	-.0299	-.1232
HS	-.1566*	-.0567	.0532	.1164	.1093	.0176	-.0639	-.0451	.0891	.0766

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

31 AUG 83 APPENDIX D CORRELATIONS FOR VARIABLES IN SEPARATE DOMAINS
16:29:54 SOCIAL AND PHYSICAL ENVIRONMENT

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	MBRIGHT	MMATDEN	MLRNAREA	MSPASEP	MMATACES	MAGEAPP	SN	SH	NS	HS
MTCHSTAF	.0845	-.1634*	-.0531	.1360	-.1682*	-.2102**	-.2697**	-.1864*	-.2152**	-.1566*
MTHERPST	-.2130**	-.1551*	-.2229**	-.1581*	-.1766*	-.2752**	-.1249	-.0923	-.0137	-.0567
MPEERTTR	-.2830**	-.2210**	-.1706*	.0453	-.1859*	-.1513	.0514	-.0121	.2062**	.0532
MNONHAND	.3075**	.0907	-.1816*	-.2176**	.1765*	-.0148	.1596*	.1228	-.0576	.1164
MHANDICP	-.1864*	.0265	-.1680*	.0393	.1427	.0603	-.2318**	.0857	-.1584*	.1093
MADMIN	.3276**	.1147	-.0440	-.0463	.1670*	-.0490	.0491	.0191	.0985	.0176
MCOMMUN	.1057	.1588*	.0399	-.0520	.1636*	.3512**	-.2051**	-.0802	-.2178**	-.0639
MOTHADLT	-.1473	-.0843	-.1356	-.0802	-.1091	-.0793	-.1209	-.0512	-.0779	-.0451
MSPCDEN	-.1373	.0539	.1069	.0157	.1066	-.0700	.0600	.1039	-.0299	.0891
MNOISE	.1606*	.0101	-.2823**	-.2287**	.1351	.0624	.0161	.0752	-.1232	.0766
MBRIGHT	1.0000	.0399	-.1117	-.1981*	.0142	.0244	.1244	-.0970	.0719	-.1091
MMATDEN	.0399	1.0000	.1757*	-.1140	.5146**	.4227**	.0442	.2510**	-.0484	.1463
MLRNAREA	-.1117	.1757*	1.0000	.6997**	.0043	-.1341	-.0041	-.0855	-.0136	-.1442
MSPASEP	-.1981*	-.1140	.6997**	1.0000	-.1494	-.2653**	-.1321	-.1018	-.0685	-.1005
MMATACES	.0142	.5146**	.0043	-.1494	1.0000	.4274**	.0221	.2895**	-.1476	.2082**
MAGEAPP	.0244	.4227**	-.1341	-.2653**	.4274**	1.0000	-.0725	.1635*	-.2201**	.1435
SN	.1244	.0442	-.0041	-.1321	.0221	-.0725	1.0000	.1091	.6908**	.1361
SH	-.0970	.2510**	-.0855	-.1018	.2895**	.1635*	.1091	1.0000	-.0843	.8867**
NS	.0719	-.0484	-.0136	-.0685	-.1476	-.2201**	.6908**	-.0843	1.0000	-.0410
HS	-.1091	.1463	-.1442	-.1005	.2082**	.1435	.1361	.8867**	-.0410	1.0000

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

APPENDIX E

Correlations for Variables in Full Model

31 AUG 83 PEARSON CORRELATIONS FOR VARIABLES IN FULL MODEL
15:18:57 APPENDIX E CORRELATIONS FOR VARIABLES IN FULL MODEL

VARIABLE	CASES	MEAN	STD DEV
OWRITTEN	231	47.8009	46.3252
SIGNED	242	1.1694	.3759
INTWRIT	232	8.1121	21.6738
MOBILITY	245	2.8857	1.2623
TALKING	245	1.6000	.9026
COGNITIV	245	1.5755	.6202
MTCHSTAF	236	2.8998	1.6343
MTHERPST	236	.2555	.3773
MADMIN	236	.0399	.1091
MCOMMUN	236	1.0504	3.0371
MNONHAND	236	8.5719	7.7736
MPEERTTR	236	1.6324	2.9369
MHANDICP	245	6.0215	4.6447
MISN	245	.5161	.6733
MISH	245	.1975	.4622
MINS	245	.8546	1.0006
MIHS	245	.1396	.3304
MMATDEN	236	2.6949	1.1875
MNOISE	236	3.5539	.6527
MBRIGHT	236	2.3695	.6083
MLRNAREA	236	1.7153	.8597
MSPASEP	235	1.6456	.9509
MMATACES	235	2.8999	1.3808
MAGEAPP	217	3.3462	.9350
FTESPH	245	.5117	.8305
CATEGORY	245	3.4041	2.7543
SPHFUNDS	245	.7224	.4487
MASPH	245	2.4898	2.8581
PSEALRE	245	.5248	.3110
MODEL	245	.4449	.4980
TIME1	216	9.5823	6.7719
ENRCLREG	245	40000.0367	62534.2328
MSUPPT	210	2.6810	.9625
PROINTG	220	2.8591	.8538
REGT	220	1.4023	1.2806
DSPECT	220	1.9386	1.3938
ENTHUS	220	3.1545	.9197
NHDIREC	212	1.5849	1.1111
CONSULT	220	.6250	.7209
NHBEHAV	205	2.9707	1.3930
PMET	221	.4005	.3023

- - - - - - - P E A R S O N C O R R E L A T I O N C O E F F I C I E N T S - - - - - - - - - - -

CWRITTEN	SIGNED	INTWRIT	MOBILITY	TALKING	COGNITIV	MTCHSTAF	MTHERPST	MADMIN	MCOMMUN
1.0000	.0741	.7978**	.2122**	.0481	.0900	-.1934*	.2051*	.1768*	.0122
.0741	1.0000	.2108**	-.0927	-.0090	-.0661	.0135	.3691**	-.0599	-.0551
.7978**	.2108**	1.0000	.2016*	.1884*	.1818*	-.2518**	.3134**	.0487	-.0084
.2122**	-.0927	.2016*	1.0000	.3806**	.3618**	-.2034**	-.2334**	.1732*	.1239
.0481	-.0090	.1884*	.3806**	1.0000	.7277**	-.2950**	-.0752	-.1298	.0656
.0900	-.0661	.1818*	.3618**	.7277**	1.0000	-.2570**	-.2006**	-.0376	.0164
-.1934*	.0135	-.2518**	-.2034**	-.2950**	-.2570**	1.0000	.1259	.0081	-.0859
.2051*	.3691**	.3134**	-.2334**	-.0752	-.2006**	.1259	1.0000	-.0580	-.1648*
.1768*	-.0599	.0487	.1732*	-.1298	-.0376	.0081	-.0580	1.0000	.2115**
.0122	-.0551	-.0084	.1239	.0656	.0164	-.0859	-.1648*	.2115**	1.0000
.0450	-.2460**	-.1066	.2292**	.0180	.1100	.1948*	-.3295**	.1919*	.0021
.3953**	.1454	.3941**	-.1075	.0539	-.0066	-.1166	.2807**	-.1140	-.1739*
-.0934	.0098	-.0010	-.0027	.0684	.0030	.5972**	.1085	-.1301	-.0712
.2043**	.0198	.1178	.0542	.0787	.1891*	-.2697**	-.1249	.0491	-.2051**
.0085	-.0464	.0145	.2377**	.3239**	.2051**	-.1864*	-.0923	.0191	-.0802
.2369**	.1235	.0873	-.1247	-.1031	-.0115	-.2152**	-.0137	.0985	-.2178**
.0580	-.0178	.0684	.2230**	.3181**	.1997**	-.1566*	-.0567	.0176	-.0639
.0187	.0026	.1224	.3118**	.2887**	.3656**	-.1634*	-.1551*	.1147	.1588*
-.0164	-.1787*	-.0771	.2121**	.0789	.0774	.3219**	-.1370	.1098	.0308
.1091	-.0408	-.1168	.1830*	-.1876*	-.1407	.0845	-.2130**	.3276**	.1057
-.1351	-.1269	-.1149	-.1934*	-.0592	-.0129	-.0531	-.2229**	-.0440	.0399
-.1271	-.1367	-.1077	-.3006**	-.1785*	-.1727*	.1360	-.1581*	-.0463	-.0520
.1454	-.0860	.2102**	.6779**	.4262**	.3940**	-.1682*	-.1766*	.1670*	.1636*
.0417	-.1296	.1715*	.4302**	.3306**	.3697**	-.2102**	-.2752**	-.0490	.3512**
-.1139	.1520*	-.0173	-.1279	.0959	-.0668	.2769**	.4241**	-.1561*	-.1035
-.3150**	.0528	-.3303**	-.0586	-.0781	-.0743	.2108**	.0883	-.1368	-.1693*
-.0326	.0045	.1566*	-.1286	.1902*	.1345	.0662	.2627**	-.0493	.1169
-.0839	-.0924	.0002	-.0514	.2018**	.0808	-.0650	.1085	-.1968*	.0070
.0927	.0645	.0628	.0037	-.1660*	-.0649	.0388	-.1272	.0795	-.0046
.2694**	.2855**	.3153**	.0617	-.0584	.0036	-.2731**	.1397	.1159	.1604*
.0749	.1240	.2072*	.1654*	.3237**	.3287**	-.0672	.0597	-.1606*	.0270
-.3503	.1749*	-.0964	.0510	-.1474	-.0877	.0154	-.0751	-.0792	-.0826
.2694**	.0163	.2539**	-.1260	-.0859	-.0420	-.1863*	.1107	.1325	-.0324
.3452**	.0817	.3127**	.2463**	.1624*	.1843*	-.1977*	.0538	.2119**	-.0209
-.1143	.1618*	-.0785	-.1743*	-.0853	-.1027	.2449**	.1915*	-.1374	-.2534**
-.2773**	.0537	-.1016	-.0976	.1049	.0019	.4141**	.1250	-.0984	-.0423
.1794*	.0426	.1700*	.0517	.0306	.0573	-.0463	.0739	.0883	-.0616
-.0378	.1909*	-.0670	-.2301**	-.1731*	-.2205**	.1394	.3102**	-.0060	-.2120*
.2733**	.0458	.2024*	-.0221	-.1876*	-.1115	.1533	.1281	.4110**	.0782
.0997	-.0529	.0767	.1619	.0019	-.0146	.0645	-.1370	.2898**	.0440
.3131**	-.0541	.3469**	.2354**	.2691**	.3844**	-.4198**	-.1878*	.0937	.1511

F. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

31 AUG, 83 PEARSCN CORRELATIONS FOR VARIABLES IN FULL MODEL
15:18:57 APPENDIX E CORRELATIONS FOR VARIABLES IN FULL MODEL

----------PEARSCN CORRELATION COEFFICIENTS----------

	MNONHAND	MPEERTTR	MHANDICP	MISN	MISH	MINS	MIHS	MMATDEN	MNOISE	MBRIGHT
CWRITTEN	.0450	.3953**	-.0934	.2043**	.0085	.2369**	.0580	.0187	-.0164	.1051
SIGNED	-.2460**	.1454	.0098	.0198	-.0464	.1235	-.0178	.0026	-.1787*	-.0408
INTWRIT	-.1064	.3941**	-.0010	.1178	.0145	.0873	.0684	.1224	-.0771	-.1168
MOBILITY	.2292**	-.1075	-.0027	.0542	.2377**	-.1247	.2230**	.3118**	.2121**	.1830*
TALKING	.0180	.0539	.0684	.0787	.3239**	-.1031	.3181**	.2887**	.0789	-.1876*
COGNITIV	.1100	-.0066	.0030	.1891*	.2051**	-.0115	.1997**	.3656**	.0774	-.1407
MTCHSTAE	.1948*	-.1166	.5972**	-.2697**	-.1864*	-.2152**	-.1566*	-.1634*	.3219**	.0845
MTHERPST	-.3295**	.2807**	.1085	-.1249	-.0923	-.0137	-.0567	-.1551*	-.1370	-.2130**
MADMIN	.1919*	-.1140	-.1301	.0491	.0191	.0985	.0176	.1147	.1098	.3276**
MCOMMUN	.0021	-.1739*	-.0712	-.2051**	-.0802	-.2178**	-.0639	.1588*	.0308	.1057
MNONHAND	1.0000	-.3610**	.0248	.1996*	.1228	-.0576	.1164	.0907	.6311**	.3075**
MPEERTTR	-.3610**	1.0000	.2215**	.0514	-.0121	.3062**	.0532	-.2310**	-.0572	-.2830**
MHANDICP	.0248	.2215**	1.0000	-.2318**	.0857	-.1584*	.1093	.0265	.2315**	-.1864*
MISN	.1996*	.0514	-.2318**	1.0000	.1091	.6908**	.1341	.0442	.0161	.1244
MISH	.1228	-.0121	.0857	.1091	1.0000	-.0843	.8867**	.2510**	.0752	-.0970
MINS	-.0576	.3062**	-.1584*	.6908**	-.0843	1.0000	-.0410	-.0484	-.1232	.0719
MIHS	.1164	.0532	.1093	.1341	.8867**	-.0410	1.0000	.1463	.0766	-.1091
MMATDEN	.0907	-.2310**	.0265	.0442	.2510**	-.0484	.1463	1.0000	.0101	.0399
MNOISE	.6311**	-.0572	.2315**	.0161	.0752	-.1232	.0766	.0101	1.0000	.1606*
MBRIGHT	.3075**	-.2830**	-.1864*	.1244	-.0970	.0719	-.1091	.0399	.1606*	1.0000
MLRNAREA	-.1816*	-.1706*	-.1680*	-.0041	-.0855	-.0136	-.1442	.1757*	-.2823**	-.1117
MSPASEP	-.2176**	.0453	.0393	-.1321	-.1018	-.0685	-.1005	-.1140	-.2287**	-.1981*
MMATACES	.1765*	-.1859*	.1427	.0221	.2895**	-.1476	.2082**	.5146**	.1351	.0142
MAGEAPP	-.0148	-.1513	.0603	-.0725	.1635*	-.2201**	.1435	.4227**	.0624	.0244
FTESPH	-.1279	.1221	.2095**	-.1343	-.0323	-.1795*	.0025	-.1918*	.0239	-.2789**
CATEGORY	-.0475	-.0492	.1031	-.0734	.0145	-.1043	-.0494	-.1082	-.1524*	-.0025
SPHFUNDS	-.3419**	.2940**	.3106**	-.2827**	.0102	-.1373	.0309	.0693	-.0673	-.4325**
MASPH	-.1210	.2313**	.3796**	-.1194	.2230**	-.0321	.1411	.0115	-.0679	-.2504**
PSEALRE	.1449	-.1862*	-.2814**	.0891	-.1844*	.0580	-.1137	.0325	.1252	.1158
MODEL	-.2798**	.1278	-.1822*	.0267	.0578	.1772*	.0277	.2906**	-.2763**	.0890
TIMEL	-.0858	-.0232	.0504	.1881*	.0706	.0394	.0715	.1798*	-.0385	-.2686**
ENROLREG	-.0501	-.2200**	-.2263**	.1632*	-.0709	.0408	-.0864	.0914	-.2081**	.3141**
MSUPPT	.0208	.1149	-.0875	.0969	.0277	.1150	.0256	.0355	-.0755	-.0765
PROINTG	.0506	.1269	-.0653	.2362**	-.0801	.1860*	-.0113	.1533	.0703	.0354
REGT	.0721	.0426	.0890	.0936	-.1267	-.0085	-.1106	-.2365**	.0657	-.1504
OSPECT	-.1397	-.1080	.3946**	-.3090**	-.0545	-.3203**	-.0694	.0697	.0752	-.2759**
ENTHUS	-.0787	.2556**	.0560	.1126	-.2460**	.1595*	-.1460	-.1417	-.0527	-.0578
MHDIREC	-.0930	.0648	-.0245	.1115	-.2087*	.2837**	-.1486	-.1612	-.0050	-.0741
CONSULT	-.0085	-.0163	-.0150	-.0959	-.2134**	.0246	-.2039*	-.0013	-.0169	.0804
MHBEHAV	.3829**	-.3823**	-.1217	.1990*	.0439	-.0149	.0239	.1485	.3994**	.1914*
PMET	.0344	-.0362	-.1788*	.1597*	.1830*	.1086	.1488	.3540**	.0087	.0122

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PEARSON CORRELATION COEFFICIENTS

	MLRNAREA	MSPASEP	MMATACES	MAGEAPP	FTESPH	CATEGORY	SPHFUNDS	MASPH	PSEALRE	MODEL
OWRITTEN	-.1351	-.1271	.1454	.0417	-.1139	-.2150**	-.0326	-.0839	.0927	.2694**
SIGNED	-.1269	-.1367	-.0860	-.1296	.1520*	.0528	.0045	-.0924	.0645	.2855**
INTWRIT	-.1149	-.1077	.2102**	.1715*	-.0173	-.3303**	.1566*	.0002	.0638	.3153**
MOBILITY	-.1934*	-.3006**	.6779**	.4302**	-.1279	-.0586	-.1286	-.0514	.0037	.0617
TALKING	-.1552	-.1785*	.4262**	.3306**	.0959	-.0781	.1902*	.2018**	-.1660*	-.0584
COGNITIV	-.0129	-.1727*	.3940**	.3697**	-.0668	-.0743	.1345	.0808	-.0649	.0036
MTCHSTAF	-.0531	.1360	-.1682*	-.2102**	.2769**	.2108**	.0662	-.0650	.0388	-.2731**
MTHERPST	-.2229**	-.1581*	-.1766*	-.2752**	.4241**	.0883	.2627**	.1085	-.1272	.1397
MADMIN	-.0440	-.0463	.1670*	-.0490	-.1561*	-.1368	-.0493	-.1968*	.0795	.1159
MCOMMUN	.0399	-.0520	.1636*	.3512**	-.1025	-.1693*	.1169	.0070	-.0046	.1604*
MNONHAND	-.1816*	-.2176**	.1765*	-.0148	-.1279	-.0475	-.3419**	-.1210	.1449	-.2798**
MPEERTTR	-.1706*	.0453	-.1859*	-.1513	.1221	-.0492	.2940**	.2313**	-.1862*	.1278
MHANDICP	-.1680*	.0393	.1427	.0603	.2095**	.1031	.3106**	.3796**	-.2814**	-.1832*
MISN	-.0041	-.1321	.0221	-.0725	-.1343	-.0734	-.2827**	-.1196	.0891	.0267
MISH	-.0855	-.1018	.2895**	.1635*	-.0323	.0145	.0102	.2230**	-.1844*	.0578
MINS	-.0136	-.0685	-.1476	-.2201**	-.1795*	-.1043	-.1373	-.0321	.0580	.1772*
MIHS	-.1442	-.1005	.2082**	.1435	.0025	-.0494	.0309	.1411	-.1137	.0277
MMATDEN	.1757*	-.1140	.5146**	.4227**	-.1918*	-.1082	.0693	.0115	.0325	.2906**
MNCISE	-.2823**	-.2287**	.1351	.0624	.0239	-.1524*	-.0673	-.0679	.1252	-.2763**
MBRIGHT	-.1117	-.1981*	.0142	.0244	-.2789**	-.0035	-.4325**	-.2504**	.1158	.0890
MLRNAREA	1.0000	.6597**	.0043	-.1341	-.0445	.0084	.1163	.0057	-.0069	.0204
MSPASEP	.6597**	1.0000	-.1494	-.2653**	.0119	-.0298	.1967*	-.0235	-.0087	-.1149
MMATACES	.0043	-.1494	1.0000	.4274**	-.0366	-.2064**	.1029	.1469	-.1104	.0272
MAGEAPP	-.1341	-.2653**	.4274**	1.0000	-.2266**	-.2058*	.2222**	.1584*	-.1366	.2029*
FTESPH	-.0445	.0119	-.0366	-.2266**	1.0000	.2461**	.3094**	.0241	-.0866	-.3818**
CATEGORY	.0084	-.0298	-.2064**	-.2058*	.2461**	1.0000	-.3334**	.1268	-.3626**	-.1167
SPHFUNDS	.1163	.1967*	.1029	.2222**	.3094**	-.3334**	1.0000	.4771**	-.3785**	.1147
MASPH	.0057	-.0235	.1469	.1584*	.0241	.1268	.4771**	1.0000	-.8950**	.0104
PSEALRE	-.0069	-.0087	-.1104	-.1366	-.0866	-.3626**	-.3785**	-.8950**	1.0000	-.0479
MODEL	.0204	-.1149	.0272	.2029*	-.3818**	-.1167	.1147	.0104	-.0479	1.0000
TIME1	.0064	-.1926*	.1978*	.2232**	.2525**	-.0011	.1720*	.0202	.0260	.0849
ENROLREG	.0605	-.0557	-.1523*	-.0277	-.2684**	.5047**	-.6265**	-.2978**	.0308	.3109**
MSUPPT	.2158**	.1774*	-.0291	-.0836	.2196**	-.1557	.1884*	.2516**	-.2606**	.3385**
PROINTG	.0218	-.1283	.2611**	.0002	.0931	-.2145**	.0040	-.2597**	.1963*	.1970*
REGT	.0528	.0374	-.2028*	-.3913**	.4337**	.2328**	-.2117**	-.3687**	.3385**	-.4142**
OSPECT	.2469**	.2765**	.1286	.0452	.4635**	.1140	.4968**	.0169	-.0974	-.1832*
ENTHUS	-.1459	.0417	.0908	-.0506	.0926	-.0811	.1152	-.0165	-.0630	.1003
NHDIREC	.0529	.0156	-.2049*	-.4312**	.4204**	.1388	-.0343	-.3042**	.2572**	.0572
CONSULT	.0648	.1964*	.0225	-.0147	-.0813	-.2840**	.3092**	-.2866**	.1579*	.2774**
NHBEHAV	.0916	-.0303	.2383**	.0130	.0104	-.3308**	-.1787*	-.4454**	.3741**	-.0573
PMET	.0194	-.2106*	.3165**	.3141**	-.4646**	-.4978**	.0954	.0078	.1621*	.3713**

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PEARSON CORRELATION COEFFICIENTS

	TIME1	ENRCLREG	MSUPPT	PRCINTG	REGT	OSPECT	ENTHUS	NHDIREC	CONSULT	NHBEHAV
OWRITTEN	.0749	-.0503	.2684**	.3452**	-.1143	-.2773**	.1794*	-.0378	.2733**	.0997
SIGNED	.1240	.1749*	.0163	.0817	.1618*	.0537	.0426	.1909*	.0458	-.0529
INTWRIT	.2072*	-.0964	.2539**	.3127**	-.0785	-.1016	.1700*	-.0670	.2024*	.0767
MOBILITY	.1654*	.0510	-.1260	.2463**	-.1743*	-.0976	.0517	-.2301**	-.0221	.1619
TALKING	.3237**	-.1474	-.0859	.1624*	-.0853	.1049	.0306	-.1731*	-.1876*	.0019
COGNITIV	.3287**	-.0877	-.0420	.1843*	-.1027	.0019	.0573	-.2205**	-.1115	-.0146
MTCHSTAF	-.0672	.0154	-.1863*	-.1977*	.2449**	.4141**	-.0463	.1394	.1533	.0645
MTHERPST	.0597	-.0751	.1107	.0538	.1915*	.1250	.0739	.3102**	.1281	-.1370
MADMIN	-.1606*	-.0792	.1325	.2119**	-.1374	-.0984	.0883	-.0060	.4110**	.2898**
MCOMMUN	.0270	-.0826	-.0324	-.0209	-.2534**	-.0423	-.0616	-.2120*	.0782	.0440
MNONHAND	-.0858	-.0501	.0208	.0506	.0721	-.1397	-.0787	-.0930	-.0085	.3829**
MPEERTTR	-.0232	-.2200**	.1149	.1269	.0426	-.1080	.2556**	.0648	-.0163	-.3823**
MHANDICP	.0504	-.2263**	-.0875	-.0653	.0890	.3946**	.0560	-.0245	-.0150	-.1217
MISN	.1881*	.1632*	.0969	.2362**	.0936	-.3090**	.1126	.1115	-.0959	.1990*
MISH	.0706	-.0709	.0277	-.0801	-.1267	-.0545	-.2460**	-.2087*	-.2134**	.0439
MINS	.0394	.0408	.1150	.1860*	-.0085	-.3203**	.1595*	.2837**	.0246	-.0149
MIHS	.0715	-.0864	.0256	-.0113	-.1106	-.0696	-.1460	-.1486	-.2039*	.0239
MMATDEN	.1798*	.0914	.0355	.1533	-.2365**	.0657	-.1417	-.1612	-.0013	.1485
MNOISE	-.0385	-.2081**	-.0755	.0703	.0657	.0752	-.0527	-.0050	-.0169	.3994**
MBRIGHT	-.2686**	.3141**	-.0765	.0354	-.1504	-.2759**	-.0578	-.0741	.0804	.1914*
MLRNAREA	.0064	.0605	.2158**	.0218	.0528	.2469**	-.0459	.0529	.0648	.0916
MSPASEP	-.1926*	-.0557	.1774*	-.1283	.0374	.2765**	.0417	.0156	.1964*	-.0303
MMATACES	.1978*	-.1523*	-.0291	.2611**	-.2028*	.1286	.0908	-.2049*	.0225	.2383**
MAGEAPP	.2232**	-.0277	-.0836	.0002	-.3913**	.0452	-.0506	-.4312**	-.0147	.0130
ETESPH	.2525**	-.2684**	-.2196**	.0931	.4337**	.4635**	.0926	.4204**	-.0813	.0104
CATEGORY	-.0011	.5047**	-.1557	-.2145**	.2328**	.1140	-.0811	.1288	-.2840**	-.3308**
SPHFUNDS	.1720*	-.6265**	.1884*	.0040	-.2117**	.4968**	.1152	-.0343	.3002**	-.1787*
MASPH	.0202	-.2978**	.2516**	-.2597**	-.3687**	.0169	-.0165	-.3042**	-.2866**	-.4454**
PSEALRE	.0260	.0308	-.2606**	.1963*	.3385**	-.0974	-.0630	.2572**	.1579*	.3741**
MODEL	.0849	.3109**	.3385**	.1970*	-.4142**	-.1832*	.1003	.0572	.2774**	-.0573
TIME1	1.0000	-.0699	-.1167	.3018**	.0146	.1412	.1505	.1625*	-.0068	.2140*
ENROLREG	-.0699	1.0000	-.0967	-.1890*	.1003	-.1679*	-.2319**	-.1541	-.3678**	.2025*
MSUPPT	-.1167	-.0967	1.0000	.2886**	.0288	.1383	.2870**	.1232	.3530**	.3175**
PRCINTG	.3018**	-.1890*	.2886**	1.0000	.1669*	.1587*	.6748**	.5208**	.3162**	.4972**
REGT	.0146	.1003	.0288	.1669*	1.0000	.3196**	.0100	.4185**	-.0102	.2480**
OSPECT	.1412	-.1679*	.1383	.1587*	.3196**	1.0000	.1579*	.2230**	.3065**	.3482**
ENTHUS	.1505	-.2319**	.2870**	.6748**	.0100	.1579*	1.0000	.3945**	.2755**	.1336
NHDIREC	.1625*	-.1541	.1232	.5208**	.4185**	.2230**	.3945**	1.0000	.1741*	.3265**
CONSULT	-.0068	-.3678**	.3530**	.3162**	-.0102	.3065**	.2755**	.1741*	1.0000	.3483**
NHBEHAV	.2140*	.2025*	.3175**	.4972**	.2480**	.3482**	.1336	.3265**	.3483**	1.0000
PMET	.1601	-.2236**	.1446	.1448	-.3672**	-.3366**	-.0720	-.2583**	.1229	.0414

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	PMET
OWRITTEN	.3131**
SIGNED	-.0541
INTWRIT	.3469**
MOBILITY	.2354**
TALKING	.2691**
COGNITIV	.3844**
MTCHSTAF	-.4198**
MTHERPST	-.1878*
MADMIN	.0937
MCOMMUN	.1511
MNONHAND	.0344
MPEERTTR	-.0362
MHANDICP	-.1788*
MISN	.1597*
MISH	.1830*
MINS	.1086
MIHS	.1488
MMATDEN	.3540**
MNOISE	.0087
MBRIGHT	.0122
MLRNAREA	.0194
MSPASEP	-.2106*
MMATACES	.3165**
MAGEAPP	.3141**
FTESPH	-.4646**
CATEGORY	-.4978**
SPHFUNDS	.0954
MASPH	.0078
PSEALRE	.1621*
MODEL	.3713**
TIMEL	.1601
ENROLPEG	-.2236**
MSUPPT	.1446
PROINTG	.1448
REGT	-.3672**
DSPECT	-.3366**
ENTHUS	-.0720
NHDIREC	-.2583**
CONSULT	.1229
NHBEHAV	.0414
PMET	1.0000

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