THE UNIVERSITY OF CALGARY

FIRST IMPRESSIONS AND NONVERBAL BEHAVIOR OF LEARNING DISABLED, HYPERACTIVE AND NONPROBLEM BOYS

BY

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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "First Impressions and Nonverbal Behavior of Learning Disabled, Hyperactive and Non Problem Boys", submitted by Patricia A. Gregory in partial fulfillment of the requirements for the degree of Master of Science.

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ABSTRACT

A recent focus in the literature regarding learning disabled (LD) children has been the examination of the social skills deficits exhibited by them. A series of studies has been interpreted to show that LD children, when interacting naturally with another person, are consistently evaluated more negatively by people who do not know them than are comparison groups of children without academic difficulties. However, it is possible that a number of hyperactive (H) children may have been included inadvertently in the LD samples, and it may be the behavioral characteristics of that LD subgroup which contributed to the differences in social skills attributed to all LD children.

This study examined how groups of boys, with and without a learning disability and with and without hyperactivity, were evaluated by adults who did not know them. In addition, children's engaging behaviors (smiling, gazing and gesturing) and nonengaging behaviors (self manipulation, fidgeting and posture shifts) were examined. It was hypothesized that: (a) LD boys would be evaluated more negatively than would non learning disabled (nLD) boys, (b) H boys would be evaluated more negatively than would non hyperactive (nH) boys, (c) LD-H boys would be rated more negatively than would LD nH boys, and (d) LD boys and boys with more symptoms of hyperactivity would show a lesser extent of nonverbal engaging behaviors and a greater extent of nonverbal nonengaging behaviors than would nLD boys and boys with comparatively few symptoms of hyperactivity.

Adult participants were 110 undergraduate psychology students who viewed a silent 2 min videotape showing, in random order, eight boys (nLD-nH-older, nLD-nH-younger, nLD-H-older, nLD-H-younger, LD-nH-older, LD-nH-younger, LD-H-older, LD-H-older, LD-H-older, LD-h-older, LD-h-younger). These videotapes displayed boys in conversation with an off-camera adult and had been selected so that the boys depicted were equivalent in IQ and physical

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attractiveness but different in age, LD status, and hyperactivity score on the Conners Abbreviated Teacher Rating Scale. Participants completed questionnaires pertaining to their first impressions of the boys seen on videotape. Two trained coders then identified, for 70 boys (including the eight boys depicted in the videotapes described above), time spent in speaking and engaging and nonengaging behaviors during the interview.

A 2 (LD vs. nLD) x 2 (H vs. nH) x 2 (younger vs. older) repeated measures factorial design was employed to examine group differences in Adaptability and Social Hostility ratings. The same design was used to test the competing explanation that a simpler dimension (raters' evaluations of the boys as "bad" or "good") might provide a more parsimonious explanation than the factors of Adaptability and Social Hostility. An hierarchical multiple regression-correlation analysis was employed to determine the extent to which age and IQ, LD vs. nLD status, degree of hyperactivity and speaking vs. silence contributed to engaging and nonengaging behaviors.

Results indicated that not one of the eight groups of boys was consistently rated as more Adaptable and less Socially Hostile, or less Adaptable and more Socially Hostile, than any other group. The competing explanation was also not supported. When nonverbal behavior was examined, results indicated that hyperactivity symptoms and LD status were correlated. LD boys showed more nonengaging behaviors as their symptoms of hyperactivity increased. Boys who were less hyperactive showed more engaging behaviors than boys who were more hyperactive. Implications for the validity of studies employing heterogeneous LD samples and for practitioners concerned with the social skills of LD children are discussed.

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CHAPTER 1

INTRODUCTION

The term "learning disability," first used officially in 1963 (Wagner, 1986), encompasses a variety of disorders. Essentially, the term refers to children who are believed to have the intellectual <u>capacity</u> to learn normally (i.e., intelligence in the normal range, usually operationally defined as IQ >90), but who, despite normal IQ, lag significantly behind their expected achievement level in certain subjects. The National Joint Committee on Learning Disabilities has adopted the following definition of learning disabilities ("Learning Disabilities," 1987):

Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient / inappropriate instruction, psychogenic factors), it is not the direct result of those conditions or influences (p. 108).

The prevalence of learning disabilities has been estimated at 10-15% of the population but special educational services are provided to only 5% of school-aged learning disabled (LD) children ("Alberta Association," 1984). Males are more prevalent than females in the LD population - - the ratio has been estimated from 4:1 to 10:1 (Barkley, 1981b). Once children have been classified as LD, they are usually given remedial help in the problem area through a resource room or a special school.

Several recent authors have looked beyond the academic problems of LD children. Attention has been drawn to the deficits in social skills exhibited by LD boys and girls. For example, Kronick (1981) suggested that these children suffer from a "living disability," in recognition of the widespread extra-learning difficulties that often face LD children. Recent research has found that, in addition to their academic problems, LD children appear to be disliked more than their non learning disabled (nLD) counterparts. They are held in relatively low esteem by people who know them well, such as teachers (e.g., Keogh, Tchir, & Windeguth-Behn, 1974), their own parents (e.g., Owen, Adams, Forrest, Stolz, & Fisher, 1971) and peers (e.g., Bruininks, 1978; Scranton & Ryckman, 1979). It is striking that these children are also more likely to be perceived negatively by complete strangers. This suggests that extensive experience with, or knowledge about, LD children may not be necessary before people attribute to them characteristics that are less desirable than those of nLD children. In a series of studies, Bryan and his colleagues (Bryan, Bryan, & Sonnefeld, 1982; Bryan & Perlmutter, 1979; Bryan & Sherman, 1980; Perlmutter & Bryan, 1984) have found that LD children, when interacting naturally with another person, are consistently rated more negatively by adults and peers who do not know them than are comparison groups of nLD children. These studies will be reviewed in detail below.

The purpose of the present study was to follow up the Bryan et al. work by investigating the impressions made by two groups of LD children upon adults who do not

know them and attempting to identify specific nonverbal behaviors which may be responsible for these negative first impressions.

Learning Disabilities and Impression Ratings

To the best of the writer's knowledge, only James Bryan and his associates have been involved in investigating the issue of how LD children are perceived by people who do not know them.

Bryan and Perlmutter (1979) investigated female undergraduate students' immediate impressions of LD boys and girls with whom they were unfamiliar. They, hypothesized that LD children would be evaluated more negatively than would nLD children. The authors also investigated the relative contributions to such evaluations of the LD child's verbal and nonverbal behaviors, although no hypotheses about these behaviors were posited. The study involved eight boys and eight girls in the fourth and fifth grades, instructing a peer of the same age and sex in how to play a bowling game. Half the students were LD as defined by their school district. Judges (N = 24) either viewed and heard video and audio tapes ("video + audio"), viewed the videotapes only ("video only") or heard the audiotapes only plus read a transcript ("audio only"). Each judge viewed one male LD child, one male nLD child, one female LD child and one female nLD child, presented in random order. The interactions were approximately 4.5 min in duration and a 30-item, 6-point ("strongly agree" to "strongly disagree") rating scale was completed by subjects after each interaction was viewed. The rating scale measured the subjects' impressions of the teaching child's intelligence, sociability, dominance, interest in the task, mental health and attractiveness. Each category contained five statements stated either positively or negatively. Scores were transformed so that higher scores indicated a greater degree of the given trait. Item scores were summed to yield an index of <u>Social Desirability</u>. A 2 (Child Sex) x 3 (Rater Modality) x 2 (Child Group) Analysis of Variance (ANOVA) yielded main effects for Group and Sex. LD children were rated as less Socially Desirable

than were nLD children and females were rated as less Socially Desirable than were males. A Sex x Group interaction indicated that female LD children were rated significantly more negatively than were children in the other three groups. A Modality x Group interaction was interpreted to show that LD children were rated less favorably than were nLD children in all modalities; however, the authors did not report whether this difference was statistically significant. Impressions of LD children were most favorable in the "audio only" condition, when their nonverbal behavior was not seen. Judges who viewed only the video tape devalued the LD children as strongly as did the judges in the "video + audio" condition, leading the investigators to speculate that nonverbal, rather than verbal, behaviors may contribute importantly to the formation of negative first impressions.

Although this study contributed importantly to our knowledge of the first impressions created by LD children, several methodological difficulties need to be addressed. First, the LD group was chosen on the basis of school reports of "normal" intelligence scores and some academic difficulty. The reader is unable to assess the degree of academic difficulty (e.g., were these children receiving resource room help?) and the academic problem area (e.g., reading problems only? difficulty in all subject areas?). No information was provided regarding the selection of these children (e.g., random sampling, nominated by teacher, selected by researcher). The description of the experimental task leaves the reader to question whether all children received one instruction session or were trained to criterion (i.e., able to repeat the game instructions 100% correctly). Failure to train all children to criterion may have placed LD children at a disadvantage, since they experienced learning difficulties and may have felt less comfortable than nLD children in teaching the game to peers. Finally, the rating scale completed by the subjects was reported to have been factor analyzed by the authors and only one factor was found. However, the data for that analysis as well as other data describing the reliability and validity of the questionnaire have not been reported and therefore, readers are unable to assess for themselves the psychometric properties of the rating scale.

Perlmutter (1979) investigated the reliability and factor composition of an unpublished questionnaire by Digman and Takemoto (cited in Perlmutter, 1979), used to investigate teachers' impressions of the personality of elementary school-aged children. This scale, used by Bryan and his associates (Bryan, Bryan, & Sonnefeld, 1982; Bryan & Sherman, 1980; Perlmutter & Bryan, 1984) in their research, is composed of 20 items, divided by an unspecified method into five independent factors, each comprising four items. Rating alternatives for each item range from <u>extremely high</u> (1) to <u>extremely low</u> (6). The scale was reanalyzed by Perlmutter using data obtained from ratings of LD and nLD children made by undergraduate students and parents of disabled and nondisabled children. The children were secretly videotaped while talking to an adult for approximately 3 min and raters viewed these videotapes without sound (i.e., "video only"). Raters were unaware of the academic, personal or social histories of the children. Children had been given instructions to ingratiate ("get the lady to like you") or to act naturally ("just be yourself"). Therefore, four groups of children were rated: (a) LD-ingratiate, (b) LD-act naturally, (c) nLD-ingratiate, and (d) nLD-act naturally. For this analysis, only one rating of a child from any given category by any given rater was used. Analyses were performed on ratings of each of the four groups of children and combined data from the groups. Factor loadings were compared across each of the five analyses to arrive at a reasonably common solution. A varimax-rotated factor analysis extracted two factors. Factor 1 consisted of 14 items ("perseverance," "rigidity," "gregariousness," "planfulness," "talkativeness," "fearfulness," "esthetical sensitivity," "emotional stability," "imagination," "energy," "curiosity," "seclusiveness," "originality" and "adaptability") and was labelled Adaptability. Factor 2, Social Hostility, consisted of six items ("irresponsibility," "fickleness," "rudeness," "conscientiousness," "spitefulness" and "consideration"). The average split half reliability for the Adaptability factor was 0.91 and for the Social Hostility factor was 0.79. The two factors were correlated (r=.46). Unfortunately, Perlmutter did not describe the unpublished Digman and Takemoto work in sufficient detail to allow the

reader to compare the two factor analyses, nor did he speculate on the reasons for the discrepancies in the factor clusters. No tables showing factor loadings or communalities were reported. Thus, the process by which questionnaire items were assigned to each factor is not clear. More detailed explanations would have provided a better opportunity to evaluate Perlmutter's conclusions.

Bryan and Sherman (1980; experiment 1) hypothesized that LD boys interacting with an adult would be rated more negatively than would nLD boys. In an attempt to determine whether LD children lack social skills or have the skills but are unable to determine when to use them, the authors manipulated the children's ingratiation behaviors. The study involved 27 boys in grades 3 through 5, 13 of whom had been identified by the school as LD. Permission for children's participation had been sought from parents of all LD children in grades 3 through 5 and from three nLD children who matched each LD child on the variables of age, sex and race. Five randomly chosen LD and eight randomly chosen nLD boys were instructed to "try very hard to get the lady to like you" (ingratiate). The remainder were told to "just be yourself" (act naturally). Children were interviewed by a 29-year-old Caucasian female for 3 min about their favorite movies, television shows and cartoons. The boys were told that the purpose of the interview was to find out how well adults talk with children and they were unaware of the hidden recording equipment. The cameraman alternated 20-sec shots in sequence between the child's face and body, the interviewer's face and body and a closeup of the child's face. Silent videotapes of 10 LD and 10 nLD boys, five per condition, were randomly selected and shown to 20 undergraduate males and 20 undergraduate females. Judges, who were unaware of the academic or personal histories of the children, were asked to rate five 2-min scenes with the presence of the interviewer erased from the tape. Ratings, completed after each child was viewed, were made on a 20-item, 6-point questionnaire tapping the child's perceived Adaptability and Social Hostility (see Perlmutter, [1979], described above, for a more detailed account of these factors). Questionnaires were scored such that the higher the

score, the greater was the degree of perceived Adaptability or Social Hostility. Judges' ratings on the items were summed to yield a score for each factor. The data were analyzed by a 2 (Child Group) x 2 (Rater Sex) x 2 (Child Instruction) ANOVA. For Adaptability, there was a significant main effect for Child Instruction, such that boys instructed to ingratiate themselves to the interviewer were rated as more Adaptable than those boys who were instructed to act naturally. There was a significant main effect for Rater Sex on Social Hostility scores, showing that females gave all boys more positive ratings than did males. It is noteworthy that LD boys were not rated less favorably by undergraduate students, failing to replicate the results of Bryan & Perlmutter (1979).

Bryan and Sherman (1980; experiment 2) hypothesized that children would also form negative first impressions of LD boys. The judges in this study were 36 Caucasian children from grades 4, 6 and 8. Six males and six females, judged by their teachers as "average" students, were randomly selected from each grade level. Each child viewed four videotaped ("video only") scenes (one each of LD-ingratiate, LD-act naturally, nLDingratiate, nLD-act naturally), randomly selected from the pool of videotapes obtained in the first Bryan & Sherman (1980) experiment. Videotapes again had the presence of the interviewer erased. Ratings were made on a reworded, shortened form of the 20-item questionnaire used with adult raters in the experiment described previously. Six unidentified items were selected from the <u>Adaptability</u> factor and two unidentified items were selected from the Social Hostility factor. Scores were summed for each factor and a 2 (Child Instruction) x 2 (Rater Sex) x 2 (Child Group) x 3 (Rater Grade) ANOVA was performed. For Adaptability, there was a significant main effect for Child Group (LD boys rated as less Adaptable than nLD boys), and a significant main effect for Rater Grade (younger children gave higher ratings). The main effect of Instruction, i.e., higher ratings given to ingratiating boys, found with undergraduate judges, was not replicated. There were no significant effects for <u>Social Hostility</u>. Thus, the more positive ratings by undergraduate females were not replicated with elementary-aged females.

A further investigation by Bryan and Sherman (1980; experiment 3) attempted to extend the findings concerning the role of nonverbal behaviors in affecting audiences' first impressions of LD boys. Mothers of two groups of elementary school-aged children were selected--one group ($\underline{n}=19$) had children who were rated by their teachers as being particularly capable and the other group $(\underline{n}=10)$ had children who were struggling academically. Mothers viewed five silent videotapes (i.e., "video only") from those described in the first Bryan and Sherman (1980) experiment and rated each child on the 20item questionnaire. A 2 (Child Group) x 2 (Child Instruction) x 2 (Mother Group) ANOVA was performed with summed scores on the two factors as dependent measures. For the <u>Adaptability</u> factor, there was a significant main effect for Child Group (LD boys were rated as less Adaptable than nLD boys) and a significant main effect for Child Instruction (children instructed to ingratiate were rated as more Adaptable than those instructed to act naturally). For the Social Hostility factor, there was a significant main effect for Child Group (LD boys rated as more Socially Hostile than nLD boys) and a significant main effect for Child Instruction (ingratiating boys rated as less Socially Hostile than boys acting naturally).

The results of these three experiments were interpreted by Bryan and Sherman (1980) to mean that the LD child is held in low esteem by others and that these negative attitudes occur in the absence of the raters' knowledge of the child's academic difficulties. It appeared that both children and adults responded differently to LD and nLD children on the basis of their nonverbal behaviors. There were several methodological shortcomings in the Bryan and Sherman (1980) work, which must be noted. Although one of the research questions asked whether LD and nLD boys differed in their ability to employ adequate ingratiation strategies, the authors did not address this issue. As in earlier research, the authors selected their LD sample on the basis of school reports of academic difficulty but did not report the extent of heterogeneity within the group in terms of IQ score, degree or type of academic difficulty, whether these children showed any differences in physical

attractiveness or if they experienced behavioral difficulties which may have led to their negative first impressions. The reader has not been assured that the interviewer was unaware of the child's group status nor that her behavior was consistent between children, although it was reported that with the aid of a hidden stopwatch, the interviewer would look up at the child every 10 sec and hold the look for 2 sec. The authors did not report that this nonverbal behavior of the interviewer was checked for reliability. Bryan and Sherman did not control for problems introduced by potential carry-over effects or correlated ratings (e.g., by using a repeated measures statistical procedure--a more conservative error term is necessary, since raters compared each child to the child or children viewed previously). As well, the original videotape was recorded via the camera operator alternating shots between interviewer and child, resulting in an unnatural picture of a dyadic interaction (in conversation, one's view of the other person does not alternate between normal-view and close-up observations). Since the presence of the interviewer was edited from the tape, the flow of movement may have been disrupted even further.

Bryan, Bryan and Sonnefeld (1982) hypothesized that first impressions may be characterized by "contagion" of stigma from member to the other (i.e., that nLD children who associate with LD children will be judged more negatively than will dyads of nLD children). Randomly selected Caucasian LD boys (<u>n</u>=10) from grades 2 and 4 and nLD boys (<u>n</u>=10), matched for race and grade, participated in the study. LD boys were receiving resource room help from a specialist teacher. The children's task was to simulate a television talk show and dyads were formed so that five LD boys and five nLD boys were the hosts and ten randomly selected nLD boys assumed the role of guest. Children were videotaped, engaged in conversation, for 3 min. Raters, 32 undergraduate females and 19 undergraduate males, viewed four silent videotaped scenes (i.e., "video only"), each containing one LD second-grade host, one LD fourth-grade host, one nLD secondgrade host and one nLD fourth-grade host. Subjects viewed only one child -- the irrelevant member of the dyad was covered by a screen over half of the television monitor. Ratings

were made on the 20-item questionnaire described in Perlmutter (1979). The questionnaire was scored so that the higher the score, the greater the presumed attribute. Items were averaged to yield scores for each of the two factors. The first analysis examined impressions of LD vs. nLD children in the host role. A 2 (Rater Sex) x 2 (Child Grade) x 2 (Child Group) ANOVA resulted in a significant interaction of Child Group x Child Grade for Adaptability and Social Hostility. Younger LD hosts were rated as more Adaptable and less Socially Hostile than their nLD counterparts, while older LD hosts were judged less Adaptable and more Socially Hostile than older nLD hosts. The second analysis examined, via a 2 (Rater Sex) x 2 (Child Grade) x 2 (Child Group) ANOVA, the impressions of boys in the guest role. There was a significant interaction of Child Group x Child Grade for Social Hostility ratings only. Guests of younger LD hosts were rated as less Socially Hostile than were guests of younger nLD hosts. Guests of older LD hosts were judged to be more Socially Hostile than guests of older nLD hosts. The first impression of the host and his guest was significantly correlated ($\underline{r}=.56$) for <u>Social Hostility</u> ratings only. The authors concluded that adults, after only a few minutes of observation, respond differently to LD boys and nLD boys on the basis of their nonverbal behavior. First impressions of older LD boys were negative, replicating earlier findings, but a surprising result was that of second-grade LD boys being rated more positively than nLD boys. The authors did not speculate why this occurred. Another conclusion was that the "contagion effect" was supported, i.e., immediate impressions of one child were correlated with immediate impressions of another child in the same context, even when the other child is neither seen nor heard. Given that LD children appear to evoke negative first impressions, children who associate with them may be perceived more negatively as well.

One strength of this study is the more carefully selected LD group -- i.e., children receiving resource room help -- and the reporting of group mean IQ scores and mean reading scores. However, the degree of heterogeneity in the group is unknown. Another strength is that a different task was shown to evoke the negative impressions of LD boys

documented earlier. As noted by Dudley-Marling and Edmiaston (1985), however, the authors misinterpreted the statistical interactions - - in the absence of a significant main effect for Child Group, the data presented can support only the conclusion that children's LD Group status has a differential effect on judges depending upon grade level.

Perlmutter and Bryan (1984) hypothesized that LD boys would be rated more negatively than would nLD boys after only a very brief observation time by the rater. The study involved 10 randomly selected LD boys and 10 randomly selected nLD male classmates in the third, fourth and fifth grades. LD boys were identified by their school district based on a battery of tests and had difficulties in both reading and math. Half of the children were given instructions to ingratiate the interviewer and the remainder were told to act naturally. Therefore, there were four groups of children: (a) LD-ingratiate, (b) LD-act naturally, (c) nLD-ingratiate, and (d) nLD-act naturally. The interviewer was a 29-year-old Caucasian female who interviewed each boy for 3 min about his favorite television shows, movies and cartoons. Her looking behavior was controlled by having her gaze at the child every 10 sec and holding the gaze for 2 sec. A hidden stopwatch facilitated the timing. During the interview, the children were videotaped by a hidden camera. For this study, 10sec sequences of the child's face and 25-sec sequences of the child's face and body were edited from the first 40 sec of the interview. Judges, 43 male and 45 female undergraduates, viewed all 20 children and rated them on the 20-item scale described by Perlmutter (1979). Scales were scored so that the higher the score, the higher the rating on Adaptability and Social Hostility. Scores were averaged and analyzed in a 2 (Child Group) x 2 (Child Instruction) x 2 (Videotape Length) x 2 (Rater Sex) repeated measures ANOVA. For videotapes viewed with sound ("video + audio"), Adaptability ratings yielded a significant main effect for Child Instruction (boys instructed to ingratiate were judged to be more Adaptable than those told to act naturally). There was also a significant Child Group x Child Instruction interaction (the LD-ingratiate group was rated as significantly more Adaptable than either the LD and nLD boys who were told to act naturally). Also for

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videotapes viewed with sound (i.e., "video + audio"), Social Hostility ratings showed a significant main effect for Child Group (nLD boys were rated as more Socially Hostile than LD boys) and a significant main effect for Child Instruction (boys told to act naturally were rated as more Socially Hostile than boys told to ingratiate). Although there was significant Child Group x Child Instruction interaction for Social Hostility ratings, no group was rated significantly more positively or more negatively than any other. For videotapes viewed without sound (i.e., "video only"), Adaptability ratings produced a significant main effect for Child Instruction (boys told to ingratiate were rated more positively than were boys instructed to act naturally) and a significant main effect for Child Group (LD boys were rated less favorably than were nLD boys). There was also a significant Child Group x Child Instruction interaction (LD boys instructed to act naturally were perceived significantly less positively than were any of the other groups). Results from the analysis of "video only" videotapes failed to yield any significant findings for Social Hostility ratings. The authors concluded that LD children who are not prompted to ingratiate others will evoke poor first impressions. Additionally, Perlmutter and Bryan found that people respond differently to LD and nLD children within 10 to 25 sec. These different ratings between LD and nLD groups are made by male and female audiences who are entirely unfamiliar with the children they are viewing and who appear to be unaware of any systematic differences across the children. The authors inferred that LD boys do not suffer from a response or social skill deficit since they were able to generate favorable first impressions when told to ingratiate. Rather, LD boys may be unaware under what circumstances ingratiation strategies should be employed. Since this study is similar to the Bryan and Sherman (1980) work, the same shortcomings stated in reviewing that literature apply here, except that the reader has a better understanding of the composition of the LD group of children in the present study.

The Bryan et al. work has made a significant contribution to our realization of the social difficulties of LD children. He and his colleagues are pioneers in the videotape

recording of the interactions of LD children in naturalistic experimental tasks. This is important because results arising from laboratory studies may strongly support one hypothesis whereas the findings from field studies may be equivocal (Sprafkin, Gadow, & Grayson, 1987). Bryan and his colleagues have demonstrated that adults and children respond differently to LD and nLD children and that LD children, when not prompted to ingratiate their conversation partner, are evaluated more negatively than are nLD children. Furthermore, it appears that it may be the nonverbal behavior of LD children that contributes to the negative first impressions that they receive from others, since subjects had only a silent video track on which to base their judgements of the children.

Unfortunately, the work of Bryan and his colleagues has several limitations. In each of the studies outlined above, for example, selection of the LD sample was based on a diagnosis determined by the child's school district. Although the criteria employed by these districts typically correspond to commonly used indicators of LD group status (i.e., average intelligence and an academic lag), no description of the specific composition of their LD group was provided. As a result, the reader is unable to assess the degree of heterogeneity characteristic of their sample (e.g., did the LD children experience reading deficits only, arithmetic deficits only, or a combination? did the LD children manifest behavior problems in the classroom? were IQ scores equivalent?). Often, Bryan et al. have not reported how their LD samples were selected (e.g., random sampling, selected by researcher, nominated by the school). If not all LD children were given an equal chance to participate in the research (e.g., if they were nominated or selected), perhaps only children who could afford to miss a class were selected, introducing a bias into the sample. The authors also have not controlled for problems introduced by potential carry-over effects or correlated ratings, which may have placed LD boys at more of a disadvantage, since nLD boys may have been seen directly before them. If subjects had viewed LD boys or nLD boys only, or if the carry-over effect had been controlled statistically, the results may have been less striking. As well, differences between the groups in physical attractiveness have

been neither assessed nor controlled, although research has demonstrated that attractive children are rated as friendlier, more intelligent and easier to get along with than are physically less attractive children (e.g., Dion & Berscheid, 1974). Although the nonverbal behavior of the female interviewer, an extremely important variable in dyadic communication (e.g., Fisch, Frey, & Hirsbrunner, 1983) was standardized by having her looking at and away from the child based on a hidden timer, the authors do not report that they verified that the interviewer consistently maintained this behavior. It is also possible that she had other nonverbal behaviors which differed, influencing the LD and nLD children to respond to her differently. For example, if she had smiled more at nLD boys, this would likely cause them to return the smile with the result that raters would have perceived nLD boys more positively than LD boys. As well, the authors did not report whether the interviewer was aware of the children's diagnostic status. Inconsistent results between studies have not been addressed, even when hypotheses predicting that LD boys would be rated more negatively than would nLD boys were not supported.

It appears that another study, incorporating stronger design features and overcoming the weaknesses of the Bryan et al. work is necessary to enhance our understanding of how LD children are perceived, relative to nLD children, by people who are unfamiliar with them and who are basing their impressions solely on the nonverbal behavior of the children seen on videotape. A major problem to be corrected is that of the heterogeneity of the LD sample. For example, one known subgroup within the LD population is comprised of children who are also identified as hyperactive (e.g., Flicek & Landau, 1985; Lambert & Sandoval, 1980). Hyperactive (H) children are characterized by behaviors such as restlessness, impulsivity, and fidgetiness (Pelham & Bender, 1982) and thus, their nonverbal behavior may be different from that of LD children who are non hyperactive (nH). Perhaps the first impressions they evoke may also differ from those evoked by LD-H children.

Learning Disabilities, Hyperactivity and Impression Ratings

A major problem within the learning disability literature is the ambiguity and confusion about the number and type of subgroups within this heterogeneous population (e.g., Kavale & Nye, 1981; "Learning Disabilities," 1987). Many authors fail to differentiate subgroups within their study samples and generalize their findings to the entire population of LD children when, in fact, their results may apply only to children with specific deficits within the broader category of learning disabilities. Hyperactive children are noted to share several characteristics with LD children (learning problems and attentional deficits; Lambert & Sandoval, 1980) and are considered to be a subset of the LD population. According to Barkley (1981a), the prevalence rate of H is 3-5% of schoolaged children, while the prevalence rate of LD is 10-15%. Several authors have noted that H children, like LD children, experience interpersonal difficulties at home, at school and with peers (e.g., Barkley, 1981a; Campbell, 1973; Pelham & Bender, 1982).

The term "hyperactivity" refers to a group of children who possess combinations of difficulties such as attention deficits, high activity level, impulsivity, aggressive behavior and learning problems (Lambert & Sandoval, 1980). Rating scales are the most frequently used method of assessing hyperactivity, with teachers often being considered the preferred reporters (Whalen & Henker, 1976). According to Margalit (1985), the Conners Abbreviated Symptom Questionnaire, also called the Conners Abbreviated Teacher Rating Scale (ATRS; Conners, 1973), is the most commonly used rating scale in research work and clinical practice in the area of hyperactivity.

A recent trend in the literature regarding childhood disorders has been the attempt to discriminate the identifying characteristics of LD and H children. For example, Breen and Barkley (1984) asked mothers of LD-nH, nLD-H and LD-H boys to complete a questionnaire measuring achievement, intellectual development, behavioral adjustment, social adjustment and emotional control. They concluded that the LD-nH group experienced difficulty with achievement and intellectual development, that the nLD-H

group experienced those difficulties as well as problems in behavioral and social adjustment and emotional control and that the LD-H group resembled most closely the H group. Thus, there appears to be some evidence that LD-nH boys are not characterized by the behavioral and social difficulties of H children.

Bruck and Hébert (1982) examined the predictive validity of variables such as roletaking skills, sex, age, IQ and symptoms of hyperactivity, using social competency with peers as a criterion. Parents and teachers were asked to complete a checklist describing peer interactions. Hyperactivity levels were most strongly and consistently related to interpersonal relationship ratings for LD and nonproblem children. Among the LD group, children with relatively high hyperactivity scores were found to be most at risk for having peer problems. The authors concluded that LD children's social difficulties may be associated with the hyperactivity syndrome rather than with a learning disability per se.

Flicek and Landau (1985) examined peer popularity and rejection in LD-nH, LD-H and nLD-nH boys. They found that LD boys were less popular and more rejected than nLD-nH boys but that the LD-H group was even less popular and more rejected than the LD-nH group. They concluded that the impact of hyperactivity must be considered when investigating the social skills of LD children. A failure to separate LD-H from LD-nH boys may lead to erroneous conclusions about the negative behavior of LD children.

Since children who rate LD classmates negatively on sociometric instruments do so because of their impulsive, aggressive and distractible behavior (Campbell & Paulauskas, 1979), it is likely that this group evokes even more negative impressions than does the LD-nH group. It is possible that Bryan et al. included a large number of hyperactive children in their LD groups, since their samples were recruited from children diagnosed as LD by their school districts and subtypes were not considered. Therefore, it may have been the behavior of the LD-H children that accounted for the "first impressions" findings reviewed above.

Nonverbal Influences on First Impressions

Most research concerning the competence of LD children in nonverbal communication has focused on the LD child's ability to understand nonverbal communication, that is, sensitivity to the signals sent by others. These studies, involving films of soap operas and demonstrations of affect by models, pictures and cartoons, have revealed that LD children are deficient, relative to nLD children, in the comprehension of the nonverbal communication of others. For example, Gerber and Zinkgraf (1982) hypothesized that LD children's development of social-perceptual ability lags when compared to that of nLD children. Two groups of LD children, aged 7 and 8, and 10 and 11 years, respectively, and two groups of nLD children of the same ages served as subjects. Children were presented with 30 unambiguous pictures showing various social situations. Each picture was accompanied by standard questions which were verbally presented by the examiner. The assumption was that subjects with higher social inference ability would be able to infer many dimensions in a given social situation, to fully make sense of the situation, and to respond appropriately to it. Conversely, subjects with lower social inference ability might partially perceive the situation or misinterpret it and therefore might be more likely to react inappropriately. Results indicated that LD children scored consistently lower on social perception than did their nLD peers and younger children scored consistently lower than did older subjects. The absence of a significant interaction between age and group was interpreted to mean that scores of LD and nLD children increased in social perception from the younger to the older group at about the same rate. The authors concluded, based on the increase in social-perceptual ability with increased chronological age, that LD children experience a developmental lag rather than deficient social skills.

Bryan (1977) hypothesized that LD children would have more difficulty in comprehending nonverbal communication than would nLD peers. A silent film was shown to all children, who selected from a standardized questionnaire one of two items which they felt best described the scene. There were 40 scenarios, each 2 sec long, displaying an adult female expressing either a positive or a negative affect combined with either a dominant or a submissive expression. LD children obtained lower mean accuracy scores than did nLD children. The authors interpreted these findings as showing that LD children are less accurate in the comprehension of nonverbal communication than are nLD peers.

Pearl and Cosden (1982), in a study involving soap opera segments, hypothesized that LD children would be more likely to misread the situations than would nLD children. LD and nLD children viewed segments from televised soap operas depicting an interaction between a male and a female. The test of comprehension involved multiple-choice questions requiring the children to make inferences about the feelings of the characters in each segment, the social amenities in which they engaged and the intentions behind their behavior. Results indicated that the LD group gave significantly fewer correct responses than did the nLD group. The authors concluded that LD children are consistently less accurate than are nLD children in their understanding of social interactions.

There has been little research concerning the nonverbal signals that may be <u>emitted</u> by LD children. From research involving adults, however, we have an understanding of the behaviors which are considered important in creating a good first impression. Argyle and Dean (1965) have suggested that a set of nonverbal behaviors including interpersonal distance, eye contact (gaze) and smiling are critical in communicating interpersonal intimacy. They hypothesized that there is an equilibrium point of physical closeness, eye contact and smiling. The more these behaviors occur, the more the person is perceived as wanting to affiliate. However, if these behaviors are too intense (i.e., standing closer than 50 cm, maintaining eye contact for more than 10 sec), anxiety is created. Mehrabian (1969) has called these behaviors "immediacy cues" because they show directness and intensity of interaction between two people. He has demonstrated that greater immediacy leads to attributions of greater liking from interaction partners. Patterson (1982) has proposed the term "nonverbal involvement behaviors" in order to distinguish between the

behaviors of interest and the <u>functions</u> they serve. He has expanded the list to include gestures (speech illustration movements) and speaking duration. "Nonverbal noninvolvement behaviors" (Patterson, 1982) include posture shifts, leg movements when seated and self-manipulators (such as touching the body, clothing or jewelry). Conceptually, the term "nonverbal involvement behaviors" refers to a set of communicative, non-speech, body movements and facial expressions which convey interest and involvement in the interaction with the other person. Conversely, "nonverbal noninvolvement behaviors" refer to communicative, non-speech, body movements and facial expressions which convey a lack of interest, nervousness or feeling uncomfortable with the interaction.

A number of studies have shown that adults who exhibit comparatively high rates of involvement behaviors are evaluated positively by others and that adults who exhibit comparatively high rates of noninvolvement behaviors are perceived negatively (e.g., Hemsley & Doob, 1978; Imada & Hakel, 1977; Siegel & Sell, 1978; Trout & Rosenfeld, 1980). Bates (1976) has also reported data which support the generalization of these findings to children. A group of child confederates who smiled more frequently and gazed for longer durations than another group were perceived more favorably by adults on two intellectual and six social characteristics. Unfortunately, the authors did not elaborate on the questionnaire items.

Raskind, Drew, and Regan (1983) examined nonverbal behavior signals emitted by learning disabled children by focusing on kinesics (i.e., body movements). In particular, they attempted to identify specific nonverbal signals emitted by LD boys that may contribute to negative impression ratings made by others. Subjects were Caucasian male third, fourth, and fifth graders. LD students (n=17) were chosen from a special program. All had IQs in the average range and an academic lag of 1.5 years. Of the LD students, eight were classified as having social/behavioral problems based on teacher ratings. There was also a comparison group of 20 nLD boys. Each child was interviewed about a story

he had written earlier and the interview was videotaped by a hidden camera. The interviewer's verbal and nonverbal responses were maintained as constant as possible; however, this was not verified. The authors designed a 31-item Recording Form which considered the alignment, position and movement of the body parts and face. A total of 12 body and 12 facial stills (stops) were analyzed for each child. Results showed that only two behaviors differed significantly across the LD and nLD groups--eye movement and body lean. The nLD group leaned forward more frequently than did the LD groups. Although there was a significant main effect for eye movement, there was no significant difference among the three groups when post-hoc Scheffe comparisons were conducted. The authors concluded that there is little difference in the nonverbal behavior of LD and nLD boys.

The strengths of this study are the attempt to expand the number of nonverbal signals that have been investigated empirically in LD children and the inclusion of a relatively homogeneous LD subgroup--children with social/behavioral problems. Specific criteria for identification of the LD group were also employed and reported. However, the study does have several limitations. The sample size was small (N=37). The interview was based on a writing assignment and academically oriented questions, such as "Do you think you write good stories?" and "Do you think you made any spelling mistakes?" as well as general questions about the content of the story were asked. Since LD students often experience difficulty in spelling, reading and writing, this task had the potential to cause LD boys to feel less comfortable than nLD boys in talking about it. No information about the characteristics of the interviewer was supplied--that he or she was blind to the child's diagnostic status or that he or she was trained to maintain consistent nonverbal and verbal behaviors between boys. Both the camera and its operator stood only 10 ft in front of the child which may have caused a reactivity effect, as described by Haynes and Horn (1982). Dependent variables were based on the recorded presence or absence of nonverbal behaviors during 24 stops of the videotape. However, valuable information regarding the

frequency and duration of nonverbal behaviors may have been lost by employing the technique of using stops only. Indeed, the authors failed to replicate the results of Bryan et al. (1980) reported below.

Bryan and Sherman (1980) correlated LD and nLD boys' (a) smiling time while speaking and (b) facial orientation toward the interviewer while speaking and listening with Adaptability ratings made by children. Facial orientation while speaking was significantly positively correlated with Adaptability ratings of the LD and nLD children. The authors also correlated smiling time while speaking and facial orientation toward the interviewer while speaking and listening with Adaptability and Social Hostility ratings made by mothers of LD and nLD children. Both smiling and facial orientation while speaking were significantly positively correlated with Adaptability ratings and Social Hostility ratings. The authors concluded that initially negative first impressions of the LD child are linked to that child's attention to his audience while talking and, for mothers, his smiling activities. However, these conclusions appear not to be warranted on the basis of the data as reported since separate correlations were not calculated for LD and nLD children. The authors did not specify their criteria for smiling and facial orientation, nor whether their coders were blind to the child's group classification. Bryan and Sherman also did not address why smiling and facial orientation were positively correlated with both Adaptability and Social Hostility ratings by mothers, when a negative correlation with Social Hostility scores would be expected.

Bryan, Sherman and Fisher (1980) looked at children's smiling, gazing, body manipulation and gesturing behaviors using the videotapes of the Bryan and Sherman (1980) study, described above. Two independent scorers assessed the frequency and duration of children's smiling, facial orientation toward the interviewer, gestures and nonfunctional body contacts. Due to the non-occurrence of gestures during listening and the poor coder reliability of body contact while speaking, these categories were not used in subsequent analyses. A 2 (Child Group) x 2 (Child Instruction) ANOVA revealed that children who were instructed to ingratiate smiled significantly more frequently when speaking than did children who were told to act naturally. The authors reported that LD children spent less time than nLD children gazing while speaking and these gazes were shorter in duration and more furtive. LD children also gazed less than nLD children while listening. However, these differences were not significant. There was a significant interaction of Group x Child Instruction for hand illustrations--nLD children displayed a higher number of hand movements during the ingratiate condition while LD children gestured more during the natural condition. However, these conclusions are based on misinterpreted interactions due to the absence of a significant main effect for Child Group (see Marascuilo & Levin, 1970) and so the only conclusion warranted by the data is that Child Group status has a differential effect upon hand movements depending upon the Child Instructions given. The authors suggested that LD children may evoke negative impressions because they appear to be indifferent or uninvolved in the task of communication. This unfounded conclusion appears to be based solely on "nearlysignificant trends" and a misinterpreted significant interaction for hand illustrations. As well, scores were not adjusted for the time spent talking or listening during the interview. Adjustment of scores for time spent speaking or listening is necessary since some measures (e.g., gesturing) are highly correlated with speaking and a person who speaks more may consequently gesture more as well. Additionally, only three nonverbal behaviors were studied, omitting several potentially important nonverbal involvement and noninvolvement behaviors.

The data concerning nonverbal influences on the first impressions of LD children is sparse and equivocal. Many of the same criticisms given above in reviewing the studies of first impressions of LD children apply here --i.e., a heterogeneous LD sample, failure to indicate whether the interviewer was blind to the child's group status and failure to verify the consistency of the interviewer's verbal and nonverbal responses between the children. In one case, the task may have been very uncomfortable for the LD boys plus the presence
of the camera in the room may have contributed to a differential reactivity effect . Potentially valuable information about group differences during the entire interview was lost because of the use of video stops in one case and correlated ratings for all children in another. The investigators have misinterpreted statistical interactions and have discussed nonsignificant trends in these findings as if they had been more reliable.

Several design features were incorporated into the present investigation in order to improve on the methodological difficulties noted earlier to characterize the Bryan et al. work. There were some modifications to the original research proposal required due to difficulty in obtaining equal numbers of boys in the diagnostic groups. The changes and rationale are presented in Appendix A. The revised research plan is presented in the following text of the thesis. In addition to examining adults' first impressions of an unselected LD group, a specific subgroup of that population -- hyperactive children -- were included to assess whether the results found by Bryan and his colleagues may have been due to the presence of hyperactive children in their heterogeneous LD sample. From these groups eight children were selected who were equivalent on the variables of sex (all male), race (all Caucasian), intelligence (all within the average and high average range) and physical attractiveness. A standardized checklist tapping behaviors characteristic of hyperactivity was employed and four boys with very high ratings and four boys with very low ratings were selected. The four boys with a learning disability were receiving resource room help for Language Arts and Math difficulties, indicating that they were having significant academic difficulty in more than one subject area. In attempting to identify boys who were equivalent on the variables stated above and who were identified as LD or nLD and H or nH, a bimodal distribution of age was noted. This was incorporated into the design so that there was a younger (grade 3; mean age = 104.25 months) and an older (grade 5; mean age = 127.75 months) group of boys. Thus, a large number of adults rated each of the eight boys (LD-H-younger, LD-H-older, LD-nH-younger, LD-nH-older, nLD-H-younger, nLD-H-older, nLD-nH-younger, nLD-nH-older). The order in which the

children were viewed by raters was randomized. The interviewer followed a written script of verbal and nonverbal behavior and was trained to minimize differences in her nonverbal behavior across the groups of children.

First impressions of the boys were recorded on the 20-item questionnaire employed by Bryan et al., resulting in measures of Adaptability and Social Hostility. A 5-item Semantic Differential Evaluative Dimension scale was also completed by subjects. This scale was used to test the competing explanation that the factors named Adaptability and Social Hostility may be explained more simply in terms of a "good" vs. "bad" underlying influence in the evaluations of children.

The proposed study also attempted to improve on methodological difficulties noted in the Bryan, Sherman and Fisher (1980) and the Raskind, Drew and Regan (1983) work. Two trained observers, who were blind to the children's diagnostic status and to the hypotheses of the experiment, were employed to code independently for the presence or absence of a number of theoretically derived nonverbal behaviors. Duration of individual behavior categories was coded for the entire 3-min interview and scores were adjusted for the time spent speaking or not speaking (silence) during the interview. Finally, eight categories of nonverbal involvement and noninvolvement behaviors (i.e., speaking, smiling, gazing, gesturing, arm fidgeting, leg fidgeting, self-manipulation, and posture shifts) were compared across children.

Hypotheses

(1) Learning Disabled boys will be evaluated more negatively by adult raters than will non Learning Disabled boys.

(2) Hyperactive boys will be evaluated more negatively by adult raters than will non Hyperactive boys.

(3) Learning Disabled-Hyperactive boys will be rated more negatively than will Learning Disabled-non Hyperactive boys.

(4) Learning Disabled boys and boys with more symptoms of hyperactivity will show a lesser extent of nonverbal involvement behaviors and a greater extent of noninvolvement behaviors than will non Learning Disabled boys and boys with fewer symptoms of hyperactivity.

Overview of the Present Study

Undergraduate university students viewed, in random order, silent 2-min videotaped segments of an LD-H-younger boy, an LD-nH-older boy, an nLD-H-younger boy, an nLD-H-older boy, an nLD-nH-younger boy and an nLD-H-older boy while he was involved in a conversation with a female adult. Subjects gave their impressions of each child, immediately after viewing him, on two rating forms intended to tap their first impressions of the child's (a) Adaptability, (b) Social Hostility and (c) Likeability. Videotapes of 70 LD and nLD children, 3 min in duration, were coded by trained independent observers and the duration of individual behavior categories was compared across the groups.

CHAPTER 2

METHOD

Subjects

Male and female undergraduate psychology students at the University of Calgary were informed about the study during a regularly scheduled class or lab and were asked to volunteer to participate (see Appendix B). A total of three classes and lab sections were approached, including spring and summer sessions. Individuals agreeing to participate then continued to engage in the study for the remainder of the class period. In total, there were 110 participants. Table 1 describes the characteristics of the sample. No demographic variable had a systematic relationship with any dependent variable (see Results section and Appendix L), so all data were pooled in subsequent analyses. Subjects received no monetary payment or class credit for their participation.

Preparation of Stimulus Video Tapes

Selection of Stimulus Children

Teachers of grades three, four and five in two schools in Airdrie, Alberta and two schools in Calgary, Alberta (30 classrooms in total) were asked to send sealed letters explaining the study and consent forms (see Appendix C) to the parents of all boys in their classes. Of a possible 392 eligible boys, consents were received from the parents of 154 (39%). These children were then given the Slosson Intelligence Test (SIT; Slosson, 1983) and only those with IQs in the average and high average range (i.e., 90-119) were retained for participation in the study. The homeroom teachers of each of those 100 boys was then asked to complete the Conners Abbreviated Teacher Rating Scale (ATRS; Conners, 1973) to identify each child's level of hyperactivity. Teachers were also asked to

Table	1
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Variable	Frequency	Percent
Sex		· ·
Female	80	72.7
Male	30	27,3
Marital Status		
Navar marriad	77	70.0
never married		/0.0
Married	24	21.8
Divorced	8	7.3
Separated	1	0.9
Religion		<i>·</i> .
Protestant	49	44.5
Roman Catholic	30	27.3
Atheist, none	19	17.3
Eastern	6	5.5
Jewish	4	3.6
Sect	2	1.8

Descriptive Statistics for Experimental Participants

Table 1 (continued)

	Frequency	Percent
Psychology	45	40.9
Nursing	12	10.9
Social Sciences	12	10.9
General, unspec.	10	9.1
Humanities	6	5.5
Physical Education	6	5.5
Sciences	6	5.5
Education	4	3.6
Management	3	2.7
Engineering	2	1.8
Social Work	2	1.8
Fine Arts	1	0.9
Law	1	0.9
on		
Student	58	52.7
Unskilled	20	18.2
Homemaker, unemployed	15	13.6
Semi-skilled & skilled	17	15.5
	Psychology Nursing Social Sciences General, unspec. Humanities Physical Education Sciences Education Management Engineering Social Work Fine Arts Law on Student Unskilled Homemaker, unemployed Semi-skilled & skilled	FrequencyPsychology45Nursing12Social Sciences12General, unspec.10Humanities6Physical Education6Sciences6Education4Management3Engineering2Social Work2Fine Arts1Law1Student58Unskilled20Homemaker, unemployed15Semi-skilled & skilled17

Table 1 (continued)

Variable		Frequency		Percent
Income				
under \$5000		28		25.5
\$5000-\$9,999		12		10.9
\$10,000-\$14,99	9	9		8.2
\$15,000-\$19,99	9	4		3.6
\$20,000-\$24,99	9	5		4.5
\$25,000-\$29,99	9	1		0.9
\$30,000-\$34,99	9	6		5.5
\$35,000-\$39,99	9	8		7.3
\$40,000-\$44,99	9	7		6.4
\$45,000-\$49,99	9	4		3.6
over \$50,000	•	23		20.9
Variable	<u>n</u>	Mean	<u>SD</u>	Observed Range
Age (in years)	110	25.5	6.27	18-40
Number of Children	110	0.5	1 10	0-6
Vears of Post-	110	2.0	1.10	0-0
	110	5.0	1./1	0-9
Secondary Education				

Note. Income was assessed by asking students to indicate their category of combined marital income or combined parental income if they lived at home, if applicable.

indicate whether each child was receiving resource room help because of a learning disability.

Four boys were classified as learning disabled and hyperactive (LD-H). They were identified by their teachers as learning disabled (see Appendix D) and exceeded the recommended cutoff of 15 points (2 standard deviations above the mean for non hyperactive children) on the ATRS. Thirteen boys were classified as learning disabled and non hyperactive (LD-nH). These boys were also identified by their teachers as learning disabled but they scored less than 15 points on the ATRS. Nine boys were classified as non learning disabled and hyperactive (nLD-H). They were not identified as learning disabled by their teachers; however, they were hyperactive as indicated by the ATRS. The remaining 74 boys were identified as non learning disabled and non hyperactive (nLD-nH).

Videorecording of the Interview

A 21-year old female actor, kept blind to the boys' group classification and to the hypotheses of the study, interviewed all of the children who participated in the preparation of the stimulus tapes. She and the researcher first developed a script of verbal and nonverbal behavior. During a pilot study, this script was refined (see Appendix E) and the interviewer was trained to minimize differences in her nonverbal behavior between the groups of boys. After the pilot interview, the boys were asked about any suspicions they may have had about the experimental procedures. None of the boys were aware that they had been videotaped.

During the sessions in which the videotapes for the study were made, the researcher accompanied the boy from his classroom to the interview room and explained the task in the following manner:

(Name of child) do you remember that a few days ago, you came to a room with me and answered some questions about the kinds of things you learn in school? Well, today I'd like to find out how well some adults talk with children. There's a lady waiting in this room and I'd like you to talk with her for about five minutes. She'll ask you questions about your favorite movies and television shows. Afterwards, I'll ask you some questions about what you thought of her. O. K? (The child and interviewer were introduced to each other in the room by the researcher and then the researcher left the room).

Following the interview, the child was escorted back to his classroom by the researcher and along the way was asked the following:

(a) Do you think Vicky (the interviewer) does a good job of talking with kids?

(b) Did she make you feel comfortable when you were talking with her?(c) Do you think other children would feel comfortable if I asked them to talk with her?

The boy was then thanked for his help.

Debriefing of the Children

When all the interviews at a particular school had been completed, the researcher debriefed each child who had participated in the interview. She accompanied each child from his classroom to the interview room, explaining en route that this was the last time she would be taking the boy from his classroom to speak with her. When the child was seated in the room he was debriefed by having the researcher explain that he had been videotaped during the interview for the purpose of discovering how children speak with a stranger. He was informed that his teacher and parents were aware of the true nature of the project and had given their permission for his participation. Permission to use his videotape in the study was requested (see Appendix F) and each child was given the option to have his videotape erased if he objected to its having been recorded. The boy ihen signed a consent form (see Appendix F) and was escorted back to his classroom. Only one child requested that his tape be erased; this was done in his presence.

<u>Apparatus</u>

Videorecording

Videorecording of the children's interviews was accomplished using a black and white Sony Videorecorder Camera with a VCL-8 mm Computar zoom lens. This was attached to a Beta Sony Portable Videocassette Recorder which was run by a Sony AC Power Adaptor. The videocamera was mounted on a tripod and all the recording equipment was hidden inside a wooden cabinet (see Figure 1). A pattern of small holes was drilled in the front of the cabinet to allow the camera's microphone to pick up voices and a large circle was covered by a one-way mirror to prevent the child's viewing of the camera lens.

The videorecording session occurred in each school's infirmary, with one exception. At that school the videorecording took place in the unoccupied resource room. Two identical card-table chairs were used to seat the interviewer and the child; the interviewer sat directly to the right of the wooden cabinet and the child sat 1.5 m away, directly facing the camera. Immediately behind the child was a blank white wall or a white backdrop.

Videotape Editing

Two edited recordings of the original videotapes were made. First, each child's videotape was edited to include only the first 3 min of each interview. During this procedure a time-generator imprinted the minutes and seconds onto the videotapes; this was done to facilitate subsequent coding of the child's behavior. A second editing procedure recorded the interview without sound, beginning 30 sec after the start of the interview and continuing for 2 min. This was done to match the 2-min length of the Bryan and Sherman (1980) videotapes seen by adult raters. The middle portion of the interview was selected to reduce effects of "settling in" at the beginning of the interview and "winding down" as the interview closed. Three separate tapes were made, each consisting of the 2-min segments





of the interviews of eight boys (see Procedure section) with each segment appearing in a different random order on each videotape. The time-generator was not used during this editing.

Videotape Coding

To accomplish the videotape coding, two stations were set up in a vacant laboratory. Each station consisted of a videocassette recorder playback unit and a television monitor. The equipment was placed on a desk with the monitor elevated approximately 30 cm. The desks were situated at opposite ends of the room and each monitor was furnished with an earplug to minimize distraction when the coders worked simultaneously.

Classroom Presentation of Stimulus Videotapes

The experimental task took place in the classroom setting during regular class meeting times. Two stations, approximately 3.5 m apart, were set up at the front of each room. Each station consisted of a metal stand approximately 1.5 m high. A television monitor, which was connected to a videorecorder playback unit, was mounted on each stand. Therefore, each individual in the classroom could easily view the stimulus material. The number of subjects participating in the experiment in each class ranged from 32 to 41 (\underline{M} =36.7, \underline{SD} =4.51).

Instruments

Selection Materials for Children Involved in Stimulus Videotapes

To reduce experimental error, as well as to address the criticism of heterogeneity of the LD sample in research studies, several instruments were used. All boys involved in this project were given a test of verbal ability (i.e., Slosson Intelligence test [SIT] and were retained for participation only if their score fell into the average and high average range. SIT scores were subsequently used to select children whose scores were equivalent (for the first part of the study) and to measure the importance of IQ when nonverbal behaviors were considered (second part of the study). The Conners ATRS ratings given to each child by his teacher were used to select children whose scores fell at either end of the continuum between H and nH groups, but were equivalent within these two groups (first part of the study). ATRS scores were also used to measure the importance of level of hyperactivity when nonverbal behaviors were considered (second part of the study). The physical attractiveness ratings were used in the first part of the study only, to select boys whose scores were equivalent.

<u>Slosson Intelligence Test</u>. The SIT (Slosson, 1983) is an individualized intelligence test which requires approximately 20 minutes to administer and yields IQ scores which correlate .91 with Stanford-Binet IQ scores (Stewart & Jones, 1976). The tasks required in this test tap verbal-intellectual skills in general information, arithmetic, comprehension, similarities and differences, vocabulary, digit span and visual-motor ability. Results yield a Mental Age and a deviation IQ.

Conners Abbreviated Teacher Rating Scale. The ATRS (Conners, 1973) is a measure of symptoms of hyperactivity, consisting of 10 items from the 39-item Conners Teacher Questionnaire (Conners, 1969) and the 93-item Parent Questionnaire (Conners, 1970). The items chosen were those most frequently endorsed by parents and teachers when describing the behavior of hyperactive children and had the highest factor loadings of the items on the Hyperactivity factor (other factors include Conduct Problem, Inattentive-Passive, Tension-Anxiety, and Sociability; Conners & Barkley, 1985). Ratings are made on a 4-point scale using the frequency descriptors not at all (0), just a little (1), pretty much (2), and very much (3). A cutoff score of ≥ 15 is recommended to differentiate H from nH children (Barkley, 1981a). <u>Physical Attractiveness Scale</u>. Physical attractiveness was rated on a 1item, 7-point Likert scale ranging from <u>extremely physically attractive</u> (1), to <u>extremely</u> <u>physically unattractive</u> (7) (see Appendix G).

Adults' Evaluations of Stimulus Children

Several components of the Bryan and Sherman (1980) study were replicated in this project. Therefore, one set of dependent measures employed the rating scale used by Bryan and Sherman. A second dependent measure, a semantic differential scale, was also employed to add information regarding how groups of boys are evaluated (positively vs. negatively) when they are first seen by strangers.

Impression Rating Scale. First Impression ratings of the boys were made on the Digman and Takemoto (cited in Perlmutter, 1979) 20-item rating scale used by Bryan et al. (1980; see Appendix H). The scale presents 20 bipolar adjective pairs that can be rated from <u>extremely high</u> (1) to <u>extremely low</u> (6). It has been reduced to two factors, <u>Adaptability</u> and <u>Social Hostility</u> (Perlmutter, 1979).

Semantic Differential Scale. Additional impression ratings were made on a 5-item bipolar semantic differential scale (see Appendix H) composed of adjective pairs loading only on the evaluative dimension (Osgood, Suci, & Tannenbaum, 1957). The response format is a 7-point Likert scale ranging from <u>extremely "X"</u> (1) to <u>extremely "Y</u>" (7), where X and Y represent the bipolar adjectives.

Coding of Children's Nonverbal Behaviors

In the second part of the study the nonverbal behaviors of the boys as displayed during the 3-min interview were recorded.

Observational Recording Form (ORF). The Observational Recording Form was developed by the researcher for this study based on the work of Duncan and Fiske (1977). The form was used to record the occurrence vs. nonoccurrence of eight behaviors during the 3-min interview (see Appendix I). One verbal and seven nonverbal behaviors were scored -- (a) speaking (the sounds uttered by a child including words, fillers such as "um hmm," and action sounds such as "whoosh" and "zoom"), (b) smiling (when the corners of the mouth were turned up or pulled back and the outer corners of the eyes were crinkled while the child showed a happy facial expression), (c) gazing (facial orientation toward the interviewer), (d) gesturing (a hand, finger, arm or body illustration, such as a shrug, that accompanied or replaced speech), (e) self manipulation (a touching or rubbing of the clothing, jewelry, hair or a body part in a motion that did not illustrate speech), (f) arm fidgeting (any movement of the fingers, hands or arms that was not a gesture and was not self manipulation), (g) leg fidgeting (any movement of the legs that was not a gesture and was not self manipulation), (h) posture shifting (any movement of the seat, trunk or shoulder, including body leaning). These were conceptualized as either "involvement" (smiling, gazing and gesturing) or "noninvolvement" (self-manipulation, arm fidgeting, leg fidgeting and posture shifts) in nature (cf. Patterson, 1982).

Procedure

Selection of Videotapes for the Experimental Task

The physical attractiveness of the 70 boys for whom a complete 3-min videotape was available was assessed by a group of five volunteers who viewed the first 20 sec of each boy's videotape and completed the Physical Attractiveness scale (see Appendix G) after each segment. The videotapes of eight boys were then selected for use in the experimental task. The boys were equated on the variables of IQ score (range 93-106, <u>M</u> = 98.7, <u>SD</u> = 5.09) and physical attractiveness (range 3-5, <u>M</u> = 3.8, <u>SD</u> = 0.13). Four of the selected boys formed the younger group (range 101-107 months) and four formed the

older group (range 126-131 months). The younger and older groups differed significantly in age (t(3) = -9.8, p<.05). Conners scores were also equated within groups; the range of scores for the nH group was 0-5 ($\underline{M} = 1.7$, $\underline{SD} = 1.92$) and the range for the H group was 19-22 ($\underline{M} = 20.2$, $\underline{SD} = 1.09$). The two groups differed significantly in hyperactivity ratings (t(3) = -28.7, p<.01). LD and nLD groups were formed on the basis of teacher report of the child's receiving resource room help. Thus, the design of the study was a 2 (LD vs. nLD) x 2 (H vs. nH) x 2 (Older vs. Younger) factorial with one stimulus child presented for each of these eight conditions. Tables 2-4 describe the characteristics for all children and for the eight selected boys.

Experimental Task

After non-volunteers had left the room, subjects were given a folder containing a consent form, demographic data questionnaire and a set of two questionnaires (see Appendix H) for each of the eight boys they would be viewing. The following instructions were given:

In this experiment we are going to ask you to make some ratings of a child's nonverbal behavior. You will be shown eight short videotapes of a child being interviewed by a female adult, who will not be visible. The interviewer is in front of and slightly to the left of the child. The scene lasts two minutes. There will be no sound because we want you to pay attention to the child's nonverbal behavior and give your best guess about his personal and social characteristics by completing a 20-item rating form and a 5-item rating form.

Please take a moment now to complete the consent and background information forms, to look through the forms to get some idea of the ratings you'll be making and to read through the instruction sheets. DO NOT fill in any forms except the consent and background forms. Any questions?

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Variable	<u>n</u>	Mean	<u>SD</u>	Observed Range
Age (in months)	70	116.9	11.14	97-139
Slosson IQ	70	106.5	8.22	· 90-119
Conners ATRS	70	7.4	6.61	0-22
Physical Attractiveness	70	4.1	0.90	1-7

Descriptive Statistics for All Children Selected to Participate

		s for Grou	ps of Children	n Selected to	Participate
<u>Group</u>	Variable	<u>n</u>	<u>Mean</u>	<u>SD</u>	Observed Range
LD-nH	Age (months)	12	119.7	10.01	103-134 .
	Slosson IQ	12	98.8	7.49	90-114
	Conners ATRS	12	7.6	5.12	0-14
	PA	12	4.1	1.05	1-7
nLD-H	Age (months)	7	117.4	14.20	97-134
	Slosson IQ	7	105.1	8.17	96-115
	Conners ATRS	7	19.6	2.30	16-22
	PA	7	3.9	1.02	2-7
LD-H	Age (months)	4	123.2	15.00	101-133
	Slosson IQ	4	95.5	3.79	93-101
	Conners ATRS	4	18.5	2.38	15-20
	РА	4	3.5	0.48	1-7
nLD-nH	Age (months)	47	115.5	10.67	98-139
	Slosson IQ	47	109.6	6.54	94-119
	Conners ATRS	47	4.6	4.08	0-13
	PA	47	4.2	0.87	2-7

<u>Note</u>. PA = Physical Attractiveness. LD = Learning Disabled. H = Hyperactive.nLD = non Learning Disabled. nH = non Hyperactive.

Table 4

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<u>Group</u>	<u>n</u>	Age (months)	<u>Slosson IQ</u>	Conners ATRS	<u>PA</u>
LD-nH-Y	1	106	94	05	3.8
LD-nH-O	1	127	94	01	4.0
nLD-H-Y	1	107	104	22	3.8
nLD-H-O	`1	126	96	20 ·	3.8
LD-H-Y	1	101	93	20	3.6
LD-H-O	1	131	101	19	3.8
nLD-nH-Y	1	103	102	00	3.6
nLD-nH-O	1	127	106	01	3.8

Variable Scores for Children Selected for Stimulus Tapes

<u>Note</u>. PA = Physical Attractiveness. LD = Learning Disabled. H = Hyperactive.

Y = Younger. O = Older. nLD = non Learning Disabled. nH = non Hyperactive.

Some of the judgements may seem difficult to make but try to guess as well as you can, given the information you have. These ratings must be your own opinion so please don't discuss them with your neighbor or check your neighbor's answers.

There will be a brief pause between each videotape segment to allow you to complete the two questionnaires relating to the child you have just seen. If you recognize any child, please indicate so by writing the word "know" in large letters on the first rating form. Then please leave the room, as you are excused from further participation in today's session. The ratings must reflect your opinions about a child you do not know. DO NOT begin to fill out any of the ratings until you have viewed the entire twominute scene. Please don't spend too much time reflecting on each statement -- we are interested in your first impression of the child. Be sure to answer every item on every form.

When you have finished please remain at your desk until all participants have completed their forms. I'll then give you a brief description of this research.

No subjects left the room because they were familiar with one of the children seen on videotape. After the data collection, the subjects were debriefed (see Appendix J) and allowed to leave. This constituted the "First Impressions" component of the study.

Coding of Nonverbal Behavior

Two observers, blind to the group classification of the boys and to the hypotheses of the study, were trained to code the videotapes. They became familiar with the categories, definitions and procedures by reading the coding manual (see Appendix K). During training, two videotapes were scored simultaneously by the researcher and coders and disagreements were resolved through discussion. Observers then independently scored another two videotapes and discrepancies were resolved through discussion. This process continued until eight videotapes had been independently scored by each observer. Further training then involved only those categories (self-manipulation, arm fidgeting and

smiling) which did not reach acceptable inter-observer agreement. Reliability was assessed using the Kappa (K) Coefficient of agreement (Cohen, 1960) based on a second-by-second analysis of each category of behavior. A criterion of .60 or above was adopted as an indication of acceptable inter-observer agreement. This criterion was met on all the measures after training was completed.

Each observer then coded 44 videotapes (i.e., 35 coded by each observer and 9 coded by both observers). Eighteen randomly selected videotapes (i.e., 25% of all tapes) were coded by both observers and checked for inter-observer agreement (see Table 5). The criterion of $\underline{K} \ge .60$ was met on all behavior categories.

	Tal	ble	5
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Variable	Mean <u>K</u>
Speaking	.91
Smiling	.77
Gazing	.82
Gesturing	.83
Self-manipulation	.92
Arm Fidgeting	.77
Leg Fidgeting	.79
Posture Shifts	.76

Reliability of Behavioral Coding

Overall mean $\underline{K} = .82$

Note. Reliability coefficients have been estimated on the basis of a sec-by-sec behavioral coding of each behavior. Separate Ks were calculated for each child and average Ks have been reported. $\underline{n} = 18$. K = Kappa.

CHAPTER 3

RESULTS

<u>Overview</u>

The strategy employed in analyzing the data followed a series of steps. First, raters' demographic characteristics were examined for use as potential covariates. Second, the hypotheses were tested that: (a) boys with a learning disability or with hyperactivity would receive a more negative evaluation than would comparison groups of nonproblem boys, and (b) boys with both a learning disability and hyperactivity would receive more negative evaluations than would boys with a learning disability but without hyperactivity. Third, the competing explanation was tested that there is a common influence of raters' perceptions of boys as "good" vs. "bad" rather than raters' perceptions of children as Adaptable or Socially Hostile as the primary determinant of the evaluations perceived by children. Fourth, the hypothesis was tested that, compared to boys who were non learning disabled, boys with a learning disability and more symptoms of hyperactivity would show a lesser extent of nonverbal involvement behaviors and a greater extent of nonverbal noninvolvement behaviors than boys without a learning disability and with comparatively few symptoms of hyperactivity.

Covariate Identification

When research is conducted with groups of human participants, there is the possibility of introducing experimentally unwanted sources of variance into the data (for example, the influence of country of birth, marital status, etc.). In the present study, the raters' demographic characteristics may have been significantly related to the dependent

variables but could not be controlled experimentally. If any were significantly related it would be important to attempt to control the effects of any such sources of bias statistically. In order to explore possible covariates, several rater demographic characteristics including sex, marital status, religion, country of birth, occupation, faculty and psychology course each were employed as independent variables in separate univariate one-way Analyses of Variance (ANOVAs). Scores on the Adaptability, Social Hostility and Semantic Differential Evaluative scales were employed as the dependent variables. A criterion of p<.01 was adopted for these analyses since 28 ANOVAs were conducted (Cohen & Cohen, 1983). No demographic variable showed a significant relationship with any of the dependent variables (see Appendix L).

Potential covariates that had been represented by continuous variables were explored via Pearson correlation coefficients. These rater demographic characteristics included age, number of children, years of post-secondary education and annual household income. A criterion of $\underline{r} \ge .30$ was adopted for the retention of a variable for use as a covariate (Pedhazur, 1982). However, no demographic variable was correlated at or above this level with any of the dependent measures of Adaptability, Social Hostility or Semantic Differential Evaluative ratings (see Appendix L). Thus, no covariates were retained for statistical control in the analyses reported below.

First Impression Ratings

A 2 (LD Groups: LD vs. nLD) x 2 (H Groups: H vs. nH) x 2 (Age: Younger vs. Older) factorial ANOVA was conducted on each of the dependent measures of Adaptability and Social Hostility. A criterion of p<.05 was adopted as the alpha level for statistically significant results for the overall ANOVA. Significant two-way interactions qualified the interpretation of the main effects and were probed via simple main-effects tests (Kirk, 1982). As recommended by Kirk (1982), the alpha level for statistically significant results was set at p<.001 in order to control the Type I error rate. A significant three-way

interaction qualified the interpretation of the two-way interactions and was probed by simple simple main-effects tests (Kirk, 1982). The level of alpha set for defining statistically significant results was p<.001 to control the Type I error rate. Results are presented in tabular form and, where appropriate, are depicted graphically to facilitate interpretation.

Adaptability

The 2 x 2 x 2 ANOVA design, outlined above, was applied to the Adaptability ratings provided by the undergraduate students. The Adaptability factor (Perlmutter, 1979) is the summed mean score of the items, "perseverance," "rigidity" (scored in reverse), "gregariousness," "planfulness," "talkativeness,""fearfulness" (reverse scored), "esthetical sensitivity," "emotional stability," "imagination," "energy," "curiosity," "seclusiveness" (reverse scored), "originality," and "adaptability." It was hypothesized that, relative to nonproblem boys, lower Adaptability ratings would be given to boys who were LD or H. A second hypothesis predicted that lower ratings would be given to boys who were both LD and H than to boys who were LD and nH. There were no directional predictions made regarding the effects of age.

In overview, although there was a significant LD x H x Age interaction, post-hoc probing showed only equivocal support for the prediction of higher Adaptability ratings being given to nLD boys. Simple simple main-effects tests indicated that two groups of nLD boys did receive more favorable ratings than did their LD counterparts. However, in addition to one nonsignificant difference, one group of LD boys was rated more favorably than was the comparison nLD group, contrary to prediction. The results regarding the hypothesis that LD-H boys would be rated as less Adaptable than LD-nH boys showed no support. When older learning disabled H and nH boys were compared, the hypothesis was not supported. The comparison between younger learning disabled H and nH children was in the opposite direction to that predicted--the H boys received more positive ratings. The prediction of higher Adaptability ratings being given to nH boys. Only one group of nH boys received more favorable ratings than their H counterparts. There was one nonsignificant H vs. nH comparison and, contrary to prediction, two groups of H boys received more positive ratings than did the nH group. These results are reported in detail below.

The ANOVA summary is presented in Table 6. Using a criterion of $\underline{p} < .05$, the following main effects were statistically significant: (a) LD Groups, with nLD boys receiving more positive ratings than LD boys, (b) H Groups, with H boys rated more positively than nH boys, and (c) Age, such that older boys received more positive ratings than did younger boys. There were also significant two-way interactions of LD x H, LD x Age and H x Age and a significant three-way LD x H x Age interaction. Group means and standard deviations are presented in Table 7.

Tests of the simple effects for the two-way interactions are presented in Table 8. Using a criterion of p<.001, several simple effects were statistically significant. First, LD Groups at nH, indicating that more positive ratings were given to nLD boys than to LD boys. Second, LD Groups at older, again with more positive ratings given to the nLD group. Third, H Groups at LD, with H boys seen as more Adaptable than nH boys. Fourth, H Groups at older, indicating that H boys received more positive ratings than did nH boys. Fifth, Age at nLD, apparently due to older boys receiving higher ratings than younger boys. Sixth, Age at LD, again with the more positive ratings given to the older boys. Seventh, Age at nH, indicating that older boys were seen as more Adaptable than younger boys. Eighth, Age at H, with older boys receiving more positive ratings than younger boys.

The most meaningful interpretations of the data come from the tests of simple simple effects of the three-way interaction, presented in Table 9. Figure 2 graphically

Ta	bl	e	6

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	. <u>F</u>
LD Groups	15.06	1	15.06	60.31 **
Error	26.22	105	0.25	
H Groups	4.84	1	4.84	23.88 **
Error	21.28	105	0.20	
Age	60.08	1	60.08	138.73 **
Error	45.48	105	0.43	
LD Groups x H Groups	10.76	1	10.76	54.75 **
Error	20.63	105	0.20	
LD Groups x Age	4.04	1	4.04	18.09 **
Error	23.42	105	0.22	
H Groups x Age	3.81	1	3.81	15.86 **
Error	25.23	105	0.24	
LD Groups x H Groups x Age	58.13	1	58.13	.155.99 **
Error	39.13	105	0.37	•

Summary of Analysis of Variance, Adaptability Ratings

<u>Note</u>. LD = Learning Disabled. H = Hyperactive.

**<u>p</u><.01.

	Young	Younger Boys		Older Boys	
	M	SD	M	SD	
nLD-nH	3.9a	0.53	3.9a	0.56	
nLD-H	3.2b	0.56	4.5°	0.54	
LD-nH	3.0b	0.57	3.8a	0.53	
LD-H	3.8a	0.60	3.8a	0.55	

First Impressions: Mean Adaptability Ratings for All Groups of Boys

Note. Nonoverlapping superscripts indicate statistically significant pairwise differences between groups at p<.001. n = 106 ratings per child in each group (106 subjects x 1 child in each of 8 groups). Higher scores indicate more favorable ratings.
LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

Source	<u>SS</u>	df	<u>MS</u>	<u>F</u>
LD Groups at H	0.18	1	0.18	0.81
Error	23.25	105	0.22	
LD Groups at nH	25.64	1	25.64	114.04 ****
Error	23.60	105	0.22	
LD Groups at Younger	1.75	1	1.75	6.88
Error	26.72	105	0.25	
LD Groups at Older	17.34	1	17.34	79.43 ****
Error	22.92	105	0.22	
H Groups at LD	15.02	1	15.02	73.90 ****
Error	21.33	105	0.20	
H Groups at nLD	0.58	1	0.58	2.98
Error	20.58	105	0.20	
H Groups at Younger	0.03	1	0.03	0.14
Error	22.39	105	0.21	
H Groups at Older	8.62	1	8.62	37.52 ****
Error	24.12	105	0.23	
Age at LD	16.49	1	16.49	45.50 ****
Error	38.05	105	0.36	
Age at nLD	47.63	1	47.63	162.11 ****
Error	30.85	105	0.29	
Age at H	47.08	1	47.08	136.60 ****
Error	36.19	105	0.34	
Age at nH	16.82	1	16.82	51.15 ****
Error	34.52	105	0.33	

Summary of Tests of Simple Effects of Two-way Interactions, Adaptability Ratings

Note. LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

****<u>p</u><.001.

			-	
Source	<u>SS</u>	<u>df</u>	<u>MS</u>	E
LD Groups x H Groups at Younger	59.45	1	59 45	210 16 ****
Error	29.70	105	0.28	210.10
LD Groups at H. Younger	20.40	1	20.40	79 07 ****
Error	27.09	$10\bar{5}$	0.26	12101
LD Groups at nH, Younger	40.81	1	40.81	146.07 ****
Error .	29.33	105	0.28	2.0007
H Groups at LD, Younger	31.09	1	31.09	140.36 ****
Error	23.26	105	0.22	
H Groups at nLD, Younger	28.39	1	28.39	103.39 ****
Error	28.83	105	0.27	
LD Groups x H Groups at Older	9.44	1	9.44	32.96 ****
Error	30.06	105	0.29	
LD Groups at H, Older	26.18	1	26.18	83.10 ****
Error	33.08	105	0.32	
LD Groups at nH, Older	0.60	1	0.60	3.15
Error	19.90	105	0.19	
H Groups at LD, Older	0.01	1	0.01	0.04
Error	23.22	105	0.22	
H Groups at nLD, Older	18.04	1	18.04	61.20 ****
Error	30.96	105	0.29	
H Groups x Age at LD	16.09	1	16.09	67.18 ****
Error	25.15	105	0.24	
H Groups x Age at nLD	45.85	1	45.85	122.78 ****
Error	39.21	105	0.37	
LD Groups x Age at H	46.40	1	46.40	131.95 ****
Error	36.92	105	0.35	
Age at LD, H	0.00	1	0.00	0.00
Error	33.80	105 .	0.32	
Age at nLD, H	93.47	1	93.47	249.65 ****
Error	39.31	105	0.37	
LD Groups x Age at nH	15.77	1	15.77	64.59 ****
Error	25.63	105	0.24	
Age at LD, nH	32.57	1	32.57	116.33 ****
Error	29.40	105	0.28	A A -
Age at nLD, nH	0.01	107	0.01	0.03
EITOr	30.75	105	0.29	

Summary of Tests of Simple Simple Effects of the Three-way Interaction, Adaptability Ratings

Note. LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

**** <u>p</u><.001.



LEARNING DISABILITY STATUS

 Figure 2. First Impressions of non Hyperactive Boys: Simple Simple Effects of the LD Groups x H Groups x Age Interaction, Adaptability Ratings.
 <u>Note.</u> LD = Learning Disabled. nLD = non Learning Disabled.

* Significant difference between points at p<.001.

presents the significant differences (p < .001) between (a) LD and nLD boys who were nH and younger, with nLD boys being rated more positively and (b) younger and older boys who were LD and nH, indicating that more favorable ratings were gained by the older group. Figure 3 illustrates the significant differences between (a) LD and nLD boys who were H and younger, with LD boys being rated more positively, (b) LD and nLD boys who were H and older, apparently due to more favorable scores given to the nLD boys, and (c) younger and older boys who were nLD and H, with older boys being rated as more Adaptable. Figure 4 shows the significant difference between (a) H and nH boys who were nLD and older, with the H group receiving higher ratings and (b) H and nH boys who were nLD and younger, indicating that the nH boys were evaluated more positively. Figure 5 displays the significant difference between H and nH boys who were LD and younger, with: the H boys rated more positively.

In summary, the prediction that nLD boys would be rated as more Adaptable than would LD boys was supported for groups of LD and nLD boys who were comparatively younger in the nH group and comparatively older in the H group. No significant difference was observed between older H and nH boys who were LD, and the difference between H and nH boys who were LD and younger was in the opposite direction to that predicted, namely that LD-H-younger boys were rated as more Adaptable than were nLD-H-younger boys. The expectation that nH boys would be rated as more Adaptable than would their H counterparts was supported for comparatively younger H and nH boys who were also nLD. Older H and nH children who were LD did not differ significantly in perceived Adaptability. The prediction was not supported for older H and nH boys who were nLD or for younger H and nH boys who were LD, with both of these differences being in the opposite direction to that predicted, i.e., H rated more Adaptable than nH. Although no directional prediction was made as to whether younger or older boys would be rated as more Adaptable, older boys received more positive ratings than did younger boys when they were LD-nH and nLD-H. Older and younger boys who were nLD-nH and LD-H did



<u>Figure 3.</u> First Impressions of Hyperactive Boys: Simple Simple Effects of the LD Groups x H Groups x Age Interaction, Adaptability Ratings. <u>Note.</u> LD = Learning Disability. nLD = non Learning Disability.

* Significant difference between points at p <.001.





Figure 4. First Impressions of non Learning Disabled Boys: Simple Simple Effects of the LD Groups x H Groups x Age Interaction, Adaptability Ratings.
 <u>Note.</u> H = Hyperactive. nH = non Hyperactive.

* Significant difference between points at p<.001.





Figure 5.First Impression Ratings of Learning Disabled Boys: Simple Simple Effectsof the LD Groups x H Groups x Age Interaction, Adaptability Ratings.Note.H = Hyperactive.nH = non Hyperactive.

* Significant difference between points at p < .001.

not differ significantly. Collectively, these results may be summarized in this way: boys who were nLD-H-older received the most positive ratings, boys who were nLD-H-younger and LD-nH-younger received the most negative ratings, and the other groups received ratings which fell midway between these two extremes.

Social Hostility

The same 2 x 2 x 2 ANOVA design was employed to examine the Social Hostility Ratings. The Social Hostility factor (Perlmutter, 1979) is the summed mean score of the items, "irresponsibility," "fickleness," "rudeness," "conscientiousness" (scored in reverse), "spitefulness," and "consideration" (reverse scored). It was hypothesized that: (a) LD boys would receive higher Social Hostility ratings than would nLD boys, (b) H boys would receive higher Social Hostility scores than would nH boys, and (c) boys who were LD and H would receive higher Social Hostility ratings than would boys who were LD and H. There were no directional hypotheses regarding the effect of boys' ages upon the ratings.

In overview, post-hoc probing of the significant LD x H x Age interaction showed no support for the prediction of lower Social Hostility ratings being given to nLD boys. Simple simple main-effects tests indicated that there were three nonsignificant comparisons. For the fourth comparison involving nLD boys, results showed that LD boys received more negative ratings than their nLD counterparts. The results regarding the hypothesis that LD-H boys would be rated as more Socially Hostile than LD-nH boys received no support.

When older learning disabled H and nH boys were compared the difference was nonsignificant. As well, there was a nonsignificant difference between younger learning disabled H and nH boys. The results of the simple simple main-effects tests for H vs. nH boys showed no support for the prediction of higher Social Hostility ratings being given to H boys. Three of the four comparisons between H and nH groups were nonsignificant and
the last comparison was actually in the opposite direction to that predicted (i.e., nH boys were rated as more Socially Hostile than were H boys). These results are reported below in detail.

The overall ANOVA summary is presented in Table 10. Group means and standard deviations are presented in Table 11. Using a criterion of p<.05, only the main effect of LD Groups was statistically significant and this was interpreted to reveal that LD boys received higher Social Hostility ratings than did nLD boys. All two-way interactions were significant. The three-way interaction of LD x H x Age was statistically significant as well.

Tests of the simple effects of the two-way interactions may be found in Table 12. Using a criterion of p<.001, several simple effects were statistically significant. First, LD Groups at H, with the LD boys receiving more negative ratings than nLD boys. Second, LD Groups at younger, indicating that more positive ratings were given to the nLD group rather than the LD group. Third, H Groups at LD, such that H boys were rated as more Socially Hostile than their nH counterparts. Fourth, Age at nLD, apparently due to more negative ratings being given to older, rather than younger boys.

The most meaningful interpretations of the data are provided by tests of simple simple effects of the three-way interaction, presented in Table 13. Figure 6 illustrates the significant differences (p<.001) between the younger LD and nLD boys who were H. The figure indicates that more negative ratings were given to the LD group. It also shows that older boys who were nLD and H received more negative ratings than did younger nLD-H boys. Figure 7 illustrates that comparatively more negative ratings were obtained by nH boys who were nLD and younger.

In summary, the prediction that LD boys would be rated as more Socially Hostile than would nLD boys was supported only for groups of younger hyperactive LD boys. Other differences were nonsignificant. The hypothesis that H boys would be rated as more Socially Hostile than would their nH counterparts was not supported with any of the group results. The scores of H and nH younger nLD boys were in the opposite direction to that

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
LD Groups	13.46	1	13.46	33.98 **
Error	41.20	104	0.40	
H Groups	0.95	1	0.95	2.81
Error	35.02	104	0.34	
Age	0.07	1	0.07	0.16
Error	43.28	104	0.42	
LD Groups x H Groups	2.69	1	2.69	11.30 **
Error	24.78	104	0.24	
LD Groups x Age	7.46	1	7.46	38.24 **
Error	20.30	104	. 0.20	
H Groups x Age	4.90	1	4.90	16.02 **
Error	31.84	104	0.31	
LD Groups x H Groups x Age	1.91	1	1.91	5.17 *
Error	38.40	104	0.37	

Summary of Analysis of Variance, Social Hostility Ratings

Table 10

<u>Note</u>. LD = Learning Disabled. H = Hyperactive.

* <u>p</u><.05. ** <u>p</u><.01.

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Table 1	L
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	Young	Younger Boys		Boys
	M	SD	M	SD
nLD-nH	3.9a	0.65	3.8a ·	0.77
nLD-H	3.6 ^b	0.60	4.0a	0.69
LD-nH	4.1a	0.58	3.9a -	0.63
LD-H	4.2a	0.53	4.1a	0.56
			····	•

First Impressions: Mean Social Hostility Ratings for All Groups of Boys

Note. Nonoverlapping superscripts indicate statistically significant pairwise differences between groups at $\underline{p}<.001$. $\underline{n} = 105$ ratings per child in each group (105 subjects x 1 child in each of 8 groups). Lower scores indicate more favorable ratings. LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

Tab	le	1	2
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Source	0.0	10	2/0	
<u>Source</u>	<u>55</u>	dt	MS	Ĕ
LD Groups at H	14.10	1	14.10	46.41 ****
Error	31.59	104	0.30	
LD Groups at nH	2.06	1	2.06	6.22
Error	34.39	104	0.33	-
LD Groups at Younger	20.49	1	20.49	68.54 ****
Error	31.08	104	0.30	
LD Groups at Older	0.44	. 1	0.44	1.50
Error	30.42	104	0.29	
H Groups at LD	3.41	1	3.41	11.72 ****
Error	30.30	104	0.29	
H Groups at nLD	0.22	. 1	0.22	0.79
Error	29.50	104	0.28	
H Groups at Younger	0.77	1	0.77	4.24
Error	, 18.94	104	0.18	
H Groups at Older	5.08	1	5.08	11.02
Error	47.92	104	0.46	
Age at LD	3.05	1	3.05	10.67
Error	29.77	104	0.29	
Age at nLD	4.48	1	4.48	13.78 ****
Error	33.80	104	0.33	
Age at H	3.06	1	3.06	9.79
Error	32.54	104	0.31	
Age at nH	1.91	. 1	1.91	4.66
Error	42.58	104	0.41	

Summary of Tests of Simple Effects of Two-way Interactions, Social Hostility Ratings

<u>Note</u>: LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

****<u>p</u><.001.

Table 13	
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Source	<u>SS</u>	df	MS	<u>F</u>
LD Groups x H Groups at Younger	4.57	1	4.57	12.76 ****
Error	37.22	104	0.36	
LD Groups at H, Younger	22.20	- 1	22.20	80.20 ****
Error	28.79	104	0.28	
LD Groups at nH, Younger	2.85	1	2.85	7.51
Error	39.52	104	0.38	
H Groups at LD, Younger	0.79	1	0.79	3.05
Error	27.04	104	0.26	
H Groups at nLD, Younger	4.55	1	4.55	16.24 ****
Error	29.11	104	0.28	
LD Groups x H Groups at Older	0.03	1	0.03	0.13
Error	25.96	104	0.25	
LD Groups at H, Older	0.36	1	0.36	1.08
Error	34.50	104	0.33	
LD Groups at nH, Older	0.11	1	0.11	0.55
Error	21.89	104	0.21	
H Groups at LD, Older	2.97	1	2.97	9.65
Error	32.00	104	0.31	
H Groups at nLD, Older	2.14	1.	2.14	5.32
Error	41.89	104	0.40	
H Groups x Age at LD	0.35	1	0.35	1.26
Error	28.74	104	0.28	
H Groups x Age at nLD	6.47	1	6.47	16.20 ****
Error	41.50	104	0.40	
LD Groups x Age at H	8.46	1	8.46	27.77 ****
Error	31.69	104	0.30	
Age at LD, H	0.67	1	0.67	2.60
Error	26.83	104	0.26	
Age at nLD, H	10.85	1	10.85	30.17 ****
Error	37.41	104	0.36	•
LD Groups x Age at nH	0.91	1	0.91	3.51
Error	27.01	104	0.26	
Age at LD, nH	2.73	1	2.73	8.96
Error	31.69	104	0.30	
Age at nLD, nH	0.09	1	0.09	0.25
Error	37.89	104	0.36	
	-			

Summary of Tests of Simple Simple Effects of the Three-way Interaction, Social Hostility Ratings

Note. LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

**** <u>p</u><.001.



LEARNING DISABILITY STATUS

 Figure 6. First Impressions of Hyperactive Boys: Simple Simple Effects of the LD Groups x H Groups x Age Interaction, Social Hostility Ratings.
 <u>Note.</u> LD = Learning Disabled. nLD = non Learning Disabled.

* Significant difference between points at p < .001.





 Figure 7. First Impressions of non Learning Disabled Boys: Simple Simple Effects of the LD Groups x H Groups x Age Interaction, Social Hostility Ratings.
 Note. H = Hyperactive. nH = nonHyperactive.

* Significant difference between points at p < .001.

predicted (i.e., nH boys were given more negative ratings). Other differences were nonsignificant. No directional prediction was made regarding the effect of Age upon Social Hostility ratings. Only one group showed a statistically significant difference between older and younger boys--older boys received more negative ratings than did younger boys when they were nLD and H. Differences between other older and younger groups were not significant. These results may be summarized in this way: the nLD-H-younger boys were rated as less Socially Hostile than were all the other groups, who received similar, comparatively negative, ratings.

Competing Explanation

It may be argued that perhaps adult raters do not perceive LD children as less Adaptable and more Socially Hostile than nLD children but that a simpler explanation may account for the results. The factor labels of <u>Adaptability</u> and <u>Social Hostility</u> were assigned by Perlmutter (1979) to the questionnaire items which essentially loaded positively (Adaptability; factor 1) and loaded negatively (Social Hostility; factor 2). It is possible that these two factors simply reflect raters' evaluations of the children as "good" or "bad", and that there is only one dimension (i.e., children are liked or disliked) underlying evaluations of children.

In order to test this competing explanation, a Semantic Differential Evaluative rating scale was constructed and included in the battery of questionnaires administered to adult participants. A 2 (LD Groups: LD vs. nLD) x 2 (H Groups: H vs. nH) x 2 (Age: Younger vs. Older) factorial ANOVA was conducted on the dependent measure of Semantic Differential Evaluative ratings. A criterion of p<.05 was adopted as the level of alpha to define statistically significant results for the overall ANOVA. Significant two-way interactions qualified the interpretation of the main effects and were tested via simple main effects tests (Kirk, 1982). As above, the alpha level for statistically significant interaction results was p<.001 in order to control the Type I error rate. A significant three-way

interaction qualified the interpretation of the two-way interactions and was tested by simple simple main-effects tests (Kirk, 1982). The alpha level for statistically significant results was p<.001. Results are presented in tabular form and, where appropriate, are depicted graphically to facilitate interpretation.

Semantic Differential Evaluative Dimension

The Semantic Differential Evaluative (SDE) rating scale was comprised of five evaluative semantic differential items (see Method section). The summed mean score of the items, "bad-good" (scored in reverse), "honest-dishonest," "pleasant-unpleasant," "happy-sad," and "awful-nice" (reverse scored) formed the SDE rating. It was hypothesized that comparatively lower ratings on the evaluative dimension would be given to boys who were LD or H than to their nonproblem counterparts and that the lower ratings would be given to boys who were LD and H, as compared to boys who were LD and not H. There were no directional predictions made regarding the effect of age upon the ratings.

In overview, although the LD x H x Age interaction was significant overall, posthoc probing via simple simple main-effects tests showed no support for the hypothesis that lower SDE ratings would be given to LD boys. In addition to three nonsignificant comparisons, the fourth comparison showed that LD boys were evaluated more positively than were nLD boys. The prediction that LD-H boys would be evaluated more negatively than LD-nH boys also was not supported by the data. Younger learning disabled nH boys received equivalent ratings to those of comparison H boys. There was a nonsignificant difference between the ratings of H vs. nH boys who were learning disabled and older. The results of the tests of simple simple main-effects for H vs. nH boys also showed no support for the prediction of lower SDE scores being given to H boys. Two of the comparisons between H and nH boys were nonsignificant. One comparison was in the opposite direction to that predicted, i.e., that older non learning disabled H boys were evaluated more positively than were nH boys. The last comparison, between H vs. nH younger non learning disabled boys supported the prediction that higher scores would be given to nH children. These results are reported below in detail.

The overall ANOVA summary is presented in Table 14. Table 15 presents group means and standard deviations. Using a criterion of p<.05, the following main effects were statistically significant: (a) LD Groups, with LD boys receiving more positive ratings than nLD boys, (b) H Groups, such that H boys were evaluated more positively than nH boys, and (c) Age, with older boys given higher ratings than younger boys. All three two-way interactions were significant. The LD x H x Age three-way interaction was also significant.

Tests of the simple effects for the two-way interactions are presented in Table 16. Using a criterion of p<.001, several simple effects were statistically significant. First, LD Groups at H, with more positive evaluations given to LD rather than nLD boys. Second, LD Groups at younger, indicating that more positive ratings were given to LD vs. nLD boys. Third, H Groups at LD, apparently due to H boys being evaluated more positively than their nH counterparts. Fourth, H Groups at older, with H boys again receiving higher ratings. Fifth, Age at nLD, with more positive evaluations given to older boys rather than younger boys. Sixth, Age at H, apparently due to the older group being evaluated more positively than the younger group.

The most meaningful interpretations of the data may be taken from tests of simple effects of the three-way interaction (see Table 17). Figure 8 shows the significant difference between the ratings received by LD and nLD boys who were H and younger, with higher ratings given to the LD group. As well, Figure 8 graphically presents a significant difference between the ratings given to older and younger nLD-H boys, showing that higher scores were given to older boys. A significant difference between H and nH non learning disabled younger boys, illustrated in Figure 9, shows that more positive ratings were given to nH boys. Also shown in Figure 9 is the significant

	Ta	ble	14
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Source	<u>SS</u>	df	<u>MS</u>	Ē
LD Groups	3.50	1	3.50	5.96 *
Error	61.02	104	0.59	
H Groups	5.73	1	5.73	9.54 **
Error	62.50	104	0.60	
Age	16.63	1	16.63	. 18.27 **
Error	94.68	104	0.91	
LD Groups x H Groups	4.91	1	4.91	8.22 **
Error	62.11	104	0.60	
LD Groups x Age	22.47	1	22.47	42.73 **
Error	54.70	104	0.53	
H Groups x Age	21.06	1	21.06	31.82 **
Error	68.84	104	0.66	•
LD Groups x H Groups x Age	16.30	1	16.30	29.50 **
Error	57.46	104	0.55	

Summary of Analysis of Variance, Semantic Differential Evaluative Ratings

<u>Note</u>. LD = Learning Disabled. H = Hyperactive.

*<u>p</u><.05. **<u>p</u><.01.

Table 15

First Impressions: Mean Semantic Differential Evaluative

	Young	Younger Boys		Boys
	M	SD	M	· SD
nLD-nH	4.8a	0.98	4.8a	1.07
nLD-H	4.2b	1.02	5.4a	0.93
LD-nH	4.9a	0.91	4.8a	0.99
LD-H	5.1a	0.90	5.1a	0.87

Ratings for All Groups of Boys

Note. Nonoverlapping superscripts indicate statistically significant pairwise differences between groups at p<.001. <u>n</u> = 105 ratings per child in each group (105 subjects x 1 child in each of 8 groups). Higher scores indicate more favorable ratings.
LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

Table 16

	······			
Source	<u>SS</u>	df	MS	F
LD Groups at H	8.34	1	8.34	
Error	60.66	104	0.58	
LD Groups at nH	0.06	1	0.06	0.10
Error	62.47	104	0.60	
LD Groups at Younger	21.85	1	21.85	35.03 ****
Error	64.88	104	0.62	
LD Groups at Older	4.12	1	4.12	8.43
Error	50.84	104	0.49 ·	
H Groups at LD	10.62	1	10.62	19.66 ****
Error	56.22	104	0.54	
H Groups at nLD	0.02	1	0.02	0.02
Error	68.39	104	0.66	
H Groups at Younger	2.41	1	2.41	5.74
Error	43.64	104	0.42	
H Groups at Older	24.38	1	24.38	28.92 ****
Error	87.70	104	0.84	
Age at LD	0.22	1	0.22	0.29
Error	78.46	104	0.75	
Age at nLD	38.89	1	38.89	57.02 ****
Error	70.92	104	0.68	•
Age at H	37.56	1	37.56	63.09 ****
Error	61.92	104	0.60	
Age at nH	0.13	1	0.13	0.13
Error	101.60	104	0.98	

Summary of Tests of Simple Effects of Two-way Interactions, Semantic Differential Evaluative Ratings

<u>Note</u>. LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

****<u>p</u><.001.

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
LD Groups x H Groups at Younger Error	19.54 65.39	1 104	19.54 0.63	31.09 ****
LD Groups at H. Younger	41.36	1	41.36	68.03 ****
Error	63.24	104	0.61	00100
LD Groups at nH, Younger	0.03	1	0.03	0.05
Error	67.03	104	0.64	
H Groups at LD, Younger	4.12	1	4.12	9.24
Error	46.30	104	0.45	
H Groups at nLD, Younger	17.84	1	17.84	29.57 ****
Error	62.72	104	0.60	
LD Groups x H Groups at Older	1.66	1	1.66	3.19
Error	54.18	104	0.52	
LD Groups at H, Older	5.50	1	5.50	9.95
Error	57.54	104	0.55	
LD Groups at nH, Older	0.28	1	0.28	0.60
Error	47.48	104	0.46	
H Groups at LD, Older	6.66	1	6.66	11.19
Error	61.88	104	0.59	•
H Groups at nLD, Older	19.38	1	19.38	25.20 ****
Error	80.00	104	0.77	
H Groups x Age at LD	0.15	1	0.15	0.30
Error	51.97	104	0.50	•
H Groups x Age at nLD	37.20	1	37.20	52.05 ****
Error	74.33	104	0.71	
LD Groups x Age at H	38.52	1	38.52	66.64 ****
Error	60.12	104	0.58	
Age at LD, H	0.00	1	0.00	0.01
Error	46.96	104	0.45	
Age at nLD, H	76.08	1	76.08	105.39 ****
Error	75.08	104	0.72	
LD Groups x Age at nH	0.25	1	0.25	0.50
Error	52.04	104	0.50	
Age at LD, nH	0.37	1	0.37	0.46
Error	83.47	104	0.80	
Age at not LD, nH	0.01	1	0.01	0.01
Error	70.17	104	0.67	*

Summary of Tests of Simple Simple Effects of the Three-way Interaction, Semantic Differential Evaluative Ratings

Note. LD = Learning Disabled. H = Hyperactive. nLD = non Learning Disabled. nH = non Hyperactive.

**** <u>p</u><.001.





Figure 8.First Impressions of Hyperactive Boys: Simple Simple Effects of the LDGroups x H Groups x Age Interaction, Semantic Differential Evaluative Ratings.Note.SDE = Semantic Differential Evaluative. LD = Learning Disabled.nLD = non Learning Disabled.

* Significant difference between points at p < .001.



HYPERACTIVITY STATUS



* Significant difference between points at p < .001.

difference between H and nH boys who were nLD and older, with the more positive evaluations being given to the H-nLD-older group.

In summary, the prediction that nLD boys would be evaluated more positively than would LD boys was not supported. The significant difference between boys who were LD-H-younger and nLD-H-younger was in the opposite direction to that predicted, namely that LD-H-younger boys were evaluated more positively than were their nLD counterparts. The other results were nonsignificant. Similarly, the prediction that nH boys would be . evaluated more positively than would H boys was not supported. Only boys who were nH-nLD-younger received comparatively more positive ratings. The results for the groups of H- vs. nH-nLD-older boys were in the opposite direction to that predicted, with boys who were H receiving more positive evaluations than those who were nH. No other results were significant. No directional prediction was made regarding the effect of age upon evaluations and the results showed that only one group of older boys received more positive ratings than did younger boys. This occurred with older boys who were nLD and H. There were no other significant group differences. Stated in different terms, boys who were nLD-H-older received the most positive ratings, boys who were nLD-H-younger were given the most negative evaluations and the other groups, who were all given equivalent ratings, fell between these two extremes.

Summary

It was predicted that: (a) LD boys would be evaluated less positively than nLD boys, (b) H boys would be evaluated less positively than would nH boys, and (c) the LD-H group would be given more negative ratings than would the LD-nH group. This pattern was expected to replicate the findings of Bryan et al. for Adaptability and Social Hostility ratings. As well, the pattern for the competing explanation (i.e., LD and H boys rated as "bad" rather than "good") was expected to match that of the two factors investigated by Bryan et al. Table 18 presents a summary of results for the three measures of first

Table 18

Source	<u>Adaptability</u>	Social Hostility	<u>Semantic Differential</u> <u>Evaluative</u>
LD Groups	Δ	Δ	0
H Groups	0	ns	0
Age	Δ	ns	$\check{\Delta}$
LD Groups at H	ns	Δ	0
LD Groups at nH	Δ	ns	ns
LD Groups at Y	ns	Δ	Ο
LD Groups at O	Δ	ns	ns
H Groups at LD	0	Δ	0
H Groups at nLD	ns	ns	ns
H Groups at Y	ns	ns	ns
H Groups at O	0	ns	. 0
Age at LD	Δ	ns	ns
Age at nLD	Δ	0	Δ
Age at H	Δ	ns	Δ
Age at nH	Δ	ns	ns
LD Groups at H, Y	0	Δ	0
LD Groups at H, O	Δ	ns	ns
LD Groups at nH, Y	. Δ	ns	ns
LD Groups at nH, O	ns	ns	ns
H Groups at LD, Y	0	ns	ns
H Groups at LD, O	ns	ns	ns
H Groups at nLD, Y	Δ	0	Δ
H Groups at nLD, O	0	ns	0
Age at LD, H	ns	ns	ns .
Age at LD, nH	Δ	ns	ns
Age at nLD, H	Δ	0	Δ
Age at nLD, nH	ns	ns	ns

Summary of ANOVA Results for All Dependent Measures

Note. A pattern of $\Delta \Delta \Delta$ across a single row indicates perfect agreement across measures for a given factor in the experimental design.

- Δ = statistically significant (p<.05 for main effects, p<.001 for simple and simple effects) in the predicted direction.
- $o = \text{statistically significant } (p<.05 \text{ for main effects, } p<.001 \text{ for simple and simple effects}) in the direction opposite to prediction.}$
- ns = statistically nonsignificant (p<.05 for main effects, p<.001 for simple and simple effects).

LD = Learning Disabled. H = Hyperactive. Y = Younger. O = Older.

nLD = non Learning Disabled. nH = non Hyperactive.

impressions--Adaptability, Social Hostility and Semantic Differential Evaluative ratings. Perfect agreement--i.e., identical symbols across the three first impression measures for a single row--would be consistent with the competing explanation of a single evaluative dimension underlying the data. A lack of perfect agreement would not support the competing explanation, and would indicate that the data cannot be reduced to such a simple common denominator.

It is immediately apparent from the table that there is not a consistent pattern of results across each row. The most important results, due to the LD x H x Age interaction, may be found in the summary of simple simple effects found in the bottom section of the table. When one compares mean scores of each of the eight groups, the most negative ratings were given to nLD-H-younger boys and the most positive ratings to nLD-H-older boys on the Adaptability and Semantic Differential Evaluative scales. On the Social Hostility scale, however, the nLD-H-younger group received the most positive rating. With the exception of the LD-nH-younger children who were rated as negatively as the nLD-H-younger group on Adaptability, all other groups were given equivalent scores which fell midway between the most positive and most negative ratings. This discrepancy in findings is not surprising, when one considers that these scales are not highly correlated (see Table 19). Apparently the data cannot be explained by the competing explanation of "good" vs. "bad" first impressions, but an explanation which accounts for the complexity of the data is necessary. For example, it is possible that each scale measured conceptually unrelated dimensions of the evaluations given the boys. This possibility is further explored in the Discussion section.

Nonverbal Behavior

Data Manipulations

Nonverbal behavioral measures of smiling, gazing, gesturing, selfmanipulation, arm fidgets, leg fidgets and posture shifts (see Appendix I for an example of

Ta	ble	19

Correlations Among Impression Rating Scales

•	
Adaptability	Social Hostility
24 **	
.39 **	55 **
	<u>Adaptability</u> 24 ** .39 **

<u>Note</u>. SDE = Semantic Differential Evaluative Ratings.

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**<u>p</u><.01; one-tailed.

the form used by the coders) were adjusted for time spent speaking and time spent in silence during the interview. The following formulae, as recommended by Duncan & Fiske (1977), were employed to produce adjusted scores termed "extent:"

This was necessary because some nonverbal behaviors are highly correlated with speaking (e.g., gesturing; [Bryan, Sherman, & Fisher, 1980]), and a person who speaks for a longer time may also spend more time gesturing. Thus, separate measures were obtained for the duration and extent of each nonverbal behavior occurring while speaking or silent (as in Bryan, Sherman & Fisher, 1980). The coder's summary sheet for the Behavioral Data may be found in Appendix M. Means and standard deviations for all behaviors are reported in Appendix N. Correlations among all behaviors during speaking only may be found in Table 20 and correlations among all behaviors during silence are reported in Table 21.

An index of "nonverbal involvement" (engaging) behavior was created by summing the mean of the standardized scores for smiling, gazing and gesturing. A similar index for "nonverbal noninvolvement" (nonengaging) behavior was created by summing the mean of the standardized scores for the behaviors of self-manipulation, arm fidgets, leg fidgets and posture shifts (cf. Patterson, 1982).

Hierarchical Multiple Regression Analyses

The prediction that nLD children and children with few H symptoms would show a greater extent of engaging behaviors and a lesser extent of nonengaging behaviors

rable 20	ble 20	
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Correlations Among Behaviors During Speaking 1. 2. 3. 4. 5. 6. 7. 8. 1. Speaking 2. Smiling .74** 3. Gazing 4. Gesturing .42** .23 * .30** 5. Self-manipulation .27 * .32** 6. Arm fidget .34** .27 * 7. Leg fidget .20 * .24* .35** 8. Posture shift .29** .36** .38** .33**

Note. Correlations are based upon the total duration of each behavior during speaking. Only statistically significant coefficients have been reported in this table (n = 70).

*p<.05; one-tailed. **p<.01; one-tailed.



2. 3. 4. 5. 6. 7. 1. 8. 1. Silence 2. Smiling .31** 3. Gazing .86** .29** 4. Gesturing .29** 5. Self-manipulation .73** 6. Arm fidget .64** 7. Leg fidget .32** .49** .40** .27 * .41** 8. Posture shift .36** .22 * .25 * .33**

Note. Correlations are based upon the total duration of each behavior during silence. Only statistically significant coefficients have been reported in this table ($\underline{n} = 70$).

*p<.05; one-tailed. **p<.01; one-tailed.

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Correlations Among Behaviors During Silence

than would LD children was tested via an hierarchical multiple regression/correlation (MRC) analysis (Cohen & Cohen, 1983). Engaging and nonengaging behaviors served as separate dependent (criterion) variables. Independent (predictor) variables were entered into the equation in the following sequence: (a) Age and IQ, (b) LD status (LD vs. nLD), (c) Hyperactivity (Conners ATRS score), (d) Speaking Status (speaking vs. silence), (e) Two-way interactions and (f) Three-way interaction. The rationale for order of entry was demographic variables first; diagnostic status and symptom frequency second, since these were temporally prior to behavioral differences in the experimental context (i.e., speaking vs. silence), and finally the interactions. Continuous hyperactivity symptom scores, rather than H vs. nH categorizations, were used since the number of boys per group ranged from 4 in the LD-H group to 47 in the nLD-nH group. Each entry was assessed through an incremental <u>F</u>-test applied to the change in \underline{R}^2 associated with the entry of a given predictor variable. Variables within each block were assessed via t-tests of the regression coefficient relative to the other variables within that block. As well, the entire set of independent variables was examined via the cumulative \underline{R}^2 following the final entry into the equation. The results of these analyses are reported in terms of partial correlations, changes in R² and incremental F ratios.

For engaging behaviors (see Table 22), with all variables in the equation, $\underline{R}^2 = .29$ ($\underline{F}(3,136) = 4.27$, $\underline{p}<.01$). The statistically significant predictor variables were Hyperactivity (partial $\underline{r}(137) = -.18$, $\underline{p}<.05$), and Speaking Status (partial $\underline{r}(136) = -.20$, $\underline{p}<.01$). Boys who were characterized by lower levels of hyperactivity showed more engaging behaviors than did boys with higher levels of hyperactivity. More engaging behaviors were performed during the speaking condition than the silent condition. There were no significant interactions. There appeared to be a suppressor effect between LD Groups and Hyperactivity. When Hyperactivity was entered into the equation, the correlation between LD Groups and engaging behavior ($\underline{r} = .11$) was weaker than the part

Tab	le	22
140	~~	~~

Independent Variables	Engaging Behavior			
	Partial <u>r</u>	<u>R</u> ² Change	df	<u>F</u> Change
1. LD Groups	.11	.01	1,138	1.81
2. Hyperactivity	18 *	.03	2,137	4.50 *
3. Speaking Status	21 *	.04	3,136	6.21 **
Set			3,136	. 4.27 **

Hierarchical Multiple Regression Analysis: Independent Variables and Engaging Behavior

*<u>p</u><.05. **<u>p</u><.01.

correlation ($\mathbf{r} = .15$). This indicated that when the effects of hyperactivity were partialled out of LD Groups, a stronger relationship between LD Groups and engaging behavior emerged. Hyperactivity showed a suppressor effect upon LD Groups also. As a result, both the variables of LD Groups and Hyperactivity must be considered when assessing the nonengaging behavior of boys with both characteristics.

For nonengaging behavior (see Table 23), with all variables in the equation, $\underline{\mathbf{R}}^2 = .42$ ($\underline{\mathbf{E}}(6,133) = 4.69$, $\underline{\mathbf{p}}<.01$). Age (partial $\underline{\mathbf{r}}(137) = -.18$, $\underline{\mathbf{p}}<.05$) and Speaking Status (partial $\underline{\mathbf{r}}(134) = -.29$, $\underline{\mathbf{p}}<.01$) were significant predictor variables. Older children showed more nonengaging behavior than did younger children. More nonengaging behaviors were performed during speaking rather than the silent condition. There was also a significant interaction of LD Groups x Hyperactivity (partial $\underline{\mathbf{r}}(133) = -.22$, $\underline{\mathbf{p}}<.01$). This interaction is ordinal as shown in Figure 10. The Johnson-Neyman technique (Cohen & Cohen, 1983) determined that the slopes of the two regression lines were significantly different at all levels within the range of hyperactivity scores. There was a suppressor effect between IQ and Age, determined by a weaker correlation between IQ and nonengaging behavior ($\underline{\mathbf{r}} = -.12$) than the part correlation ($\underline{\mathbf{r}} = -.15$) when Age was entered into the equation. The same pattern emerged between Age and nonengaging behavior. Thus, there appeared to be a stronger relationship between IQ and Age than between IQ and nonengaging behavior.

Summary

The hypothesis that boys with LD would show a lesser extent of nonverbal involvement (engaging) behaviors and a greater extent of nonverbal noninvolvement (nonengaging) behaviors was not supported. The hypothesis that boys with fewer symptoms of hyperactivity would show a greater extent of engaging behaviors and a lesser extent of nonengaging behaviors was supported. For engaging behavior, there was a

Table 23

Independent Variables	Nonengaging Behavior			
	Partial <u>r</u>	<u>R</u> ² Change	df	<u>F</u> Change
1. IQ Age	16 18 *	.05	2,137	3.24 *
2. LD Groups	06	· .00	3,136	0.45
3. Hyperactivity	07	.01	4,135	0.75
4. Speaking Status	29 **	.08	5,134	12.30 **
5. LD Groups x Hyperactivity	22 *	.04	6,133	6.68 *
Set .			6,133	4.69 **

Hierarchical Multiple Regression Analysis: Independent Variables and Nonengaging Behavior

*<u>p</u><.05. **<u>p</u><.01.





Figure 10. Nonengaging Behaviors: LD Groups x Hyperactivity Interaction Note. LD = Learning Disabled. nLD = non Learning Disabled.

significant difference between levels of Hyperactivity, with boys who were less hyperactive showing more engaging behaviors than boys who were more hyperactive. Hyperactivity also showed a significant relationship with nonengaging behavior--the LD Status x Hyperactivity interaction was interpreted to show that LD boys showed more nonengaging behaviors as their scores on the Conners increased.

CHAPTER 4

DISCUSSION

The present study was designed to examine how groups of LD and nLD boys are perceived by people who do not know them. Studies involving LD children have been interpreted as suggesting that this population may exhibit social skills deficits that cause them to be disliked more by parents, teachers, peers and strangers, relative to nLD children. However, a recent criticism involving studies of LD children highlights the failure of many researchers to obtain a homogeneous LD sample from a population experiencing diverse academic and social challenges. Some authors have suggested that perhaps a number of hyperactive children have been included inadvertently in LD samples, and that it may be the behavioral characteristics of that group of children which account for social skills differences attributed to all LD children. The present study, therefore, attempted to sample more homogeneous LD and H groups as well as groups showing a combination of the LD and H characteristics. A bimodal distribution of age (i.e., younger and older boys) was also incorporated into the experimental design.

This study examined how groups of older and younger boys, with and without hyperactivity and with and without a learning disability, were perceived by adults who did not know them. It was based upon earlier research conducted by Bryan et al. (Bryan, Bryan, & Sonnefeld, 1982; Bryan & Perlmutter, 1979; Bryan & Sherman, 1980; Perlmutter & Bryan, 1984), who asked undergraduate students to give their impressions, via questionnaire, of LD and nLD boys seen on a silent ("video only") videotape. Unfortunately, there were several limitations in the Bryan et al. work, including: (a) a potentially heterogeneous LD sample, (b) failure to control for possible differences in physical attractiveness between groups, (c) no check to insure that the interviewer's nonverbal behavior was consistent between groups, (d) no statistical controls for potential

carry-over effects or correlated ratings, and (e) a disrupted flow of movement on the videotape seen by raters. The present study attempted to overcome these limitations.

First Impressions - Overview

The results of the present study did not support the prediction that LD boys, relative to nLD boys, would be perceived more negatively by people who did not know them. Although there was a significant LD x H x Age interaction, when the simple simple maineffects were considered for LD vs. nLD boys (Adaptability and Social Hostility ratings), five of eight comparisons did not support the prediction. Positive results included: (a) the younger nLD-H boys were rated as less Socially Hostile, (b) the younger nLD-nH boys were rated as more Adaptable, and (c) the older nLD-H boys were rated as more Adaptable.

As well, the results failed to support the prediction that H boys, compared to nH boys, would be perceived more negatively by strangers. When simple simple main-effects were compared across H vs. nH boys (Adaptability and Social Hostility ratings), seven of eight comparisons did not support the hypothesis. Only younger nLD-nH boys were rated as more Adaptable.

The prediction that LD-H boys would be evaluated more negatively than their LDnH counterparts was also not supported with Adaptability and Social Hostility ratings. None of the simple simple main-effects tests supported the prediction.

Results of the study also did not show support for the expected pattern of older boys receiving more positive Adaptability and Social Hostility ratings (based upon a significant main effect for Age). Six of eight comparisons of simple simple main-effects did not support the pattern. Only LD-nH older boys and nLD-H older boys were rated as more Adaptable.

When the three-way LD x H x Age interaction was probed post-hoc, the results of this study were at variance with those reported in the literature. Joint consideration of the

effects of LD, H and Age caused differences to emerge which were not apparent when these influences upon first impression ratings had been analyzed individually.

A majority of the results of the post hoc tests were either nonsignificant, contrary to prediction or inconsistent between the two factors derived from the questionnaire (i.e., Adaptability and Social Hostility). There are two possible explanations for the inconsistent results found in the present study. First, one may argue that the pattern of results was due to child characteristics--i.e., when the characteristics of learning disability status (LD vs. nLD), hyperactivity status (H vs. nH) and age (younger vs. older) were considered jointly, one or more of the groups were perceived more positively or more negatively than were the others. However, when the ANOVA results for all groups of boys (see Table 18) were examined, the pattern of results showed no clear support for the idea that any group of boys was consistently rated more favorably or less favorably on the two scales. Indeed, when mean scores received by each group of boys on Adaptability and Social Hostility were compared, groups of younger nLD-nH, younger LD-H, older nLD-nH, older LD-H, and older LD-nH boys each received equivalent scores (see Tables 7 and 11). Although groups of older nLD-H boys were rated as more Adaptable, their Social Hostility ratings were not different from the other groups. Similarly, while younger LD-nH boys received more negative Adaptability ratings, their Social Hostility mean scores did not differ from the other groups. Only younger nLD-H boys were given ratings that did not fit this pattern. They were evaluated as less Adaptable but also less Socially Hostile. Thus, it seems reasonable to conclude that no reliable pattern of differences was evident among the children examined in this study.

An alternative explanation for the inconsistent results between the Adaptability and Social Hostility factors is that conceptually unrelated dimensions of first impressions may be measured by each factor of the questionnaire. Support for this explanation may be found in a comparison of the results for each of the two scales across the rows of Table 18. Looking across the 27 rows, only the significant main effect for LD Groups showed a

similar result for the two factors. However, since there were significant two-way and three-way interactions, that result was qualified by the inconsistent relationship between the two factors found later. Table 19 showed that the two factors were negatively and weakly correlated. If the factors of Adaptability and Social Hostility were conceptually related, one would expect that boys evaluated as more Adaptable would also be rated as less Socially Hostile than other boys, and vice versa. As well, a strong negative correlation between the two factors would be expected.

In his factor analysis of the questionnaire used by Bryan et al., Perlmutter (1979) did not include a table of factor loadings. Therefore, the reader is unable to assess the relationship of each item to its corresponding factor. Conceptually, the Social Hostility factor appears to be a measure of poor social skills (i.e., irresponsibility, fickleness, rudeness, unconscientiousness, spitefulness and inconsideration). The Adaptability factor appears to be a measure of outgoing social presence (i.e., gregariousness, talkativeness, courage, energy, curiosity and sociability) and the ability to solve problems (i.e., perseverance, flexibility, planfulness, imagination, originality and adaptability). The items of esthetical sensitivity and emotional stability do not fit either category well. Since the Adaptability factor may be measuring two different aspects of first impressions (perhaps due to Perlmutter's constraint in limiting the number of factors to two), it is possible that a reanalysis of the data, allowing for the emergence of more factors, may have yielded more clearly interpretable results.

Bryan et al. also showed inconsistent results between the Adaptability and Social Hostility factors as well as a failure to replicate their results consistently. For example, Bryan and Sherman (1980; experiment 1) found no significant differences between LD and nLD boys for either Adaptability or Social Hostility ratings by undergraduate students. The Bryan and Sherman report, in experiment 2, indicated that nLD boys were rated by their peers as more Adaptable but that there was no difference in the Social Hostility ratings given to LD and nLD boys. Bryan and Sherman's experiment 3 found nLD boys to be

more Adaptable and less Socially Hostile, using ratings made by mothers. Bryan, Bryan and Sonnefeld (1982) found neither Adaptability nor Social Hostility ratings by undergraduate students to be significantly different between LD and nLD boys. Perlmutter and Bryan (1984) found only that undergraduate students rated nLD boys as more Adaptable--there were no significant differences between LD and nLD boys in terms of Social Hostility ratings. Unfortunately, the authors did not speculate about the reasons for their inconsistent results.

First Impressions - LD and nLD Boys

The results of the present study indicated that LD boys were not evaluated more negatively than nLD boys when H and Age were considered jointly with LD status. Consequently, the results are at variance with those reported in the literature--specifically, the findings of Bryan et al. One of the reasons for the discrepant results may be found in the focus with which each study presented its findings. Bryan et al., for example, obtained a significant main effect for LD Groups for Adaptability ratings in several of their experiments (i.e., Bryan & Perlmutter [1979], Bryan & Sherman [1980; experiments 2 & 3], Perlmutter & Bryan [1984; experiment 2]), suggesting that nLD boys were rated as significantly more Adaptable than were LD boys. Bryan and Sherman (1980; experiment 3) found a significant main effect for LD Groups for Social Hostility ratings and interpreted this finding as showing that nLD boys were perceived to be less Socially Hostile than LD boys. The present study found a significant main effect for LD Groups for Adaptability and Social Hostility ratings, indicating that the results of Bryan et al. had been replicated. However, the present study also detected significant two-way and three-way interactions which qualified the interpretation of the main effects. When the post hoc tests of the threeway interaction in this study were interpreted, no group was consistently rated more positively or more negatively on both factors. Bryan et al. also reported significant twoway interactions which were probed post hoc. Unfortunately, a direct comparison between

the Bryan et al. work and this study regarding interactions involving LD boys is not possible due to differences in research design.

The present study was not a direct replication of the Bryan and Sherman (1980) work but sought to enhance its strengths and improve upon its weaknesses. Therefore, there were a number of differences in the experimental designs of the two studies. First, a statistically significant independent variable chosen by Bryan and Sherman, of Child Instruction (ingratiate vs. act naturally), did not apply to this study. Second, although both male and female undergraduate raters were employed in the Bryan and Sherman work and this study, the present work found no significant differences between the groups of raters in preliminary analyses (and thus Rater Sex was not included in the factorial design) whereas the Bryan and Sherman study found that females rated all children more positively. Third, a major criticism of the Bryan and Sherman (1980) work was that of their heterogeneous LD sample. In attempting to determine whether a subgroup of the LD population--H boys--may have accounted for the Bryan et al. findings, the present study included H and nH boys in its factorial design. Fourth, a further difference in the factorial design concerned the division of boys in the present study into older (mean age = 127.75months) and younger (mean age = 104.25 months) groups. Bryan and Sherman employed boys whose ages were similar (mean age = 119.8 months) to the boys who served as stimulus children in the present study, but did not indicate whether their age distribution may have been bimodal. Thus, no effect of the ages of the LD boys were examined in the Bryan et al. work. Fifth, all boys were equivalent on ratings of physical attractiveness in the present study, whereas Bryan and Sherman did not assess whether boys employed in their study were equivalent on this variable. Sixth, in the present study the IQ scores of all boys fell within a restricted average and high average range of 30 points (estimated IQ = 90-119). Bryan and Sherman reported only that each child's IQ, as determined by the school district, was "normal." Seventh, although the videotaped interaction seen by raters in each study showed a boy speaking with an off-camera adult for 2 min, the presentation format

was different. The Bryan and Sherman videotapes showed a camera focus of the child's face and body or the child's face only (alternating every 20 sec). The presence of the interviewer (a 20-sec segment, occurring once each min) had been edited from the videotape. In contrast, the camera focus of the present study was a face and body view of the child and was not interrupted during the entire 2-min segment. The present study instructed the interviewer to follow a script of verbal and nonverbal behavior and three checks of the reliability of her responses were made after training was completed. Eighth, another major difference between the present study and the Bryan and Sherman (1980) work concerns the process by which ratings were made. Bryan and Sherman individually tested 20 male and 20 female undergraduates who viewed five boys (the investigators did not report whether the boys were from the same or different experimental groups). In the present study, ratings were given by 30 male and 80 female undergraduates, tested in three groups. Each subject viewed the same eight boys--i.e., one child from each experimental group. Ninth, the present study employed a repeated measures Analysis of Variance to control for potential carry-over effects between the ratings of each subject. Bryan et al. had no such control in their analysis.

In summary, there are at least nine major differences between the Bryan et al. work and the present study. Any one of these, or a combination of them, may account for the difference in results between the two studies. The present study, since it followed a more stringent experimental design, would appear to be less subject to many of the above validity threats as compared to the Bryan et al. work.

First Impressions - H and nH Boys

As a result of the major criticism regarding LD research today (i.e., heterogeneity within LD samples), the present study sought to assess whether the results obtained by Bryan et al. may have been due to the presence of hyperactive children in their LD sample. According to Flicek and Landau (1985) and Bruck and Hébert (1982), many of the social
difficulties attributed to samples of LD children may be significantly influenced by the H children presumed to be present in those samples. For example, Flicek and Landau (1985) found that LD and LD-H boys had more difficulties with peer relationships than did nonproblem boys. However, the LD-H group was even less popular and more rejected than the LD-nH group. This indicates that a failure to differentiate LD-H from LD-nH boys may lead to erroneous conclusions about the social skills of the LD population. Therefore, an important difference between the present study and much of the earlier research concerning LD boys was the comparison between LD-H and LD-nH groups of boys. The present study, however, failed to show that the LD-H group was evaluated more negatively than the LD-nH group. These results differ from those in the literature, which are based upon teacher and parent ratings of peer relationships. The results also suggest that the alleged serious limitation of Bryan et al., in not identifying a hyperactive component within their LD sample, may not have been as serious as expected. An unfortunate limitation of this study, as well, was the inclusion of a heterogeneous LD sample. Thus, results of the present study did not allow conclusions about specific LD groups to be drawn.

The results of this study indicated that H boys were not evaluated more negatively than were nH boys when LD and Age were considered jointly with H status. Therefore, these findings were not consistent with earlier research (e.g., Campbell & Paulauskas, 1979; Mash & Johnston, 1982; Pelham & Bender, 1982) which suggested that H children are evaluated less positively than are nH children. The present work found no consistent pattern between Adaptability and Social Hostility ratings for any groups of H boys. In addition to the reasons stated above, this discrepancy in findings may be due to the population of persons (i.e., parents, teachers, peers) usually asked to give their impressions of H children. To this writer's knowledge, no researcher has asked strangers to give their first impressions of H children seen on a silent videotape (recall that Bryan et al. focused on a global LD category). Therefore, the literature regarding the impressions formed of H boys is based upon ratings of people who know these children and interact with them for several hours each day (e.g., at home and at school). It is possible that, when viewed on videotape and for a relatively brief duration, H children appear comparatively more energetic due to their increased motor activity and thus strangers evaluate them positively. The negative evaluations given by parents, teachers and peers may result from the strain of coping with overactive behavior on a continuous basis.

Another possible explanation for the inconsistent results is related to heterogeneity within the population of hyperactive boys--i.e., boys may be hyperactive only (H), aggressive only (A), or aggressive and hyperactive (AH). Hinshaw (1987) has reviewed the literature on externalizing behaviors in childhood, referred to as "hyperactivity" in a majority of studies, and has explained that recent authors have attempted to separate the correlated factors of hyperactivity (motoric restlessness and attentional deficits) from conduct disorder (aggression and antisocial behavior). Milich and Landau (cited in Hinshaw, 1987) found that although AH children were rejected by peers, an A group was unique in receiving a large number of "liked" nominations, suggesting that this group of children possess social skills not shared by H children. It is possible, therefore, that the existing literature and the present study sampled different subgroups of the population of H boys and that the present results were based upon H boys who possessed the social skills necessary to create a first impression similar to, or even more positive than, that of the nH group.

First Impressions - Older and Younger Boys

The procedure used in the present study to select boys for the stimulus videotapes resulted in a bimodal distribution of age. The pattern of results for the main effect of age and simple effects of the two-way interactions (LD x Age, H x Age) for Adaptability ratings showed a strong pattern of older boys (mean age = 127.75 months) receiving more positive ratings than younger boys (mean age = 104.25 months). When the LD x H x Age

interaction was probed, however, the same pattern of inconsistent results between Adaptability and Social Hostility ratings, reviewed above, was evident here.

To this writer's knowledge, only one study has compared the ratings given to older and younger children. Bryan, Bryan and Sonnefeld (1982) compared second-grade and fourth-grade LD and nLD boys. Although they interpreted their Group x Grade interaction to show that second-grade LD boys were rated as more Adaptable and less Socially Hostile than their nLD counterparts, their data warrants only the conclusion that children's group status has a differential effect on judges depending upon grade level. Statistically significant post hoc differences between LD and nLD boys are possible only if a significant main effect for LD status was obtained. This was not the case (cf. Dudley-Marling & Edmiaston, 1985). Thus, the present study cannot be compared to any existing literature which may explain the differential age effect.

Competing Explanation

It may have been possible that the factors of <u>Adaptability</u> and <u>Social Hostility</u>, named by Perlmutter (1979) do not reflect actual perceptions by the rater that a child is Adaptable or Socially Hostile, but that he is simply liked or disliked by the rater. However, the present results did not support this competing hypothesis that there is only one factor (an evaluative "good" vs. "bad" dimension) which may account for the results reported by Bryan et al. Since inconsistent patterns of results were observed across the two factors of the Bryan et al. scale and the SDE scale, the alternative explanation of a common evaluative underlying influence as the primary determinant of evaluations of children was not supported. In fact, since the pattern of results of the SDE did not match either the Adaptability or Social Hostility factor results, one may conclude that each of the three scales is measuring a different aspect of the phenomenon of how first impressions are formed. It is not certain what these scales do measure and the relationship between them. There is a need for more research. For example, one common method of establishing the

psychometric properties of an instrument with unknown reliability and validity is to administer it in conjunction with instruments whose psychometric properties are wellfounded. The data could then be reduced via a principal components factor analysis, which would allow an investigator to match the new questionnaire items to items from the instrument known to measure different aspects of first impressions. The questionnaires could then be used to assess first impressions made by groups of children experiencing academic and/or social difficulties and those results could be interpreted with confidence.

Nonverbal Behavior

Bryan and Perlmutter (1979) found that LD children received the most positive ratings in their "audio only" condition (i.e., when subjects were unable to see their behavior) and that relatively negative ratings were given to LD children in the "video only" and "video + audio" condition. They interpreted this as evidence that it is the nonverbal behavior of LD children that causes others to evaluate them negatively. In subsequent research, Bryan and Sherman (1980) attempted to support this interpretation by correlating nonverbal behaviors of smiling and gazing with Adaptability and Social Hostility ratings and found moderately positive correlations. Bryan, Sherman and Fisher (1980) attempted to find differences in smiling, gazing, gesturing and body manipulations between LD and nLD boys, but found no support for any nonverbal behavior showing a difference between the groups. The present study examined engaging (smiling, gazing and gesturing) behaviors and nonengaging (self-manipulation, arm fidgeting, leg fidgeting and posture shifts) behaviors identified as important in conveying interest and involvement in interaction with others (e.g., Patterson, 1982).

The results of the present study did not support the prediction that nLD boys would show a greater extent of nonverbal involvement (engaging) behaviors and a lesser extent of nonverbal noninvolvement (nonengaging) behaviors than would LD boys. Instead, for both engaging and nonengaging behaviors, hyperactivity was related importantly to

nonverbal behavior. Boys who displayed lower levels of H behavior also showed more engaging behaviors (i.e., smiling, gazing, gesturing) than boys who displayed higher levels of hyperactivity. However, LD Groups and H scores were correlated positively and LD Groups and H showed a suppressor effect (i.e., there was a stronger relationship between LD and H than between either LD and engaging behavior or H and engaging behavior). In addition, there was an LD Groups x Hyperactivity interaction for nonengaging behavior (i.e., self-manipulation, fidgeting, posture shifts). Therefore, it would not be possible to address the question of differing nonverbal behavior between LD and nLD boys in isolation from their H symptoms. Unfortunately, in this study, the distribution of the combinations of LD and H boys was asymmetrical and there were not sufficient numbers of children in each group to yield a clear picture of the joint effects of LD and H on nonverbal behavior. The results of the study did show, however, that nLD boys showed virtually no increase in nonengaging behavior as the number of H behaviors they displayed increased. In contrast, LD boys who showed no H behaviors exhibited more nonengaging behaviors than nLD boys who showed no H behaviors. It appeared then, that LD boys showed less positive nonverbal behaviors than did nLD boys even when neither group was considered H. As LD boys showed more H symptoms, their nonengaging behavior also increased.

The negative nonverbal behaviors exhibited by nLD boys did not change significantly as their frequency of H symptoms increased. In contrast, as LD boys exhibited more H symptoms, their negative nonverbal behaviors increased sharply from those of LD-nH boys. Thus, it would appear that LD and nLD boys presented themselves differently when conversing with an adult. Boys who were nLD, no matter how many H symptoms they displayed, showed approximately the same extent of nonengaging behavior. LD boys, as their symptoms of hyperactivity increased, showed an increase in restless and fidgeting behavior. Unfortunately, as outlined in Appendix A, the design of the present research did not allow the results of the nonverbal behavior data to be compared directly with the first impression results on an individual-by-individual basis.

The results of the present study cannot be compared directly with any previous work. Raskind, Drew and Regan (1983) employed body and facial "stills" rather than a moving videotape. Bryan and Sherman (1980) correlated smiling and gazing behavior with Adaptability and Social Hostility ratings. Bryan, Sherman and Fisher (1980) analyzed four separate nonverbal behaviors for differences between LD and nLD boys who were acting naturally or attempting to ingratiate the interviewer and found no differences between LD and nLD groups. Therefore, the results of this study require replication.

Limitations of the Present Study

Although the present study was designed to improve upon the weaknesses of the Bryan et al. work, it also had several limitations which must be taken into consideration in interpreting the results. First, LD children were selected on the basis of a teacher report that the child was receiving resource room help and required remediation in both math and language arts. No data regarding the children's scores on the assessment tools for the diagnosis of a learning disability were available. Although there were no hyperactive boys in the LD-nH sample, the LD group may have been heterogeneous with respect to other dimensions. Given the wide range of specific learning disabilities, it is likely that groups were heterogeneous. For example, different results may have been found with a more homogeneous LD group (i.e., not hyperactive, reading difficulties only and whose scores on the Wechsler Intelligence Scale for Children-Revised [WISC-R] showed performance IQ scores to be at least 15 points higher than verbal IQ scores). In fact, Landau, Milich and McFarland (1987) chose LD subgroups on the basis of their WISC-R scores--a group whose Verbal IQ exceeded their Performance IQ by at least 15 points (V>P), a group whose Performance IQ exceeded their Verbal IQ by at least 15 points (P>V), and a group whose Verbal and Performance IQ's were equivalent (P=V). The authors concluded that

although all three subgroups were unpopular relative to nonproblem boys, the P>V group was perceived as shy and withdrawn while the P=V group was perceived as aggressive. This indicates that not all LD boys are equivalent in terms of social problems and negative peer reputation. Future studies must select LD children who show several homogeneous characteristics.

A second limitation of this study concerns the generalizability of results. It is possible that idiosyncrasies emerged as a result of the selection of boys who were equivalent on some variables and different on others. Only a limited number of children were available after selection procedures were employed, resulting in one child representing each of eight groups, although there were at least four boys in each category of LD, nLD, H and nH. One possibility is that differences in the TV show described by each boy may have resulted in differences in nonverbal behavior. For example, perhaps the LD-H younger boy described an action TV show illustrated with many gestures, whereas the nLD H younger boy described a TV documentary and used few gestures. Thus, the raters may have responded to differences based upon the content of the interview rather than to differences based upon the usual manner with which groups of boys present themselves. Therefore, a serious limitation of the present study is the possibility that raters responded to individual differences of each boy, independent of their LD or H characteristics. Ratings of several children in each group would have yielded more confidence in the reliability of the results, since one child's idiosyncrasies would have been mitigated by the other children from the same group.

Additionally, impression ratings were given by students whose predominant interest was in the helping professions (i.e. university major in psychology, nursing or social work). Bryan et al. also employed undergraduate psychology students in their research regarding first impressions. However, it is possible that students who are attracted to the areas of study mentioned above may have rated children differently than, for

example, engineers or business students. Thus, the generalizability of the present study is limited by the sample of raters employed.

Third, it was not possible to account for differences in first impression ratings as a function of differing nonverbal behaviors (see Appendix A). Another study could involve an equivalent number of boys (e.g., $\underline{n} = 20$) in each of the groups selected and obtain first impression ratings and behavioral data from each child during the entire interview. This would allow the researcher to test the hypothesis that nonverbal behaviors are related importantly to first impression ratings. As well, an increased number of children in each group would allow an analysis of the differences in specific nonverbal behaviors (i.e., smiling, posture shifts) as well as the more global measures of engaging and nonengaging behaviors.

Future Research

Future research involving the social perception of LD children should be directed towards examining how different subgroups within this heterogeneous population impact upon people who are unaware that the children experience this difficulty. It would be imperative for the researcher to select children who may be differentiated on the basis of sex, type of academic difficulty, pattern of intellectual strengths and weaknesses, age and H symptoms. Children must be equivalent in race, IQ and physical attractiveness. A rating form, whose psychometric properties are well-documented, would be employed as the dependent measure of how these children are perceived. Groups should have equal numbers (e.g., n = 20) to increase statistical power and to overcome any idiosyncrasies characteristic of one member. The interview task and the coding of behavioral data would be similar to that employed in the present study. The data could then be examined to investigate how different subgroups of LD children are perceived by others and the relationship between specific nonverbal behaviors and first impressions.

Another important area of research would be the examination of the nonverbal behaviors of LD and nLD children, as they relate to the child's instructional life. For example, videotapes could be shown to regular classroom teachers and resource room teachers. Their impressions of the different groups of children would then be analyzed to assess whether combinations of LD and H children are evaluated differently. The relationship between first impressions and specific nonverbal behaviors could also be investigated.

As well, specific nonverbal behaviors of LD and H children should be investigated in structured situations (e.g., teacher explaining and supervising an assignment) and unstructured situations (e.g., playing with a peer). This could be accomplished by videotaping the children's interactions through a one-way mirror and later coding the behavioral data. This would yield valuable information about differences in nonverbal behavior within situations experienced by the child in daily life.

<u>Clinical Implications</u>

The work of Bryan et al. has been cited widely in the LD literature however, no published work has attempted to replicate the findings of these investigators. Thus, the conclusions of Bryan et al. (i.e., that LD children are evaluated more negatively than are nLD children and that these negative impressions result from deficits in the nonverbal social skills of LD children) appear to have been accepted by researchers and many people involved with LD children.

The present study attempted to improve upon the methodological shortcomings of Bryan et al. and failed to replicate their results. This study demonstrated that when children's characteristics of presence or absence of LD and/or H are considered in older and younger boys, no group is consistently rated more positively or more negatively than is any other. As well, the present study showed that the nonverbal behavior of LD children cannot be considered apart from their symptoms of hyperactivity. Therefore, research reports concerning LD children must be read carefully to assess the homogeneity of the LD sample and to assess whether results may be generalized to the entire LD population.

In addition, readers must also assure themselves that the dependent measure is valid and reliable. The present study suggested that there were factors present in the rating scale (other than Adaptability and Social Hostility) which may have given more clearly interpretable results. It is important that the psychometric properties of research instruments be clearly stated, as well as decision criteria leading to the inclusion of items in, and the naming of, factors.

It is especially important that professionals involved with children who experience academic and social challenges adhere to a scientific approach to teaching and case management. That is, when practitioners read the literature concerning their population of interest (e.g., LD children), they must consider the "fit" between research findings and their observations of children. For example, a practitioner who followed the interpretations of Bryan et al., without considering their methodological limitations, may have spent a great deal of time and energy designing a program to remediate the nonverbal social skills of LD children when possibly the nonverbal behaviors of LD children are not directly linked to others' first impressions of them. It is also possible that some children within the LD population do not require remediation of their social skills but need training and practice in the appropriate use of an existing repertoire. Instead, a better approach would appear to be to choose children with known difficulties in social interactions, to assess which of their verbal and nonverbal behaviors differ from children who have positive social interactions, and then to design and implement a remediation program.

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APPENDIX A

CHANGES IN THE RESEARCH DESIGN

The research proposal for this study anticipated an equal number of boys ($\underline{n}=24$) in each of three experimental groups--LD-nH, LD-H and nLD-nH. The planned procedure was to assign randomly a sample of 288 undergraduate adults to rate one child from one of the three diagnostic groups. Subjects would participate in groups of four; however their ratings would be made independently. The remainder of the procedure followed that outlined in the Method section of this thesis. This plan would have allowed a test of the hypothesis that comparatively more positive first impression ratings would be given to those boys exhibiting a greater extent of nonverbal involvement behaviors and a lesser extent of nonverbal noninvolvement behaviors. An hierarchical multiple regression analysis was planned to assess whether diagnostic status added any significant increment in variance accounted for after nonverbal behavior had been assessed.

Permission for approval to implement the study was requested from the City of Calgary Public School Division . However, they were unable to cooperate due to their own ongoing research which required the participation of LD children. The City of Calgary Separate School Division granted approval for this researcher to approach school principals for permission to implement the study. Three schools who provided resource room instruction agreed to cooperate. The Rockyview School Division also granted approval for this researcher to request permission to implement the study from three Airdrie, Alberta school principals, and cooperation was gained from two schools. The Foothills School Division (i.e., High River, Alberta and area) and the Lethbridge Public School Division were also approached for approval to implement the study but denied their consent.

Letters explaining the study and requesting parental consent were sent home with approximately 412 boys in five schools (31 classrooms). There were 166 parental consents received. Boys in one classroom at one school (\underline{n} =12) were used in interviewer training and therefore were not included in the sample described in the thesis. Videotaped interviews were conducted with 86 boys. Reasons for attrition of 80 boys were as follows:

a) not naive = 5 boys

b) estimated IQ > 119 = 27 boys

c) estimated IQ < 90 = 5 boys

d) not Caucasian = 3 boys

e) moved away = 4 boys

f) used in interviewer training and reliability checks = 15 boys

g) not available for videotaping = 15 boys

h) consent form received too late = 6 boys

Due to technical problems while videotaping and the duration of some interviews being shorter than 3 min, a further 10 videotapes were unable to be used for data analysis. The breakdown of videotapes by diagnostic group for the final sample was as follows:

nLD-nH = 47 boys nLD-H = 7 boys LD-nH = 12 boys LD-H = 4 boys

Seven months were required to obtain this skewed distribution, and available resources for possible participation of additional children were exhausted. Therefore a revised data analysis procedure was developed which allowed a modified test of the hypotheses. The revised plan has been outlined in the text of the thesis.

APPENDIX B

REQUEST FOR PARTICIPATION OF ADULT RATERS

(After the researcher is introduced by the instructor...)

Thank you, ______, for giving me this opportunity to speak to your class today.

As part of the graduate studies program in Psychology, students have an opportunity to design and carry out a research project. Today I'd like to describe my study, and then give you an opportunity to learn more about research by volunteering to participate as subjects in this project.

The focus of my study is elementary school-aged boys, and how they are perceived by people who don't know them. If you decide that you'd like to participate in this research project, you'll be asked to watch eight videotaped segments of boys being interviewed about their favorite movies and TV shows by an off-camera person. After each videotaped segment has been viewed, you'll be asked to complete two short questionnaires, giving your impressions of the child you have seen. Your data will contribute to our knowledge of how children create a first impression. After the data have been collected today, I'll talk briefly about my research project and answer questions. The explanations and data collection will take up this class time, which is 50 minutes. Are there any questions?

I hope that you will stay and participate in this study. Participation is voluntary, so if you decide that you don't want to participate, you are free to leave right now. For those who decide to stay, I'll pass out the data packets and give you instructions shortly.

LETTER TO PARENTS

February 1, 1986

Dear Parents/Guardians,

A research study of how boys behave when they converse with an adult whom they do not know is being conducted by myself as part of my graduate thesis research in the Department of Psychology at the University of Calgary. The study involves children being videotaped for approximately 3 minutes by a hidden camera while they are talking about their favorite television programs. In order that the children act naturally during the conversation, it is important that they do not know that they are being taped. They will be informed about the videotape when the experiment has been completed. As well, the children will be told that you were aware of the nature of the study, and gave permission for your child's participation. They will also be informed that you were asked by the researcher to withhold details of the study, and that you knew that the children would be given the right to refuse consent to their participation. For any child who does refuse consent, his videotape will be erased in his presence. The videotapes will then be viewed, without sound, by volunteer university students who will complete rating forms about their impressions of the children they see. They will answer questions such as how happy the children seem to be, how curious they are, how attractive they are, and how much they like to talk and to be around people. Later, the videotapes will be used to examine some of the children's behaviors such as smiling, looking at the other person, and body movements.

The study is designed to look at different groups of boys as they interact with an adult. Therefore we will need some background information regarding each child. If you consent to your child's participation, I will ask the school to inform me whether he is considered to have a learning problem and is receiving "resource room" help. In addition, I will ask his teacher to complete a short questionnaire concerning his classroom behavior such as restlessness and attention span. Finally, I will give your child a short (15 minute) test of verbal intelligence in order to compare the impression ratings he receives with those of other children who have the same level of verbal skill. This test and the videotaping will be completed at your child's school, at a time of the day when it will least likely interfere with his school work. The total amount of time I am asking of your child is approximately 30 minutes, divided into three separate sessions.

Let me assure you that no one other than the research team will have access to any of this information. No one who views the videotape will be given any information about any child. There is a possibility, however, that a university student may recognize your child. Participating students will be asked if they know the child they have seen on videotape, and, if so, will be excluded from further participation in the study. Thus, even if your child is recognized, the student will not be able to associate your child with any specific psychological issue. All information obtained for the study will be reported in group form, and all videotapes will be erased at the conclusion of the study. When the study has been completed, we will send you a letter describing the results.

If you agree to allow your child to participate, please complete the attached consent form with your child's full name at the top, and your signature, name, address, telephone number and the date at the bottom. Seal the form in the envelope provided, and have your child return it to his teacher within 5 school days. It is extremely important that you do not discuss the details of this project with your child even if you do not want him to participate since his classmates may be involved in the project. Please destroy this letter, or keep it in a place where your child will not be able to find it. If you have any questions, please contact me at: 220-5093 or 220-5561 (University of Calgary), or 239-7876 (home).

Thank you for your help in this research.

Sincerely,

Patricia Gregory MSc Candidate

G. M. Devins, PhD Associate Professor and Thesis Supervisor

CONSENT FORM - PARENTS

I consent to the participation of my child, _______, in a research study of how boys behave when they are conversing with an adult whom they do not know. I understand that my child will be videotaped by a hidden camera without his knowledge, but that he will be told about the videotape after the experiment is finished. My child will also be told at that time that I consented to his participation in the study, but that I was also aware that he would also be given consent rights. The videotape will be erased if my child objects to it. I also understand that the videotape will be seen by volunteer students at the University of Calgary and that this may involve a possibility that my child will be recognized. The videotape will be erased when the study has been completed.

I understand that in consenting to my child's participation in this project, the school will be requested to provide information about whether or not my child has a learning problem, my child's teacher will be requested to complete a short questionnaire about his classroom behavior, and the researcher will give my child a brief test of verbal ability. I understand that only the researcher will have access to this information.

Finally, I understand that I may withdraw my child from the study at any time. Knowing these things, I agree to permit my child to participate

Signature of Parent/Guardian
,
Please print your name
Adaman
Address
Telephone number
Date

TEACHER QUESTIONNAIRE

Is this child in a resource room? Yes No Which subject presents difficulty? LA Math Other

Comments:

APPENDIX E

INTERVIEWER'S SCRIPT

Interviewer stands on left side of chair as child enters room. Researcher introduces child to interviewer and interviewer to child. Researcher points to child's chair and invites him to be seated. As researcher leaves the room, interviewer seats herself so she directly faces the child and then moves slightly so that she is facing approximately 15° to the right. Interviewer's arms clasp a clipboard holding the script. The clipboard is held on the interviewer's lap. A stopwatch is hidden in her left hand.

- Start Click stopwatch on
 - Look directly at the child

- Smile

- What's your favorite movie, -?

Gazing - Look directly at child for 30 sec.

- Look down for 5 sec.

- Start at sec 00:00.

Smiling - Smile every 15 sec. - Smiles last 5 sec.

- Start at sec 00:00.

Gesturing - Nod head every 5 sec.

- Nod lasts 1 sec.
- Start at sec 00:10.

Posture shift - Move to face child directly after 1 min. - Move 15 to left after 1 min.

Speaking (Note that questions are to be asked in this order. Ask questions only if the child

has finished speaking and requires direction from you to continue speaking).

What's your favorite movie, <u>(child's name)</u>? (Start at sec 00:00)

Tell me all about it.

Um hmmm (every 20 sec, as appropriate).

Tell me about the characters.

What's your favorite TV show?

Tell me all about it.

Tell me about the characters.

What's your second favorite movie?

Tell me all about it.

Tell me about the characters.

What's your second favorite TV show?

Tell me all about it.

Tell me about the characters.

What's your favorite cartoon?

Tell me all about it.

Tell me about the characters.

APPENDIX F

DEBRIEFING TEXT FOR BOYS

(name of child), do you remember that last week I asked you to come to a room and to talk with a lady about your favorite TV shows? Well, today I want to explain exactly why I asked you to do that.

You may remember that I said that I was interested in knowing how well this lady talked with kids. Well, that wasn't exactly what I was interested in. What I really wanted to know was how kids talk with someone they have never met before. So, that's why I needed you and other boys from this school and other schools to talk with this lady.

(name of child), I want to be sure that you understand what I've just explained to you. Just to make sure, can you tell me in your own words why I asked you to talk to the lady? O.K., so I was interested in how kids talk with someone they don't know.

Do you remember the big box that was in the room when you were talking with the lady? Do you have any idea why it was there? Actually, there was a camera and a videotape recorder in the box. While you were talking with the lady, I was videotaping you to record what you said and how you moved around. Do you know what a videorecorder is? Can you tell me? Do you have one at home? A videorecorder records pictures and sounds, and makes a tape like a movie. Then the tape can played by a machine that will put the pictures on a television screen.

So, now you know that I have a videotape of you while you were sitting down and talking to someone. Your mother/parents and teachers knew all along that I was going to do this, and gave me permission to make this tape of you. I also asked them not to tell you about the camera because I wanted you to just be yourself with the lady and not to think

about the camera. Your parents wanted to help me, and that is why they couldn't tell you what was really going on. They knew that I would tell you all about what was really happening a few days after you had talked to the lady. Is that O.K? If you want to, you may tell your parents that you know now, and you can talk to them about it. Do you have any questions that you want to ask me so far? Can you tell me in your own words what I just explained to you about why your parents couldn't tell you about the camera? They couldn't tell you because I asked them not to, they were helping me, and they knew that I would tell you later.

What I would like to do, is to take the tapes that I have of you and some other children, and show them to some students like myself at the university. They will watch the tape with the sound off, so they will see you on the television, but they won't be able to hear you. Then I am going to ask these students to answer some questions about how much you like to talk, how happy you are, how much you like to be around people, and so on. I also want you to know that after I show the tape to the students, I will ask if anybody knows you. If anyone does, they won't be asked any questions about you.

Now, I realize that even though your parents and teachers said that it was O.K. for me to make this videotape and to show it to university students, you might not have wanted me to. I would like to use the tape, but if you don't want me to do that, I will erase it right now. Do you have any questions? Can you tell me in your own words what I just told you about letting me keep the tape? Would it be O.K. for me to use the tape? All the tapes are going to be erased after I am finished with the university students.

(If child objects, tape will be erased).

(If child consents):

Since it is O.K. with you for me to use the tape, would you please sign this paper that says you agree? I'll read it out loud, and show you where to sign, O.K?

Do you have any questions before you leave?

Thank you for helping me with this project. The questions about things that you learn in

school that I asked the first time that I met you were to tell me about how you think and to get you used to talking with someone that you had never met before. I want to tell you again that I'm the only person that knows how you did on that test, and I won't tell your parents or anyone at the school. The people that see the videotape of you won't be told either.

CONSENT FORM - BOYS

I give permission to Patricia Gregory to keep the videotape that was made of me on ________. I understand that some university students will see this videotape, and that there is a chance that someone might recognize me. I also understand that the videotape will be erased when the study is finished.

Signature of Child _____

Please print your name

Witness ____

Date _

APPENDIX G

ATTRACTIVENESS RATING SCALE

INSTRUCTIONS: On the next page, you will find a set of two descriptive words in the format seen below. Circle the number between the two descriptions which indicates your judgement of the child you have just seen. For example, if you believe that the child is extremely noisy, circle 1;

	noisy	(1)	2	3	4	5	6	7	quiet
If you believe the child is quite noisy, circle 2;									
	noisy	1	2	3	4	5	6	7	quiet
TC	.1 1 •1 1	• • • •							·
If you believe	e the child	is slight	ly noisy	y, circle	3;				
	noisy	1	2	3	4	5	6	7	quiet
							-		
If the child seems neither noisy nor quiet, circle 4;									
	noisy	1	2	3	4	5	6	7	quiet

Following the same format, 5 = slightly quiet, 6 = quite quiet, and 7 = extremely quiet.

Subject No. _____

Child No.

1 = extremely "X"

2 = quite "X"

3 =slightly "X"

4 = neutral; equally "X" and "Y"

"X"

5 = slightly "Y"

6 = quite "Y"

7 = extremely "Y"

physically physically physically attractive 1 2 3 4 5 6 7 unattractive

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"Y"

APPENDIX H

CONSENT FORM - STUDENTS

I, _____, consent to participate in a research study of how boys behave when they are conversing with an adult whom they do not know. I understand that I will be asked to give my first impressions of a child seen on a silent videotape by completing rating scales about various characteristics of the child.

I further understand that my participation is voluntary and that I may withdraw from the study at any time without penalty.

Signature _____

Witness _____

Date _____

BACKGROUND INFORMATION

Subject No			
Sex M	F	-	
Age			
Marital status	Never married	Married	Widowed
	—— Separated	Divorced	
Do you have chi	ldren? Yes	No	
Ages of Children	n		
What is your rel	igious background?	•	·
What is your cou	antry of birth?		
What is your uni	versity major?		<u></u>
Number of years	s post-secondary education .		
What is your pre	sent occupation?	·····	

What is your annual income?

(Please indicate annual family income if you

reside with parent (s) or with a spouse)

- _____ Under \$5,000
- _____ \$5,000 \$9,999
- _____ \$10,000 \$14,999
- _____ \$15,000 \$19,999
- _____ \$20,000 \$24,999
- _____ \$25,000 \$29,999
- _____ \$30,000 \$34,999
- _____ \$35,000 \$39,999
- _____ \$40,000 \$44,999
- _____ \$45,000 \$49,999

_____ Over \$50,000

IMPRESSION RATING SCALE ONE

Subject No. _____

Child No.

1) DEGREE OF PERSEVERANCE

(A PERSEVERING person is one who shows continued, patient effort in spite of

difficulties)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
mgn	mgn	mgn	10W	IOW	low

2) DEGREE OF IRRESPONSIBILITY

(An IRRESPONSIBLE person is one who is unreliable, undependable, and untrustworthy)

1	2	3	4	. 5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

3) DEGREE OF RIGIDITY

(A RIGID person is one who is inflexible, stubborn, and set in one's opinion)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
mgn	nıgn	nign	low	, IOM	low

4) DEGREE OF GREGARIOUSNESS

(A GREGARIOUS person is one who is sociable, and likes to be with others)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low
5) DEGREE OF PLANFULNESS

(A PLANFUL person is one who is purposeful, and forms a scheme for doing things

beforehand)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

6) DEGREE OF FICKLENESS

(A FICKLE person is one who changes one's mind abruptly without apparent reason)

2	3	4	5	6
very high	moderately high	moderately	very low	extremely
	2 very high	2 3 very moderately high high	2 3 4 very moderately moderately high high low	2 3 4 5 very moderately moderately very high high low low

7) DEGREE OF TALKATIVENESS

(A TALKATIVE person is one who has a fondness for speaking frequently or at great

length)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

8) DEGREE OF RUDENESS

(A RUDE person is one who lacks refinement, and lacks consideration for the feelings of

others)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

9) DEGREE OF FEARFULNESS

(A FEARFUL person is one who shows timidity, fright, or lack of courage)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

10) DEGREE OF ESTHETICAL SENSITIVITY

(An ESTHETICALLY SENSITIVE person is one who shows artistic taste, and appreciates art and beauty)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
mgn	mgn	mgn	10W	IOW	low

11) DEGREE OF EMOTIONAL STABILITY

(An EMOTIONALLY STABLE person is one who shows steadiness and control of strong

feelings such as love, hate, anger, and fear)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

12) DEGREE OF CONSCIENTIOUSNESS

(A CONSCIENTIOUS person is one who is honest, and governed by what one knows is

right)

1	2	3	4	5	6
extremely high	very high	moderately high	moderately	low	extremely
		men	10 W	10 W	10 W

13) DEGREE OF IMAGINATION

(An IMAGINATIVE person is one who can create mental images of what is not actually present, or what has never been experienced)

1	· 2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

14) DEGREE OF ENERGY

(An ENERGETIC person is one who has a capacity for vigorous action)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

15) DEGREE OF CURIOSITY

(A CURIOUS person is one who is inquisitive, and desires to learn more about novel

things)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
nign	nign	nign	low	low	low

16) DEGREE OF SECLUSIVENESS

(A SECLUSIVE person is one who fond of isolation and privacy)

1	2	3	4	5 .	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

(An O)	RIGINAL p	erson is one w	ho has th	he ability to l	be inventive and	l creative)
--------	-----------	----------------	-----------	-----------------	------------------	-------------

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

18) DEGREE OF SPITEFULNESS

(A SPITEFUL person is one who is malicious, and is inclined to hurt and irritate others)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

19) DEGREE OF CONSIDERATION

(A CONSIDERATE person is one who is thoughtful, and has sympathetic regard for

others)

1	2	3	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

20) DEGREE OF ADAPTABILITY

(An ADAPTABLE person is one who is able to adjust oneself to new or changed

circumstances)

1	2	3 -	4	5	6
extremely	very	moderately	moderately	very	extremely
high	high	high	low	low	low

IMPRESSION RATING SCALE TWO

INSTRUCTIONS: On the next page, you will find sets of two descriptive words in the format seen below. Circle the number between the two descriptions which indicates your judgement of the child you have just seen. For example, if you believe that the child is extremely relaxed, circle 1;

relaxed	1	2	3	4	5	6	7	tense
If you believe the child	is quite	e relaxed	, circle	2;				
relaxed	1	2	3	4	5	6	7	tense
If you believe the child	is sligh	tly relax	ed, circ	le 3;				
relaxed	1	2	3	4	5	6	7	tense
If the child seems neith	er relax	ed nor te	ense, cir	cle 4;			9 ₆	
relaxed	1	2	3	4	5	6	7	tense

Following the same format, 5 = slightly tense, 6 = quite tense, and 7 = extremely tense.

Subject No.

Child No.

- 1 = extremely "X"
- 2 = quite "X"
- 3 = slightly "X"
- 4 = neutral; equally "X" and "Y"
- 5 = slightly "Y"
- 6 = quite "Y"
- 7 = extremely "Y"

"X"								"Y"
bad	1	2	3	4	5	6	7	good
honest	1	2	3	4	5	6	7	dishonest
pleasant	1	2	3	4	5	6	7	unpleasant
happy	1	2	3	4	5	6	7	sad
awful	1	2	3	4	5	6	7	nice

Appendix I

OBSERVATIONAL RECORDING FORM

Child No.	-	С	od	ler	No	· <u></u>																			
FIRST MINUTE C	FIRST MINUTE OF INTERVIEW (seconds 1-20)																								
Speaking)1	02	03	3 0	4 (05	06	6 O'	7 ()8	09	10)]	11	12	13	14	15	16	1	7	18	19	20
Smiling													Ι	Ι							I			1	
Gazing											,					_								Γ	
Gesturing									<u> </u>																
Self-manipulation									Γ												Ι				
Arm Fidgeting				1																<u> </u>					
Leg Fidgeting													<u> </u>					[Τ				
Posture-shift																				1					
									1	I	Ì		I	Ι											

Note. This is page one of nine pages, all following the identical format

APPENDIX J

DEBRIEFING TEXT FOR STUDENT PARTICIPANTS

The experiment in which you participated today is part of a larger study entitled, "First Impressions and Nonverbal Behavior of Boys."

I became interested in studying this area as a result of wondering about how children create a first impression when talking with adults. From the literature, we know that adults make a good impression by making eye contact with their partner, smiling, keeping their body and face oriented toward their partner, and not fidgeting during the conversation. We have very little knowledge about how a child makes a positive first impression, although we know that children who smile and gaze for longer periods of time are rated more favorably. Therefore, I hypothesized that the boys who show more "engaging" behavior, that is, more smiling, gazing and gesturing, and less "nonengaging" behavior, that is, fidgeting, self-touching and posture shifts, will be rated more positively.

So, in a nutshell, boys were videotaped by a hidden camera while talking to a female interviewer about their favorite movies and TV shows. They were told about the camera later and gave their consent for their tape to be used.

In order to carry out this research, a number of issues needed to be addressed. For example, it was important that the differences between the sex of children, their IQ, and their physical attractiveness be controlled, so that I could be sure that differences in ratings could not be attributed to those variables. Therefore, I decided to choose only boys to participate in the study, and planned to select only those boys who obtained equivalent scores on IQ and physical attractiveness. The next question was how to construct a task to answer the research question of what makes a child a good conversationalist. I decided to ask the parents of school-age boys for their consent to have their children participate in the study. I wanted the situation to be as natural as possible, so this resulted in an ethical issue of deceiving the boys about the experiment by not telling them about the hidden camera. However, I did have parental consent, and parents were assured that I'd tell the boys about the tape after the experiment was completed. Each boy was individually debriefed, and was given the option of having his tape erased if he objected to its presence. Boys were also told that students would be viewing the tapes. Another important consideration was having the same questions asked in the same way by the interviewer, so that she wouldn't influence boys to respond differently because of something she did. Finally, I didn't want your ratings to be influenced by the content of what the boys said, so all tapes were seen with the sound off.

The data collected today will tell us what people think about boys, that is, the first impressions that boys make. In the second part of the study, these videotapes will also be coded for the amount of time each child spends speaking, smiling, gazing, gesturing, fidgeting, etc. All the data will then allow us to answer the questions (a) do some boys present themselves more positively than others do, (b) do some boys show different nonverbal behaviors than others do, and (c) how are nonverbal behaviors related to first impressions?

Since this study has a number of phases, I ask that you discuss neither how you participated today, nor what you've learned about this research, with any other students. They may be asked to volunteer for a component of the study as well, and if they knew anything about this study, their data might be biased.

Does anyone have a question? Thank you for your participation.

APPENDIX K

PROCEDURES FOR CODING VIDEOTAPES

1) Record your coder number and the child's number (taken from your randomized list of children to code) on the first page of each recording form.

2) First use the "interviewer questions" form. It lists all possible questions asked by the interviewer. Read through the form first to get an idea of the questions listed. From the back of the videocassette sleeve, record on the form the footage numbers marking the beginning and ending of the particular episode you are ready to code.

3) Turn on the power to the VCR and the television screen. The television must be on channel 3.

4) Insert the tape into the VCR and rewind the tape to its beginning. Set the footage counter to "000". Fast forward the tape to the beginning of the episode you are ready to code.

5) Play the tape, recording from the numbers on the screen the ending point of every question asked by the interviewer. Not all questions are asked of every child, so there will be some blanks remaining on your coding page after you have run through the tape. Please be sure to code only those questions asked by the interviewer. For example, if a child spontaneously starts telling about a movie without being specifically to do so, "tell me all all about it" is not scored for that particular question. If a question is asked that does not appear on the list, please write down the entire question and the minute and second when it occurred on the blanks provided on the the coding page.

6) Then use the observational recording form. Look through the form first to get an idea of how the coding system is set up. Then read the rest of the coding manual carefully to get a knowledge of coding categories and rules. Rewind the videotape to the beginning of the particular episode you are coding. Now code the amount of time that the child is engaged in speech. Place an "x" in the appropriate box on the page for each second that the child is engaged in speech. Refer to the minute and second numbers on the screen, and begin recording at the second that the child starts to speak. When the child is finished speaking, the boxes are left blank until he starts to speak again. Use the "pause" button on the VCR, and rewind the tape as necessary. Note that "um hmms" by the child count as speech.

Any speech that occurs during a particular second is coded as "speaking" in that second, even if the child is silent for most of the second.

If a child is speaking very softly, you may have to carefully watch lip movements to decide if speech occurred or did not occur.

7) Rewind the tape, and, following the procedure stated above, code duration of smiling, gazing, gesturing, self-manipulation, arm fidgeting, leg fidgeting and posture shifts. (See the next page for coding categories and decision rules). Record only one behavior with each pass of the videotape, and rewind the tape as necessary to insure accuracy of recording.

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CODING CATEGORIES AND DECISION RULES

1) Smiling - The corners of the mouth are turned up or pulled back while the outer corners of the eyes are crinkled; happy facial expression. Smiles usually occur while not speaking, but they may occur during speaking as well. It may be helpful to listen carefully to what the child is saying--if the situation being described is funny, the child will probably be smiling as he speaks.

2) Gazing - Looking directly into the interviewer's face which is slightly to the left of the camera, or directly facing the camera. The child's face must be oriented to the camera or the interviewer. When coding this behavior, ignore eye contact and focus on facial orientation only.

3) Gesturing - A hand, finger, arm or body illustration that accompanies or replaces speech, usually made away from the body. Examples are shaking or nodding the head in place of or to accompany speech, a shrug accompanying or replacing speech, using the hands to illustrate size, banging the hand into the fist or bringing the arm down sharply to indicate motion of an object.

If a gesture occurs but is not related to what the child is describing (e.g. grasping throat and mentioning his throat is sore, unrelated to the story he is telling), the movement is coded as a self-manipulation, not a gesture.

4) Self-manipulation - Touching or rubbing the clothing, jewelry, hair, face or other part of the body in a motion that does not illustrate speech. Examples are putting a thumb or finger into the mouth, touching, rubbing or scratching an arm, leg, or the neck, stroking the hair, licking or biting the lips.

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5) Fidgeting - Any nonfunctional movement of the arms, legs, hand or fingers. Examples are leg swinging, finger tapping, changes of arm, leg, hand or finger position that do not illustrate speech, plucking at or pulling the clothing, putting the hands under the legs, tying shoelaces, rubbing or fingering the chair, playing with a pencil, shifting the legs on the chair without shifting the seat or playing with the fingers.

Code hand and arm movements and leg movements on two separate passes of the videotape and on the two separate lines of the coding form.

If the hands and fingers are moved against each other (e.g. rubbing the hands or tapping the fingers together), even though the movement may seem to be a self-manipulation, it will be coded as fidgeting.

6) Posture Shift - Examples are shifting the seat position, a trunk movement, a shoulder shrug that does not accompany or illustrate speech, arching backward, leaning forward or leaning to the side.

CODING RULES

1) Do not begin recording movement until the minute and second numbers on the screen start to increment.

2) Record only the first three (3) minutes of each interview. If the child exceeds the 3minute mark, ignore the rest of the the interview.

3) It is possible that a child may engage in more than one behavior at a time. When this happens, record under the appropriate categories each behavior displayed.

4) If 2 or more movements of the same category occur simultaneously, (e.g. swinging legs while pulling clothing), count all behaviors separately. This is done at the bottom of the page. Record the behavior category on the blank line and code the behavior as usual. It may be helpful to make a note under each box about the behavior you have coded so that you are sure that all behaviors are recorded. For example, swinging an arm will be coded on one line while playing with the fingers (both arm fidgeting) is coded on another.

5) It is possible that a child may not exhibit a particular behavior during the interview. In this case, all the boxes are left blank. Put a "0" in front of the first box on page one for this particular category if all boxes are blank.

6) If a child has his hands in his pockets, record any movements within the pockets as fidgeting.

7) Resting the hands on the legs is not scored unless hands are moving. Then the movement is scored as fidgeting or self-manipulation.

8) During a posture shift, straightening the back and then shifting the seat are counted as 2 posture shifts.

9) During a posture shift, leaning forward and returning to the former position are counted as 2 posture shifts.

10) If most of the child's hands cannot be seen on the screen, do not code movement. For example, if you can see the hand and not the fingers, do not code. If the hand and at least part of the fingers are visible, and there is movement, code fidgeting or self-manipulation.

APPENDIX L

SUMMARIES OF CORRELATIONS FOR SUBJECT DEMOGRAPHIC VARIABLES, FIRST IMPRESSION RATINGS

	Age	Number of Children	<u>Years of</u> Education	<u>Income</u>
A.	.08	.09	19	16
Ratings	(<u>n</u> = 106)	(<u>n</u> = 106)	(<u>n</u> = 106)	(<u>n</u> = 103)
S.H.	.27	.17	06	03
Ratings	(<u>n</u> = 105)	(<u>n</u> = 105)	(<u>n</u> = 105)	(<u>n</u> = 102)
SDE	.01	.08	11	.06
Ratings	(<u>n</u> = 105)	(<u>n</u> = 105)	(<u>n</u> = 105)	(<u>n</u> = 102)

Note. A. = Adaptability. S.H. = Social Hostility. SDE = Semantic Differential Evaluative.

SUMMARIES OF ONEWAY ANALYSIS OF VARIANCE FOR SUBJECT DEMOGRAPHIC VARIABLES, ADAPTABILITY (A.) RATINGS

Source	<u>. <u>SS</u></u>	df	<u>MS</u>	E
Sex A. Ratings Total	.01 6.96 6.97	1 104 105	.01 .07	.11
Marital Status A. Ratings Total	.02 6.95 6.97	3 102 105	.01 .07	.09
Religion A. Ratings Total	.06 6.90 6.97	5 100 105	.01 .07	.19
Country of Birth A. Ratings Total	.06 6.90 6.97	6 99 105	.01 .07	.15
Faculty A. Ratings Total	.53 6.44 6.97	12 93 105	.04 .07	.64
Occupation A. Ratings Total	.34 6.62 6.97	3 102 105	.11 .06	1.7
Course A. Ratings Total	.43 6.54 6.97	2 103 . 105	.21 .06	3.36

Source	<u>SS</u>	df	MS	<u>F</u>
Sex S.H. Ratings Total	.10 11.89 11.99	1 103 104	.10 .12	.84
Marital Status S.H. Ratings Total	.28 11.71 11.99	3 101 104	.09 .12	.81
Religion S.H. Ratings Total	.66 11.33 11.99	5 99 104	.13 .11	· 1.16
Country of Birth S.H. Ratings Total	.42 11.57 11.99	6 98 104	.07 .12	.59
Faculty S.H. Ratings Total	.71 11.28 11.99	12 92 104	.06 .12	.48
Occupation S.H. Ratings Total	.22 11.77 11.99	3 101 104	.07 .12	.62
Course S.H. Ratings Total	.35 11.64 11.99	2 102 104	.18 .11	1.56

SUMMARIES OF ONEWAY ANALYSIS OF VARIANCE FOR SUBJECT DEMOGRAPHIC VARIABLES, SEMANTIC DIFFERENTIAL EVALUATIVE (SDE) RATINGS

Source	<u>SS</u>	df	<u>MS</u>	<u>F</u>
Sex SDE Ratings Total	.79 38.11 38.90	1 103 104	.79 .37	2.12
Marital Status SDE Ratings Total	.24 38.66 38.90	3 101 104	.08 .38	.21
Religion SDE Ratings Total	1.65 37.25 38.90	5 99 104	.33 .38	.88
Country of Birth SDE Ratings Total	1.02 37.88 38.90	6 98 104	.17 .39	.44
Faculty SDE Ratings Total	2.71 36.18 38.90	12 92 104	.23 .39	.58
Occupation SDE Ratings Total	.40 38.50 38.90	3 101 104	.13 .38	.35
Course SDE Ratings Total	1.14 37.75 38.90	2 102 104	.57 .37	1.55

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APPENDIX M

OBSERVATIONAL DATA SUMMARY SHEET

CONDITION: SPEAKING

Child No.
Coder No
Speaking 1) Total duration
Smiling 2) Total duration 3) Extent
Gazing 4) Total duration 5) Extent
Gesturing 6) Total duration 7) Extent
Self-manipulation 8) Total duration 9) Extent
Arm Fidgeting 10) Total duration 11) Extent
Leg Fidgeting 12) Total duration 13) Extent
Posture Shifts 14) Total duration 15) Extent
CONDITION: NOT SPEAKING
Not Speaking 16) Total duration
Smiling 17) Total duration 18) Extent

Gazing 19) Total duration _____ 20) Extent _____

<u>Gesturing</u> 21) Total duration _ 22) Extent _____

Self-manipulation 23) Total duration _

24) Extent _____

Arm Fidgeting 25) Total duration _ 26) Extent _____

Leg Fidgeting 27) Total duration _____ 28) Extent _____

Posture Shifts29) Total duration _____30) Extent _____

.

APPENDIX N

NONVERBAL BEHAVIOR: MEAN EXTENT SCORES

DURING SPEAKING AND SILENCE

	Speaking					Silence				
	LD		nLD		LD			nLD		
	<u>М</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>		<u>SD</u>	<u>M</u>	<u>SD</u>	
Speaking/Silence	113.1	32.47	125.3	27.43	66.	9 3	32.47	54.7	27.43	
Smiling	22.2	23.12	14.2	17.42	13.	2	12.35	8.3	8.46	
Gazing	83.9	30.30	95.0	34.07	47.	9 2	24.87	37.2	20.56	
Gesturing	11.7	16.76	11.2	12.08	1.	6	2.03	0.7	1.13	
Self-manipulation	9.1	13.14	9.4	14.13	7.	9	12.46	2.7	4.12	
Arm Fidgets	61.4	30.99	73.6	26.82	32.	0 2	22.59	28.6	19.70	
Leg Fidgets	38.3	32.92	44.0	29.42	17.	9 :	15.38	15.1	14.90	
Posture Shifts	13.2	16.97	13.1	12.42	4.	8	4.59	3.4	3.36	

<u>Note</u>. \underline{n} (LD) = 16. \underline{n} (nLD) = 54. LD = Learning Disabled. nLD = non Learning Disabled.