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PEER STATUS OF MAINSTREAMED ELEMENTARY SCHOOL

CHILDREN WITH LEARNING DISABILITIES:

A META-ANALYSIS

A Dissertation Presented

by

MARY GORMALLY-FRANZOSA

Submitted to the Graduate School of the

University of Massachusetts in partial fulfillment

of the requirements for the degree of

DOCTOR OF EDUCATION

May 1992
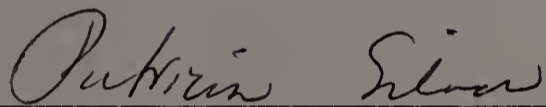
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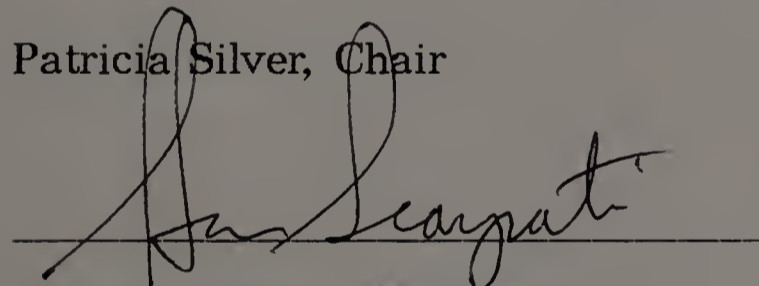
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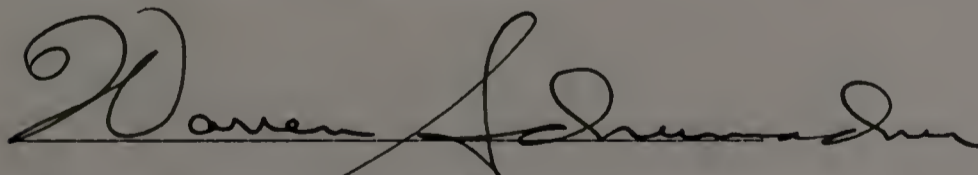
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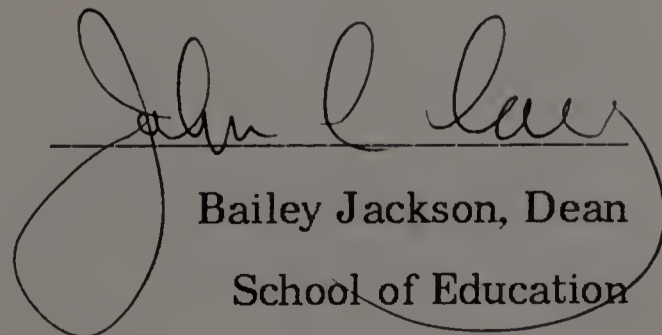
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ABSTRACT

PEER STATUS OF MAINSTREAMED ELEMENTARY SCHOOL CHILDREN WITH LEARNING DISABILITIES: A META-ANALYSIS

MAY 1992

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The purpose of this dissertation was to use the technique of meta-analysis to combine and analyze the results from studies examining the peer status of mainstreamed elementary school students with learning disabilities. Twenty-one data sets from fourteen studies were analyzed to determine whether or not learning disabled children in mainstreamed settings occupy a lower status than classroom peers as measured by a sociometric instrument. The variables of gender of both rater and child rated, type of sociometric instrument used, date of publication and degree of integration were also examined. Results showed that learning disabled elementary school children in mainstream settings occupied a significantly lower status than their peers when measured by either peer rating or peer nomination instruments. Children were rated lower in status

when a peer rating instrument was used versus when a peer nomination instrument was used. There was a trend toward higher status in students with learning disabilities in studies that were published in the 1980s versus those published in the 1970s. There was also a trend toward higher status in students with learning disabilities who were integrated more than 50% of the time versus those integrated less than 50% of the time.

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CHAPTER I

INTRODUCTION

Statement of Problem

The peer status of mainstreamed elementary school children
with learning disabilities is an important issue in the field of special
education. According to recent figures, children with learning
disabilities comprise the largest category of children receiving
special education under PL 101-476. In every state, there are more
students classified as learning disabled than any other category (U.S.
Department of Education, 1990).

Elementary school-aged children with learning disabilities are
often mainstreamed into regular classroom situations (Bateman,
1992; Gresham, 1981). However, once in the classroom, they appear to
face poor acceptance by their peers. Many studies have used
sociometric ratings to determine the peer status of elementary school
children with learning disabilities in mainstream settings. The vast
majority of these studies have found that children with learning
disabilities were less accepted or more rejected than their regular
classroom peers (Bryan, 1976; Bruininks, 1978a; Gresham & Reschly,
1986; Kistner & Gatlin, 1989a).

Despite this near unanimity, however, unanswered questions
have remained. First, although the large majority of studies have
shown differences in acceptance or rejection, some studies have

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shown no differences between children with learning disabilities and peers (Prillaman, 1981; Sainato, Zigmond & Strain, 1983). Second, although many authors have reviewed studies concerning the peer status of students with learning disabilities, no author has separated elementary school-aged children from the older population of school children with learning disabilities. Third, although most research studies have shown differences between students with learning disabilities and their peers, few attempts have been made to investigate the variables which may account for these differences.

The failure of studies to address variables that may account for differences in peer status between children with learning disabilities and their peers has been discussed by many authors in the special education field. Strain, Odom and McConnell (1984) have been among authors who have criticized researchers for failing to study the learning disabled population's peer status by various subject characteristics such as type of rating scale used, date of publication, and time spent in the regular classroom setting.

In addition, studies that have found differences in variables such as gender and type of rating scale used are in need of further research support. Among these studies are Bryan (1974), and Gottlieb, Gottlieb, Berkell and Levy (1986), who found girls with learning disabilities to be less accepted than boys. Other authors (Gresham , 1981; Hoyle & Serifica, 1988) have hypothesized that the peer ratings

and peer nominations may represent two different types of acceptance.

Purpose of Study

The peer status of children with learning disabilities is the subject of numerous studies and reviews. Madden and Slavin (1982), Dudley-Marling and Edmiaston (1985) and Gresham and Reschly (1986) are among authors who have reviewed the literature on the social status and social acceptance of children with learning disabilities. These reviews provide extensive narrative descriptions of various studies, and valuable discussions of current research findings, but none have used the technique of meta-analysis to analyze their results.

There are two purposes to this study. The first purpose is to use meta-analysis to combine and analyze the results from studies examining the peer status of mainstreamed elementary school children with learning disabilities, including those studies finding no difference in status. The second purpose is to examine the common variables reported in those studies, in order to determine if any of these variables correlate with the learning disabilities category and, therefore, might possibly be related to low status in this population. The variables to be examined will be gender of both rater and child rated, type of sociometric instrument used, date of publication, and degree of integration.

<u>Definitions</u>

For the purpose of this study, the following will be considered as definitions for the terms listed below, unless otherwise stipulated in this paper.

<u>Children with Learning Disabilities:</u> Children with learning disabilities are defined in the Individuals with Disabilities Education Act (1990) in the following manner:

The term 'children with specific learning disabilities' means those children who have a disorder of one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. Such disorders include such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include children who have learning problems which are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or environmental, cultural, or economic disadvantage.

<u>Elementary Students:</u> The terms "elementary school students" or "elementary school aged children" will be used to refer to children in any of the grades K - 6. When discussing individual studies, this term may refer to students in one, some, or all of these grades.

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Sociometric Study: A sociometric study is a method of study frequently used to assess children's social status. Sociometric studies ask children to rate their classmates according to their degree of acceptance or rejection of those classmates.

Same-Gender Ratings: Same-gender rating refers to a type of rating in which children rate only children of their gender and are rated only by children of their gender. In a same-gender rating, boys rate and are rated only by boys, and girls rate and are rated only by girls.

Peer Nomination: Peer nomination is a type of sociometric instrument in which children are asked to choose, or nominate, other children in their classroom according to categories, in order to determine acceptance or rejection of those children. In some studies, the number of children a child may choose is limited; in others it is unlimited.

Peer Rating: Peer rating is a type of sociometric instrument in which children are asked to rate all other children, or all other same-gender children, in their classroom.

Forced Choice: Forced choice is a term used to describe the peer rating technique. It refers to the fact that children are forced to rate every other child in the group, leaving no child neglected or forgotten.

Peer Status: Peer status refers to the status of a child relative to his or her peers, as measured by a sociometric instrument. Peer status is used interchangeably with peer status.

Hypotheses

Specific hypotheses to be addressed include:

1. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument;

2. There is no difference in peer status between mainstreamed elementary school girls with learning disabilities and their same-gender peers, as measured by a sociometric instrument;

3. There is no difference in peer status between mainstreamed elementary school boys with learning disabilities and their same-gender peers, as measured by a sociometric instrument;

4. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by peer nomination;

5. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by peer rating;

6. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by peer nomination compared to as measured by peer rating;

7. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers,

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as measured by a sociometric instrument in studies published from 1970 to 1979, compared to studies published from 1980 to 1989;

8. There is no difference in peer status of mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument, when rated only by their same-gender peers compared to when rated by both boys and girls;

9. There is no difference in peer status of mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument, when integrated more than 50% of the time in the regular classroom compared to when integrated 50% of the time or less in the regular classroom.

Significance of Study

During the past two decades, numerous researchers have conducted sociometric studies to measure the status of learning disabled elementary school students. The results of these studies have provided many answers, but also raised many questions. There is strong indication from the studies reviewed in this paper that learning disabled children occupy a lower peer status than their elementary school classroom peers. What is less clear is whether other information can be garnered from these numerous studies. The meta-analysis that follows is an attempt to use the information collected in previous studies to corroborate findings of previous studies, or to confirm or reject hypotheses raised by previous researchers. It is hoped that, by answering these questions, this study will expand the knowledge of educators and researchers

involved in the issues surrounding the social status of children with learning disabilities in elementary school classrooms.

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CHAPTER II

REVIEW OF LITERATURE

Introduction

Many of the conclusions regarding the peer status of children with learning disabilities are drawn through the use of sociometric instruments, which measure the popularity and friendships of students with learning disabilities compared to their peers. There are two types of sociometric instruments used to measure peer status, peer nomination and peer rating (Gresham, 1981).

Peer Nomination

Peer nomination is the most frequently used measure of the social status of elementary school children (Hartup, 1983). In peer nomination, a child is asked to name a certain number of children in his class (usually 3) or to name all children who fit into a certain category. A child is often asked to name other children who he likes or dislikes to play with or work with at school. A child may also be asked questions such as who she knows best or likes to sit next to. Although some studies of children with learning disabilities include both acceptance and rejection questions, rejection is not measured directly in many studies. Researchers may only use acceptance ratings because they are hesitant to implicitly sanction rejection, encourage rejection or cause anxiety to rejected children (Asher, 1983). Peer nominations are said to measure a child's friendships (Asher & Taylor, 1981; Gresham, 1983).

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Peer Rating

In the second type of sociometric instrument, peer rating, children are asked to rate all of the children in a group, rather than just choosing a few children as in peer nomination studies. Children are rated according to certain criteria, such as like or dislike. Peer rating scales are said to measure a child's likability and acceptance by an entire group rather than his or her best friends (Asher & Taylor, 1981; Gresham, 1983). By asking each child to rate every other child, peer ratings are thought to provide a more comprehensive view of a child's status than peer nominations (Gresham, 1981).

In both peer nomination and peer rating scales, the group that a child chooses from may include every other child in his/her class. Often, however, researchers use only same-gender rating, in which children choose only from children of their own gender. Same-gender ratings are used because researchers have found a considerable gender bias in older children's scores, when friendships become more stable (Oden & Asher, 1977; Singleton & Asher, 1977).

The Use of Sociometric Instruments

Researchers have noted a number of advantages in sociometric assessment techniques: (a) their results reflect the feelings of a child's peers about that child's social competence, (b) they have good predictive validity, (c) they have acceptable test-retest reliability (Schumaker & Hazel, 1984), (d) they have been found to demonstrate moderate concurrent validity with behavioral measures (Gresham,

1981), and (e) they are quick, and easy to administer (Elliot & Gresham, 1987). However, they do have limitations: (a) peer nominations may be insensitive to behavioral changes in children older than 9 and 10, when friendships become more stable (Oden & Asher, 1977), (b) results may vary according to class makeup (Schumaker & Hazel, 1984), (c) they tend to be reactive if used too often (Gresham, 1981) and finally, (d) they provide no diagnostic information (Schumaker & Hazel, 1984).

Morrison (1981) has noted that there are a multitude of variations in both administration and scoring of sociometric studies which may confuse and limit the conclusions that we can make. For instance, when a study does not include negative ratings, it cannot be determined if a child is ignored or rejected, an important distinction (Coie & Kupersmidt, 1983). Also, as noted by Coben and Zigmond (1986), many studies do not take into account the fact that children with learning disabilities and other special needs may not be known to their peers. Researchers (LaGreca & Mesibov, 1981; Schumaker & Hazel, 1984) have also criticized sociometric studies for the use of only mean data in analyzing results, which makes it difficult to tell whether a few, some, or all children with learning disabilities are less well liked than their peers. Other researchers (Bruininks, 1978b; LaGreca & Mesibov, 1981; Schumaker & Hazel, 1984; Strain, Odom & McConnell, 1984) have criticized researchers for failing to study the learning disabled population's social skills and acceptance by various subject characteristics such as age, gender, race and setting. Discussion of the results of sociometric studies used to assess the

status of children with learning disabilities need to be viewed with the above mentioned limitations in mind.

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Sociometric Studies: A Chronology

In 1974, Tanis Bryan published a study examining the peer acceptance and rejection of children with learning disabilities in third, fourth and fifth grade classrooms. Since that date, numerous studies have been conducted to assess the peer status of learning disabled children in elementary school classrooms. Most studies have found that children with learning disabilities occupy a lower peer status than their peers, while a few studies have found no differences in status between children with learning disabilities and their peers. Both studies finding differences and those finding no differences in peer status are discussed below. Their results are summarized in Table 2.1.

Table 2.1

Sociometric Studies: Summary of Findings

Study	Grade	Instrument	Results
Bryan (1974)	3,4,5	Peer Nomination	LD children, particularly Caucasian or female, are less accepted and more rejected than peers.
Bryan (1976)	4,5	Peer Nomination	Status of Caucasian LD children is unchanged over time and classroom.
Sheare (1978)	3,4,5	Peer Rating	LD children occupy a lower status than peers both at the beginning and end of year.
Siperstein, Bopp & Bak (1978)	5,6	Peer Nomination	LD children are less popular than peers. Academic ability, athletic ability and physical appearance are positively correlated with popularity.
Bruininks (1978a)	1,2,3,4,5	Peer Rating	LD children are less socially accepted than peers, but assess their status as being equal to peers.
Bruininks (1978b)	1,2,5,6	Peer Rating	LD children are less socially accepted than peers, but assess their status as being equal to peers. LD children choose as friends the same children that other students choose.
Scranton & Ryckman (1979)	1,2,3	Peer Nomination	LD girls, but not boys, receive less positive and more negative nominations than their same-gender peers.

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Table 2.1 continued

Study	Grade	Instrument	Results
Prillaman (1981)	5,6	Peer Nomination	LD children are more likely to be stars (most often chosen) as peers, but also more likely to be isolates. LD Children have sociometric status ratings equal to peers.
Sainato, et al. (1983)	3,4,5	Peer Rating	LD Children have sociometric status ratings equal to peers.
Siperstein & Goding (1983)	4,5,6	Peer Nomination	LD children are less popular than peers. LD children are more likely to be isolated/rejected and less likely to be stars. For LD children status is positively correlated with nominations as best in athletic ability, academic ability and physical appearance.
Coben & Zigmond (1986)	3,4,5	Both	LD children who spend a small percentage of time in the main-stream classroom are less well known but not less accepted or more rejected than peers.
Gottlieb, et al. (1986)	3,4,5	Peer Rating	LD girls, but not boys, occupy a lower sociometric rating than peers in a playground setting.
Gresham & Reschly (1986)	Age 7 1/2- 11 1/2	Peer Rating	LD children are poorly accepted in both play and work situations. Peers find it less desirable to work with LD children than to play with them.

Table 2.1 continued

Study	Grade	Instrument	Results
Hoyle & Serifica (1988)	3	Both	LD Boys are less often chosen as best friends, and less likely to choose as friends those children who show a high degree of liking for them.
Kistner & Gatlin (1989a)	3,4,5	Peer Nomination	Peer acceptance and rejection are unrelated to IQ and achievement, but correlates to peer perceptions of both aggressive and withdrawn behavior. A majority of LD children are viewed as either popular or accepted by their peers.
Kistner & Gatlin (1989b)	3,4,5	Peer Nomination	Caucasian LD girls are more rejected than Caucasian LD boys, or African-American LD boys or girls.

Studies Finding Differences in Peer Status

Bryan (1974) used a combination of peer nomination scales on children in grades three through five to determine the peer popularity of children with learning disabilities. An important component of the study was the inclusion of a "rejection" question; students were asked to name three students who were not friends, not neighbors and not invitees to a birthday party. Results of the study showed that children with learning disabilities, particularly Caucasian children or female children, were not as accepted and were more rejected by classmates. African-American children with learning disabilities were rated more positively than Caucasian children, despite scoring substantially lower on academic achievement tests.

Bryan (1976) reported a replication of her 1974 study, using Caucasian children with learning disabilities and peers from the fourth and fifth grade classrooms who had been in the original study. In assessing friendship nominations across both time and classrooms, she found that the children with learning disabilities were as poorly accepted and equally rejected by their peers as they had been one year earlier. She also found that the status of children with learning disabilities was not altered by changes in classmates.

In 1978, Sheare studied children in grades 3, 4, and 5 in a program where children with learning disabilities received resource help for part of the day. Results of this study showed a significantly lower level of peer status in children with learning disabilities than

children without learning disabilities. This was true both at the beginning of the school year and at the end of the school year. Both children with learning disabilities and children without learning disabilities received significantly higher acceptance scores in the Spring than at the beginning of the school year, possibly because students knew each other better.

Siperstein, Bopp and Bak (1978) found a significant difference in the popularity of children with learning disabilities and children without learning disabilities in grades 5 and 6. In this study, children were asked to nominate same-gender friends and also to choose the smartest, most athletic, and best looking child in their class. Results, as in other studies, showed significant differences in popularity between children with learning disabilities and peers. Further analysis showed that, although no children with learning disabilities were chosen as stars (liked by over 60% of the students), they were no more likely to be isolates (have no friends) than other children. The attributes of academic competence, athletic ability and physical appearance were found to be related to social status, with all three attributes correlating positively with peer popularity. Although, as expected, no students with learning disabilities were chosen as smartest in the class, an equal proportion of children with learning disabilities were chosen as most athletic or best looking.

Bruininks (1978a) investigated the perceived and actual peer status of mainstreamed children with learning disabilities in grades 1 to 5, through use of a peer rating instrument. Results showed that

although learning disabled children were less socially accepted than their peers, they assessed their status to be equal to their peers.

Bruininks (1978b) studied the social status of children with and without learning disabilities in grades 1,2,4 and 5, using comparison children of the same gender. As in the previous study, a peer rating scale in which all children rated every other child was used. Results showed that, although children with learning disabilities were rated lower in status than their peers, they perceived their status to be the same as that of their peers. In addition, children with learning disabilities in this study tended to choose as friends the same children that other students chose.

Using the peer nomination method, Scranton and Ryckman (1979) studied first through third grade children in an "open concept" school. Because all children moved frequently from teacher to teacher and suite to suite, Scranton and Ryckman hypothesized that the stigma of receiving special education services would be minimal. Results of this study were mixed; girls with learning disabilities, but not boys, received less positive and more negative nominations than their same-gender peers.

Siperstein and Goding (1983) measured the peer status of fourth through sixth grade children with learning disabilities and their peers. The authors found children with learning disabilities to be significantly less popular than non-labelled peers. When rated by their peers, 26% of students with learning disabilities were

isolated/rejected and 5% were chosen as stars, compared to 9% of their peers being isolated/rejected and 11% chosen as stars. The status of a child with learning disabilities was found to be positively correlated with nominations as best in athletic ability, academic ability and physical appearance.

Coben and Zigmond (1986) used both peer nomination and peer rating methods to investigate the status of children with learning disabilities in grade 3, 4, and 5 who were mainstreamed in a regular classroom for an average of 11% of their day. When the peer nomination method was used to measure status, children with learning disabilities were less accepted but also less rejected, on average being positively chosen by 2% of classmates, and negatively chosen by 5% of peers. When the peer rating method was used, students with learning disabilities were less accepted but not less neutrally rated or more rejected. They were, however, significantly less known than their peers; 16% of peers rated them in this category. The authors concluded that the fact that these children with learning disabilities were not known played a large part in their social status. They also suggested that the category of "don't know" should be included in future sociometric studies involving learning disabled children.

Gottlieb, Gottlieb, Berkell and Levy (1986) examined the peer status of children with learning disabilities and their peers in grade 3, 4, and 5 in playground free-play situations. In this study, a peer rating method was used, whereby each child was asked to indicate

whether he liked to play with every other child in the class. Results of the sociometric ratings indicated that girls with learning disabilities, but not boys, occupied lower peer status than their same-gender peers.

Gresham and Reschly (1986) studied the peer status of children with learning disabilities aged 7 1/2 to 11 1/2 years, using two peer rating instruments to rate children in both work and play situations. Children with learning disabilities were found to be poorly accepted by peers in both play and work situations. Peers viewed children with learning disabilities as less desirable to work with than play with.

Hoyle and Serifica (1988) examined the peer status of third grade children with and without learning disabilities. In their study, they use a peer rating measure and a positive peer nomination measure giving unlimited choices of friendship to each child. Results of this study showed some differences between the students with learning disabilities and their peers. Boys with learning disabilities received significantly fewer friend nominations than boys without learning disabilities, but were not more disliked than their peers without learning disabilities. Children with learning disabilities significantly less often chose as friends those children who showed a high degree of liking for them.

Kistner and Gatlin (1989a) studied the peer status and possible correlates of social status in third, fourth and fifth grade children. In

their study, they used a peer nomination technique, asking children to choose three children they liked to play with most and three children they liked to play with least. Children with learning disabilities received slightly below average numbers of positive nominations and above average numbers of negative nominations. As in previous studies, not all children with learning disabilities experienced peer status problems; a majority of the learning disabled sample in this study were classified as either popular or accepted by their peers. The authors found that peer acceptance and rejection were unrelated to IQ or achievement, but significantly correlated to peer perceptions of both aggressive and withdrawn behavior.

Kistner and Gatlin (1989b) investigated the relation of gender and race to learning disabled children's popularity and rejection. Results of this study of African-American and Caucasian children in grade 3 through 5 showed that learning disabled children were less popular and more rejected than peers. In addition, Caucasian learning disabled girls were found to be more rejected than Caucasian learning disabled boys, or African-American learning disabled boys or girls.

Studies Finding No Differences in Peer Status

Prillaman (1981) completed a sociometric study of children with learning disabilities in grade 1 to 6, using a positive nomination technique. In contrast to most other research, Prillaman found no difference in mean popularity based on learning disabled/non-learning disabled category. Also, in contrast to the findings of Siperstein et al (1978), Prillaman found that children with learning disabilities were as likely to be "stars" (most often chosen). He did find, however, that boys with learning disabilities were significantly more likely to be "isolates" (least often chosen).

In the last study to be reviewed here, Sainato, et al. (1983) studied urban boys in grade 3, 4 and 5 using a peer rating method to measure each child in a given classroom. The authors found no significant differences in status between boys with learning disabilities and other boys in their classrooms or between boys with learning disabilities and their total classroom populations. In addition, they found that children with learning disabilities were scattered evenly throughout the distribution of sociometric ratings. In discussing possible reasons for their positive findings, the authors suggested that the use of a peer rating scale, which allowed all children to be rated, may have resulted in more positive findings.

Sociometric Ratings: Review of Findings

Various studies have found the following, at times contradictory, social skills characteristics of elementary school aged children with learning disabilities:

1. Children with learning disabilities are less accepted and more rejected, particularly Caucasian females (Bryan, 1974; Kistner & Gatlin, 1989b);

2. African-American students with learning disabilities are rated higher than Caucasian students with learning disabilities, despite lower academic skills (Bryan, 1974);

3. Social status of a child with learning disabilities is not altered by change in classmates (Bryan, 1976);

4. Social status of a child with learning disabilities is stable over time (Bryan, 1976);

5. Both children with learning disabilities and their peers are more accepted by peers at the end of the school year than at the beginning of the school year (Sheare, 1978);

6. Children with learning disabilities are not more likely to be isolates than other children (Siperstein et al., 1978);

7. Academic competence, athletic ability and physical appearance correlate positively with peer popularity (Siperstein et al., 1978; Siperstein & Goding, 1983);

8. Children with learning disabilities view their social status to be equal to that of their peers (Bruininks, 1978a,b);

9. Children with learning disabilities choose the same children for friends as other children (Bruininks, 1978b);

10. Boys with learning disabilities occupy a lower peer status than other boys in their classroom (Bruininks, 1978a);

11. Girls with learning disabilities occupy a lower peer status than other girls in their classroom (Scranton & Ryckman, 1979; Gottlieb et al., 1986);

12. Boys with learning disabilities do not occupy a lower peer status than other boys in their classroom (Scranton & Ryckman, 1979; Sainato et al., 1983; Gottlieb et al., 1986);

13. Children with learning disabilities have peer status ratings equal to peers (Prillaman, 1981; Sainato et al, 1983);

14. Children with learning disabilities more likely to be stars (most often chosen) as peers, but also more likely to be isolates (Prillaman, 1981);

15. Children with learning disabilities are more likely to be isolated and less likely to be stars than their peers (Siperstein & Goding, 1983);

16. When children with learning disabilities spend little time in the regular classroom setting, they are less well known and less accepted, but not more rejected, than their classmates (Coben & Zigmond, 1986);

17. Children with learning disabilities play alone more than their peers (Gottlieb et al., 1986);

18. Children with learning disabilities are poorly accepted in both work and play situations (Gresham & Reschly, 1986);

19. Boys with learning disabilities are less often chosen as best friends, and less likely to choose as friends those children who show a high degree of liking for them (Hoyle & Serifica, 1988);

20. Peer acceptance and rejection are unrelated to IQ and achievement, but correlates to peer perceptions of both aggressive and withdrawn behavior (Kistner & Gatlin, 1989a);

21. A majority of children with learning disabilities are viewed as either popular or accepted by their peers (Kistner & Gatlin, 1989a).

Sociometric Ratings: Conclusions

In almost all of the above studies, children with learning disabilities were rated as having lower status than their peers. As a group, they were less accepted and/or more rejected than other children, when rated by their peers. All of the above studies have also attempted to discern variables which might account for this difference in status. On the basis of these studies, some possible conclusions can be drawn. It also appears, from the research, that the low status of children with learning disabilities may continue as they move through their elementary school years. It appears that learning disabled children view their status as equal to that of their peers. They choose the same children as friends that other children choose, but are less likely to choose as friends those children who choose them as friends. They may be poorly accepted in both work and playground settings and may play alone more than other children. It is not known whether children with learning disabilities are more likely to be stars or isolates in their classrooms, but it appears that their status correlates with peers' ratings of their academic competence, athletic ability and physical appearance. Learning disabled girls, particularly Caucasian learning disabled girls, seem to be especially at risk, as are children with learning

disabilities who are viewed as aggressive or withdrawn. Lastly, it appears that the above conclusions may only be used to discuss children with learning disabilities as a group; the majority of children with learning disabilities appear to be viewed as either popular or accepted by their classmates.

CHAPTER III

RESEARCH

Design

This dissertation is an examination of the peer status of children with learning disabilities compared with other children who are not learning disabled. To determine whether or not differences in peer status exist between elementary school aged children with learning disabilities and their peers, the technique of meta-analysis was used to analyze the results of numerous studies on this topic.

Hypotheses

The purpose of the research was to analyze the data regarding the peer status of mainstreamed children with learning disabilities. Specific hypotheses that were addressed include:

1. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument;

2. There is no difference in peer status between mainstreamed elementary school girls with learning disabilities and their same-gender peers, as measured by a sociometric instrument;

3. There is no difference in peer status between mainstreamed elementary school boys with learning disabilities and their same-gender peers, as measured by a sociometric instrument;

4. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers,

as measured by peer nomination;

5 There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by peer rating;

6. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by peer nomination compared to as measured by peer rating;

7. There is no difference in peer status between mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument in studies published from 1970 to 1979, compared to studies published from 1980 to 1989;

8. There is no difference in peer status of mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument, when rated only by their same-gender peers compared to when rated by both boys and girls;

9. There is no difference in peer status of mainstreamed elementary school children with learning disabilities and their peers, as measured by a sociometric instrument, when integrated more than 50% of the time in the regular classroom compared to when integrated 50% of the time or less in the regular classroom.

Search Procedure

All of the available studies concerning the peer status of elementary school children with learning disabilities were investigated. Literature search procedures were used to locate appropriate studies. The search of pertinent studies included:

1. A computer search of three on-line databases; ERIC, Psych Info, and Dissertation Abstracts (all from 1970 to 1989),

2. A manual search of bibliographies from all known articles.

Studies were included based on the following criteria:

1. The children with learning disabilities must have been mainstreamed into a "regular classroom" for part of the school day;

2. Only children with learning disabilities, and not those with other special needs, were included in the experimental group;

3. Elementary school children were defined as those children in any of the grades K-6.

4. All studies which met the appropriate criteria were included regardless of size or quality of study.

Assumptions

This study is based on the premise that there are variables that may account for differences in the peer status of elementary school aged children with learning disabilities and their peers in the regular classroom. It is also assumed that the meta-analytic technique is a useful tool in determining these differences.

Limitations

Only the variables of gender of rater and child rated, type of rating scale used, percentage of time spent in the regular classroom setting and year of publication were analyzed in this study. However, there are other characteristics which may account for variations in the peer status of children with learning disabilities. These may

include grade level, race/ethnicity, and socioeconomic status. Unfortunately, these data were incomplete, unusable or missing from many of the studies on this topic and therefore could not be used in this meta-analysis. Table 3.1 lists categories where insufficient data was found in ten (10) initial studies analyzed by this author.

Table 3.1

<u>Insufficient Data in 10 Initial Studies</u>

Criteria	Grade	Ethnicity	SES[a]/Setting
Bruininks (1978a)	1-5	NG[b]	Rural/Suburban
Bruininks (1978b)	1,2,5,6	NG	Suburban
Siperstein, Bopp & Bak	5,6	NG	Middle Class
Scranton & Ryckman	1,2,3	NG	Rural
Prillaman	1-6	NG	NG
Sainato, et al.	3,4,5	African-American/ Caucasian	45% Free Lunch
Siperstein & Goding	4,5,6	NG	NG
Coben & Zigmond	3,4,5	African-American/ Caucasian	Urban
Gottlieb, et al.	3,4,5	NG	Suburban
Gresham	Age 7 1/2 - 11 1/2	NG	Rural/Urban/ Suburban

[a] SES = Socio-Economic Status

[b] NG denotes information not given in the study

Individual Studies

All of the studies included in this meta-analysis, with the exception of Sheare (1978), can be categorized as pre-experimental static group comparison designs, rather than true experimental designs (Campbell & Stanley, 1963).

$$X \text{ -- } \underline{O_1} \qquad\qquad\qquad\qquad\qquad (1)$$
$$O_2$$

where $\quad \underline{O_1} =$ the difference in groups
$\qquad\quad O_2$

In this type of design, subjects experiencing X (in this case the learning disabled classification) are compared to those students who are not. The comparison is made in order to determine the effect of X on the group being studied.

In the one study using a pre-test, post-test design (Sheare, 1978), only the post-test data was used. Since post test results showed the effects of a mainstreamed setting on the social status of learning disabled children, the data from this study is very similar to that of other studies used in this meta-analysis.

Meta-Analysis

Meta-analysis is a method of research synthesis used to analyze the results of large numbers of data on a specific research topic. In meta-analysis, results from studies on a particular topic are transformed into a common metric, effect size (ES). Using this

common metric of effect size allows findings to be combined and examined across a group of studies using the meta-analytic procedure (Glass, 1976).

Meta-analysis was first popularized by Glass in 1976. Since that date, hundreds of meta-analyses have been conducted (Rosenthal, 1984). Many have been completed in the field of education, including those by Carlberg and Kavale (1980) and Castro and Mastropieri (1986a). Meta-analysis has been hailed for its importance in putting education on a more solid footing (Walberg, 1984), and numerous researchers, including Rosenthal (1984) and Hedges and Olkin (1985) have analyzed and refined the meta-analysis procedures. Nevertheless, as meta-analysis has become more widely used in education, researchers including Slavin (1984a, 1984b) and Strain and Smith (1986) have expressed concerns over the lack of conceptual, methodological and procedural safeguards in meta-analysis procedure.

It is not within the scope of this paper to discuss all of the issues surrounding the meta-analytic technique in depth. Readers who are interested in these issues are invited to consult the above-mentioned researchers for a thorough explanation of meta-analysis and the issues surrounding its use in research synthesis. However, two issues and their relevance to this meta-analytic research will be addressed. These issues are often referred to as 'mixing apples and oranges' (Glass, 1976) and 'garbage-in, garbage-out' (Eysenck, 1978).

Apples and Oranges. Glass (1978) wrote:

> In combining or integrating studies, the worry is often
> encountered that incommensurable studies are being forced
> together, or different studies are being made to answer the same
> question, or apples are being mixed with oranges. Implicit in
> this concern is the belief that only studies that are the *same* in
> certain respects can be aggregated.

To avoid being subject to this type of criticism, the scope of this
meta-analysis was made quite narrow. Only sociometric studies
conducted in elementary school, regular classroom settings were
included. In addition, only children with learning disabilities and no
other category of special need were included in the experimental
group. These children were compared to all other children in their
classrooms, or matched only by classroom, age, or gender. In
addition, all studies used a similar research design.

Garbage-In, Garbage-Out. The issue of controlling for the
quality of the studies included in a meta-analysis is controversial.
Glass (1976) is critical of the exclusion of poor quality studies as a
biased approach to research. In addition, Glass, McGaw and Smith
(1981) found no strong relationship between quality of study and
average effect size in the typical meta-analysis. Some educational
researchers, however, take the opposite view, stating that the
inclusion of poor quality studies can only result in poor results
(Dunst & Snyder, 1986). Eysenck (1978) refers to the problem of this

use of both poor and good quality studies in a meta-analysis as the " 'garbage in-garbage out' phenomenon" (p. 274).

In this meta-analysis, all studies were included, regardless of quality. In order to satisfy those critics who call for controls on studies which may be of poor quality, the possibility of using a coding system to control for quality of study was investigated. Criteria for inclusion in this quality of study coding system were based on possible sources of invalidity in this type of study involving selection, and the interaction of selection and X (the learning disabled label) (Campbell & Stanley, 1963). The three criteria chosen were degree of randomization in group selection, degree of permission needed and adequacy of guidelines for inclusion in the learning disabilities category.

Randomization in selection for the experimental or control group was chosen because randomization can help assure that there is no selection bias. Using the coding system, studies which use random selection would be rated higher than those that use "in situ" groups. Excluding some subjects from a study would also be a source of selection bias. Therefore, studies in which all classes at a certain school or grade level were included would be rated higher than those in which administrator, teacher, or parent permission are required. To maximize the extent to which each study represented the larger population of learning disabled children, studies which meet state or similar classification guidelines would be rated higher than those in which vague or inadequate guidelines were given. Ten initial studies

were selected and rated according to degree of randomization, type of permission needed for inclusion in the study and adequacy of the learning disabilities definition. A rating scale, shown in Table 3.2, was established in order to compare the quality of each study according to these three criteria.

Table 3.2

Criteria for Evaluating Quality of Study

Criteria   Score

1. Random selection   2 pts.

    In situ group   1 pt.

2. All students/classes included   2 pts.

    Permission required   1 pt.

3. State or other adequate guidelines

    used for learning disabled selection   2 pts.

    Guidelines inadequate or not given   1 pt.

Note: Total score for each study was multiplied by its effect size

before further calculations were made.

Results of this initial rating, shown in Table 3.3, showed that few studies met the high quality standards desired in a study. Furthermore, criteria were often reported in ways that made comparisons between studies difficult. For example, because of the small learning disabled population available to them, many studies used a random control group but included all learning disabled children in the experimental group. In addition, there is much controversy regarding the classification of students as learning disabled (Epps, Ysseldyke & Algozzine, 1985), including wide variations in state guidelines and adherence to these guidelines (Frankenberger & Fronzaglio, 1991; McLeskey & Waldron, 1991). This, in itself, raises questions as to randomization, because it cannot be ascertained whether the learning disabled students studied represent the total population of students with learning disabilities.

Because results of individual studies were reported in ways that made comparisons difficult and because of the controversy involved in the classification of learning disabled children, it was felt that the results of this coding system would be subject to criticism. Therefore, it was decided by this author to include all studies. Reviewers of this paper should be aware of the limitations/biases in this approach.

Table 3.3

Possible Quality of Study Criteria in 10 Initial Studies

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| Study | Criteria | | |
	Group Selection	Permission Needed	L. D. Guidelines
Bruininks (1978a)	Combination[a]	None	State[b]
Bruininks (1978b)	In situ	NG[c]	State
Siperstein, Bopp & Bak	In situ	NG	Local
Scranton & Ryckman	Combination	None	5 Criteria
Prillaman	In situ	Teacher	4 Criteria
Sainato, et al.	Combination	Teacher Parent Administrator	Local
Siperstein & Goding	In situ	NG	3 Criteria
Coben & Zigmond	In situ	Parent	State
Gottlieb, et al.	Combination	None	State
Gresham & Reschly	Random	Parent	State

a Combination refers to a combination of in situ and random group selection.

b State and Local refer to state guidelines and local guidelines respectively.

c NG denotes information not given in the study

Studies Analyzed

To test these hypotheses regarding the peer status of children with learning disabilities, the meta-analysis technique was used. The purpose of this meta-analysis was to statistically analyze data concerning the peer status of mainstreamed children with learning disabilities compared to their peers in the regular classroom. A total of fourteen (14) studies were used in the meta-analysis. Because many studies showed results for more than one set of data, a total of twenty-one (21) sets of data were used.

Correlated Data

When data was gathered from individual studies, an effect size was determined for each set of data in the study. Since multiple sets of data were often reported in one study, there was a possibility that some of the data may have been correlated. If there was a possibility that data may have been correlated, data from only one of the correlated studies was used. Hedges and Olkin (1985) recommend that this method be used in most cases because pooled estimates may be little more precise than any one of the estimators before pooling.

Three studies, Sheare (1978), Coben and Zigmond (1986) and Gresham and Reschly (1986) contained correlated data. In each case, only one set of data was analyzed. The Sheare (1978) study compared the peer status of children with learning disabilities who had previously been in self-contained classrooms and were now being put

into mainstream settings. Only end-of-year results were used because it was felt that they would be a better indicator of mainstream status. In the Coben and Zigmond (1986) and Gresham and Reschly (1986) studies, one set of data was randomly eliminated.

Another issue regarding correlated data arose when authors used, or may have used, the same data in separate studies. Bryan (1976) studied the same population as in Bryan (1974). Data for the 1976 study was used because an effect size could be tabulated for the data reported in that study, but not from the 1974 study. Because it was felt that Kistner and Gatlin (1989a) and Kistner and Gatlin (1989b) may have included the same children, Kistner and Gatlin (1989b) was randomly eliminated. Table 3.4 summarizes the studies analyzed in the meta-analysis.

Table 3.4

Studies Analyzed in Meta-Analysis

---

1. Bryan (1976)

2. Bruininks (1978a)

3. Bruininks (1978b)

4. Sheare (1978)[a]

5. Siperstein, Bopp & Bak (1978)

6. Scranton & Ryckman (1979)

7. Prillaman (1981)

8. Sainato, et al. (1983)

9. Siperstein & Goding (1983)

10. Coben & Zigmond (1986)[b]

11. Gottlieb, et al. (1986)

12. Gresham & Reschly (1986)[c]

13. Hoyle & Serifica (1988)

14. Kistner & Gatlin (1989a)

---

a End of year results used

b Peer rating results used

c 'Play with' results used

Note: As noted above, when there was a possibility that data might be correlated, only one set of data was used.

Effect Size

An "effect size" was determined for each study being analyzed, using the formula below. Effect size was defined as the mean difference between the experimental and comparison groups divided by the within group standard deviation (Glass, 1976).

$$ES = (\overline{X}_E - \overline{X}_C)/S_P \qquad (2)$$

where

$\overline{X}_E$ = the mean of the experimental group,

$\overline{X}_C$ = the mean of the control group, and

S_P = pooled standard deviation.

Effect size was calculated directly from those studies which included means and standard deviations. In the absence of these figures, effect sizes were calculated by the solution of equations from 't' or 'F' ratios, or from aggregated presentation of raw data.

Use of Pooled Standard Deviation

Because group variances may be unequal, some authors (Rosenthal, 1984; Thomas & French, 1986) have suggested the use of the control group standard deviation in studies which involve both a control and experimental group. However, Hedges (1981) has suggested that a pooled standard deviation be used to provide a more precise estimate of the population variance. In the study, a pooled standard deviation was used.

Variance

Because each individual effect size was viewed as a sample statistic, variance was calculated using the following formula (Hedges, 1981; Thomas & French, 1986):

$$\text{var}(ES_1) = (N_E + N_C)/(N_E N_C) \; + \; ES_1{}^2/ (2(N_E + N_C)) \qquad (3)$$

where

N_E = sample size of the experimental group,

N_C = sample size of the control group, and

ES_1 = the estimate of the effect size

Weighted Means and Confidence Intervals

Because effect sizes with smaller variances give more precise estimates, it was necessary to calculate a weighted mean for the group of effect sizes, thereby giving more weight to effect sizes that were more accurate (Hedges, 1981; Hedges & Olkin, 1985; Thomas & French, 1986). Using this procedure, each effect size was weighted by the reciprocal of its variance.

The following formula was used:

$$\overline{ES} = \sum_{i=1}^{n} \frac{\dfrac{ES_i}{var(ES_i)}}{\dfrac{1}{var(ES_i)}} \qquad (4)$$

where

$\overline{ES}$ = the weighted mean,

ES_i = the ith effect size, and

var (ES_i) = the variance of the ith effect size, defined in

Formula 2.

The variance of the group effect sizes was obtained using the following formula:

$$var(ES) = \frac{1}{\sum\limits_{i=1}^{n} \dfrac{1}{var(ES_i)}} \qquad (5)$$

where

var(ES) = the variance of the group of effect sizes,

var(ES_i) = the variance of each individual effect size (from

Formula 2.)

Regression

The effects of the variables of gender of rater and child rated, type of sociometric instrument used, date of publication and degree of integration were tested using multiple regression analysis.

Regression estimates were derived using the weighted least squares method suggested by Hedges and Olkin (1983). Effect sizes were transformed as suggested by the authors (Equation 4.1, p. 139) to stabilize the variance. Results are thus not strictly comparable with the simple comparisons of means (Thomas & French, 1986), though 't' statistics are valid in both instances.

Fail-safe N

The use of the fail-safe N was used to test the sampling bias in a literature search. The formula adopted by Orwin (1983) for use with the effect size statistics was used:

$$d_c = \frac{N_o(\overline{d_o} + N_{fs}(\overline{d_{fs}}))}{N_o + N_{fs}} \tag{6}$$

where

d_c = the criterion value

$\overline{d_{fs}}$ = the mean for the fail-safe studies

CHAPTER IV

RESULTS

Hypothesis 1.

To compare the status of learning disabled children and their non-handicapped peers, as measured by a sociometric instrument, an overall effect size was computed for the twenty-one (21) data sets. Following Thomas and French (1986), each effect size was weighted by its corresponding variance in constructing the overall mean.

The $\overline{ES}$ (mean ES) across the 21 data sets of students with learning disabilities versus non-handicapped peers was -.63 with a standard error of 0.086. This indicated that children with learning disabilities occupied a peer status approximately six-tenths of a standard deviation below that of their peers. The null hypothesis of no difference in peer status between learning disabled versus non-handicapped students was rejected at the .001 significance level (t = -7.38). The range of all ESs was 1.44 to -1.48 with a median of -.71. Hence, mainstreamed elementary school children with learning disabilities were found to be significantly lower in peer status than their peers. Table 4.1 and Figure 4.1 show the results of the computations for hypothesis 1.

Table 4.1

Effect Size Results for Hypothesis 1: Peer Status of Learning Disabled Children Compared with Peers

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Quantiles				Moments	
maximum	100.0%	1.4390		Mean	-0.6347
	99.5%	1.4390		Std Dev	1.4635
	97.5%	1.4390		Std Err Mean	0.0860
	90.0%	0.4768		upper 95% Mean	-0.4552
quartile	75.0%	-0.2690		lower 95% Mean	-0.8141
				N	21.0000
median	50.0%	-0.7054		Sum Wgts	289.4604
quartile	25.0%	-0.9645			
	10.0%	-1.0525			
	2.5%	-1.4766			
	0.5%	-1.4766			
minimum	0.0%	-1.4766			

Test Mean=value

Hypothesized Value   0

Actual Estimate   -0.6347

	t Test	Signed-Rank
Test Statistic	-7.378	-88.500
Prob > |t|	0.000	0.001
Prob > t	1.000	1.000
Prob < t	0.000	0.000
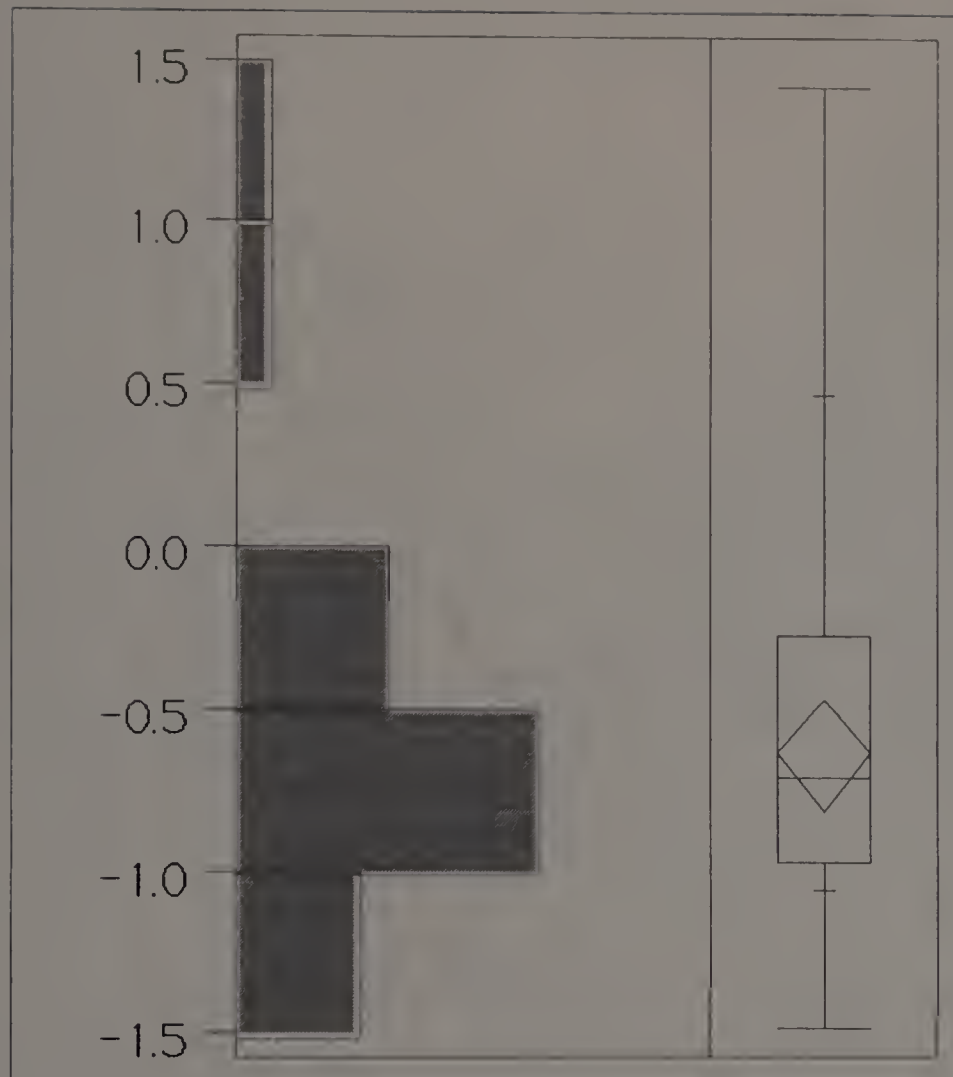
Figure 4.1

Effect Size Results for Hypothesis 1: Peer Status of Learning
Disabled Children Compared with Peers

Hypothesis 2 compared the status of learning disabled girls with that of non-handicapped girls, as measured by a sociometric instrument. To compare the status of learning disabled girls with that of other girls, a separate meta-analysis was conducted using the five (5) data sets which analyzed results for girls. As in hypothesis 1, each effect size was weighted by its corresponding variance in constructing the overall mean. The data from the meta-analysis did not allow for the null hypothesis to be rejected. Hence, it could not be determined if mainstreamed elementary school girls with learning disabilities occupy a different peer status than their same gender peers. Table 4.2 and Figure 4.2 show the results of this computation.

Table 4.2

Effect Size Results for Hypothesis 2: Peer Status of Girls with

Learning Disabilities Compared with Same-Gender Peers

Quantiles			Moments	
maximum	100.0%	1.4390	Mean	0.06511
	99.5%	1.4390	Std Dev	2.87058
	97.5%	1.4390	Std Err Mean	0.60040
	90.0%	1.4390	upper 95% Mean	1.73207
quartile	75.0%	0.2797	lower 95% Mean	-1.60186
median	50.0%	-0.9345	N	5.00000
quartile	25.0%	-1.0269	Sum Wgts	22.85878
	10.0%	-1.0505		
	2.5%	-1.0505		
	0.5%	-1.0505		
minimum	0.0%	-1.0505		

Test Mean=value

Hypothesized Value   0

Actual Estimate   .065106

	t Test	Signed-Rank
Test Statistic	0.108	6.500
Prob > |t|	0.919	0.125
Prob > t	0.459	0.062
Prob < t	0.541	0.938
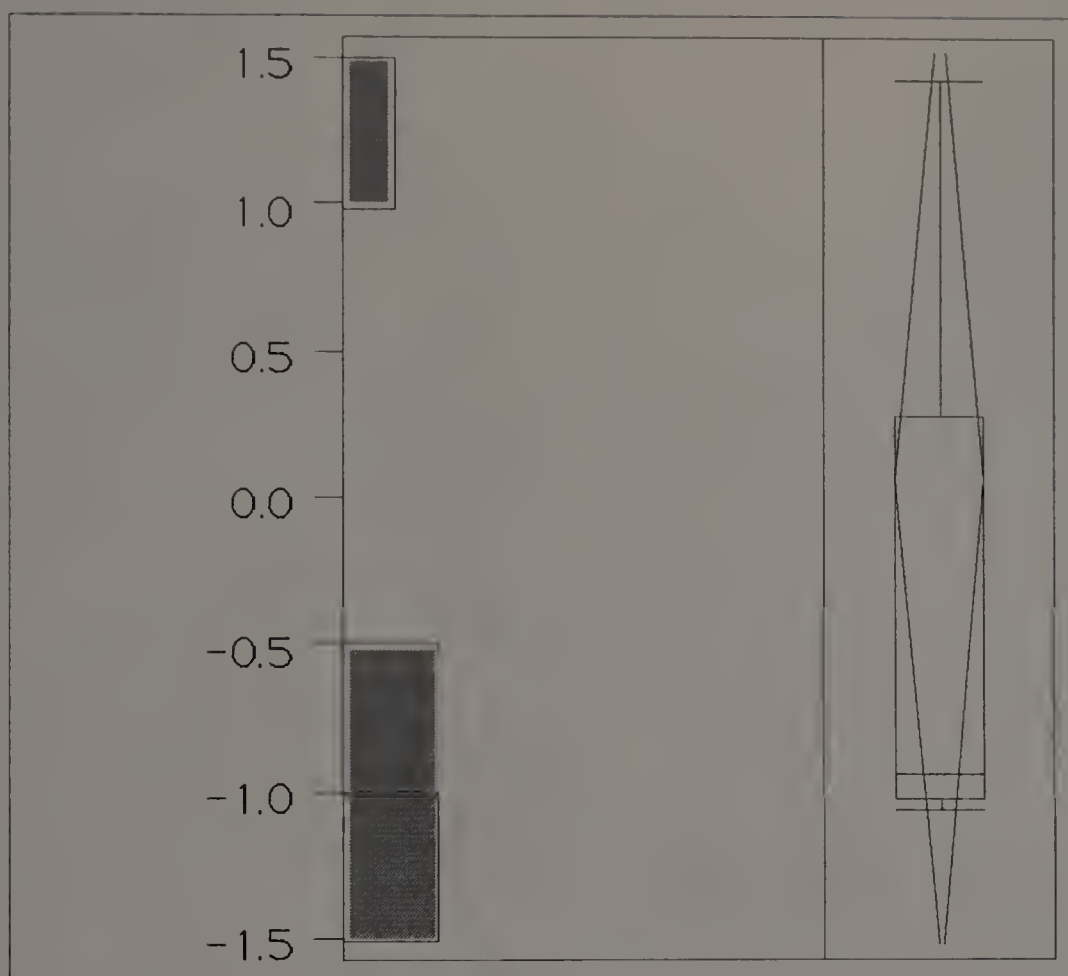
Figure 4.2

Effect Size Results for Hypothesis 2: Peer Status of Girls with

Learning Disabilities Compared with Same-Gender Peers

In addition to using a separate meta-analysis to test hypothesis 2, the regression estimate was computed using data from the overall meta-analysis indicated in hypothesis 1. In order to hold constant the effects of studies which rated girls (female studies) and method of measuring peer status, computed effect sizes were regressed on indicator variables for studies which rated both boys and girls, type of sociometric instrument used, gender of raters, year of study and degree of integration.

The regression data did not allow for the null hypothesis to be rejected. The absence of statistically significant effects for studies involving girls did not rule out such effects but may have only reflected the large standard error (.11) arising from small effect sizes. As with meta-analysis results, the null hypothesis of no difference in peer status between learning disabled versus non-handicapped girls could not be rejected through regression analysis. Hence, it could not be determined if girls with learning disabilities occupy a significantly lower peer status than their non-handicapped peers. Results of the regression analysis are presented in Table 4.3.

Table 4.3

<u>Regression Estimates:</u>

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Response: ES_Transf

Summary of Fit

Rsquare   0.398487

Root Mean Square Error   0.108197

Observations (or Sum Wgts)   9.998237

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	-0.371106	0.12033	-3.08	0.0081
Female	-0.070536	0.11555	-0.61	0.5514
Both	-0.0993	0.08394	-1.18	0.2565
Peer_Nom	0.1947819	0.08569	2.27	0.0393*
Year	0.1241321	0.07473	1.66	0.1189
SX_Rated	-0.117584	0.10333	-1.14	0.2743
Integr	0.196052	0.11964	1.64	0.1235

---

* p < .04

Hypothesis 3.

Hypothesis 3 compared the status of learning disabled boys with
that of other boys, as measured by a sociometric instrument. It was
not possible to test this hypothesis using regression analysis.[1]
However, a separate meta-analysis was performed using the seven (7)
male only data sets. Results were again computed using the
formulas suggested by Thomas and French (1986). The data from the
meta-analysis did not allow for the null hypothesis to be rejected.
Hence, it could not be determined if boys with learning disabilities
occupy a lower peer status than their peers. Results of this meta-
analysis are shown in Table 4.4 and Figure 4.3.

Table 4.4

Effect Size Results for Hypothesis 3: Peer Status of Boys with
Learning Disabilities Compared with Same-Gender Peers

Quantiles

maximum	100.0%	0.5995
	99.5%	0.5995
	97.5%	0.5995
	90.0%	0.5995
quartile	75.0%	-0.0140
median	50.0%	-0.3679
quartile	25.0%	-0.5192
	10.0%	-1.4766
	2.5%	-1.4766
	0.5%	-1.4766
minimum	0.0%	-1.4766

Moments

Mean	-0.34659
Std Dev	1.29913
Std Err Mean	0.18206
upper 95% Mean	0.09890
lower 95% Mean	-0.79207
N	7.00000
Sum Wgts	50.91818

Test Mean=value

Hypothesized Value	0
Actual Estimate	-.34658

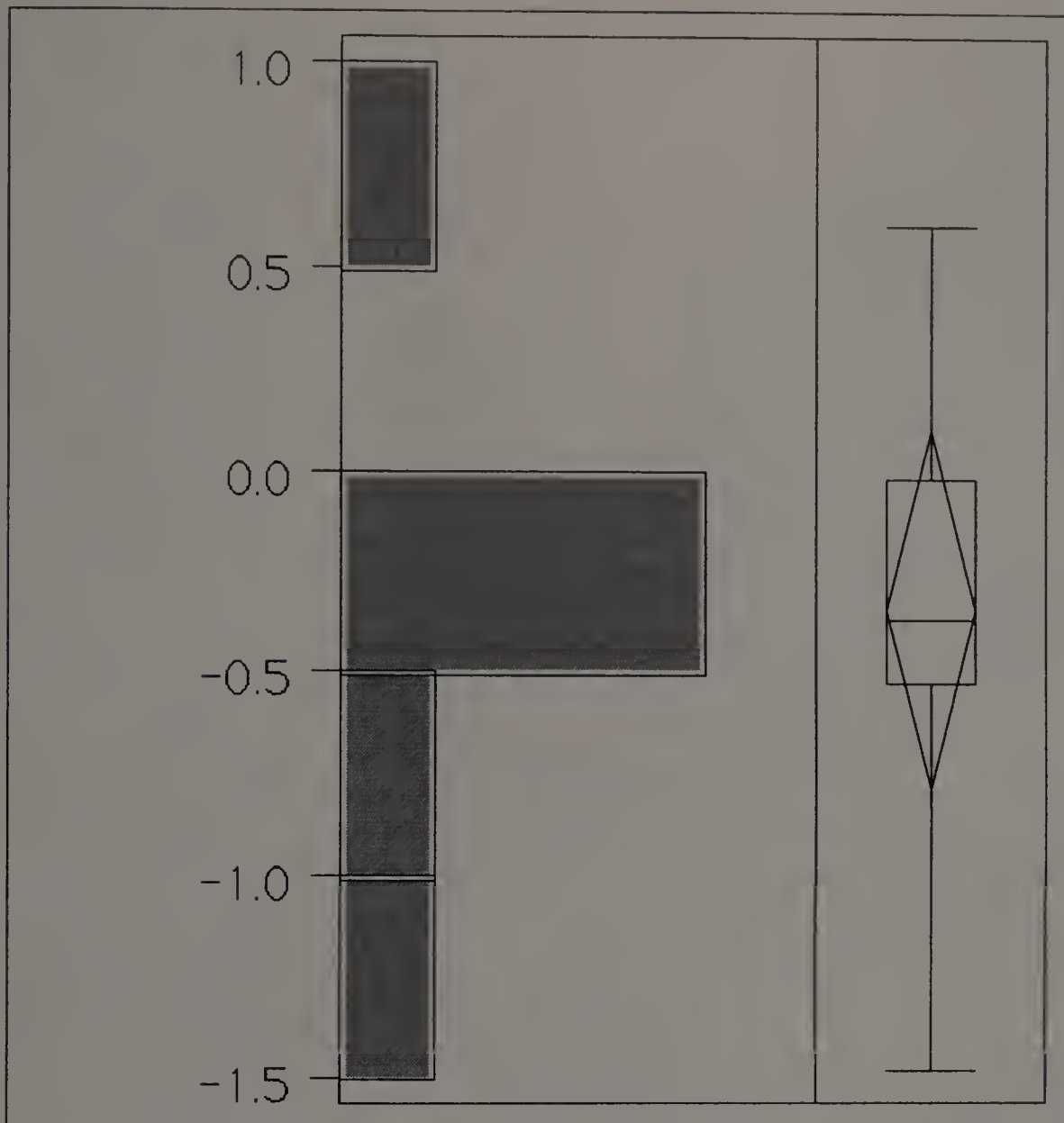|	t Test	Signed-Rank
Test Statistic	-1.904	-8.000
Prob > |t|	0.106	0.219
Prob > t	0.947	0.891
Prob < t	0.053	0.109

Figure 4.3

Effect Size Results for Hypothesis 3: Peer Status of Boys with

Learning Disabilities Compared with Same-Gender Peers

Hypothesis 4 tested the difference in status between children with learning disabilities and their peers when peer nomination was used as a rating method. To measure this difference, a separate meta-analysis was performed using the twelve (12) studies which used peer nomination scales. As in hypothesis 1, effect sizes were transformed prior to analysis in the manner suggested by Thomas and French (1986).

The $\overline{ES}$ (mean ES) across the 12 data sets of students with learning disabilities versus non-handicapped peers when measured by peer nominations was -.56 with a standard error of 0.126. This indicated that children with learning disabilities occupied a peer status approximately one half of a standard deviation below that of their peers. The null hypothesis of no difference in peer status between learning disabled versus non-handicapped students when measured by peer nomination was rejected at the .04 significance level (t = - 4.46). The range of all ESs was 1.44 to -1.05 with a median of -.56. Hence, mainstreamed elementary school children with learning disabilities were found to be significantly lower in peer status than their peers when measured by peer nomination. Table 4.5 and Figure 4.4 show the results of the computations for hypothesis 4.

Table 4.5

Effect Size Results for Hypothesis 4: Peer Status of Children with
Learning Disabilities Compared to Peers Using Peer Nominations

Quantiles				Moments	
maximum	100.0%	1.4390		Mean	-0.5603
	99.5%	1.4390		Std Dev	1.8240
	97.5%	1.4390		Std Err Mean	0.1257
	90.0%	1.1872		upper 95% Mean	-0.2836
quartile	75.0%	-0.1259		lower 95% Mean	-0.8370
median	50.0%	-0.5646		N	12.0000
quartile	25.0%	-0.8472		Sum Wgts	210.4686
	10.0%	-1.0523			
	2.5%	-1.0530			
	0.5%	-1.0530			
minimum	0.0%	-1.0530			

Test Mean=value

Hypothesized Value	0
Actual Estimate	-.56030

	t Test	Signed-Rank
Test Statistic		-4.456	-26.000
Prob > |t|	0.001	0.042
Prob > t	1.000	0.979
Prob < t	0.000	0.021
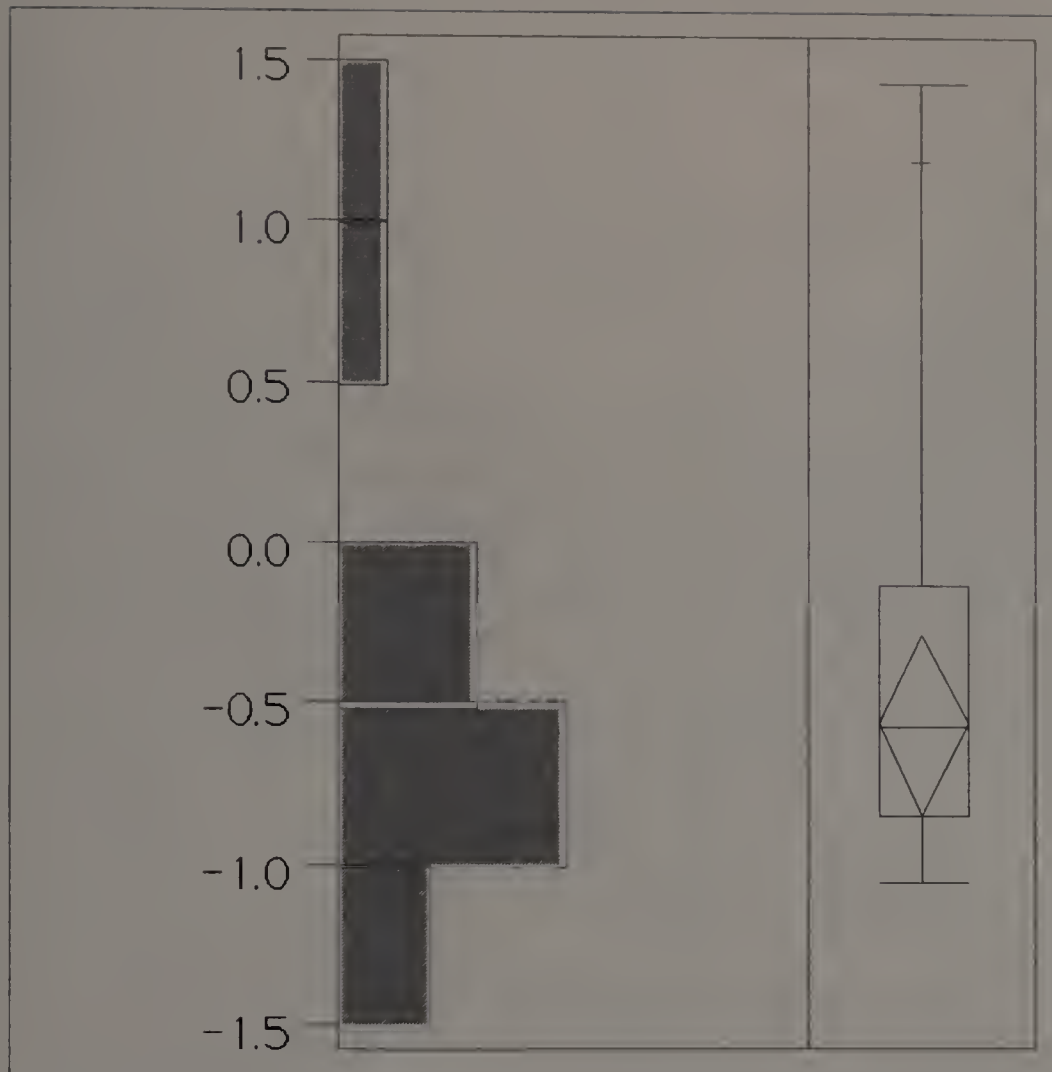
Figure 4.4

Effect Size Results for Hypothesis 4: Peer Status of Children with
Learning Disabilities Compared to Peers Using Peer Nominations

Hypothesis 5.

Hypothesis 5 tested the difference in status of children with learning disabilities compared with their peers when peer rating scales were used. To test this hypothesis, a separate meta-analysis was performed using the nine (9) sets of data in which peer rating scales were used as a measurement device. These results showed that it is not possible to reject the null hypothesis. Although the estimate was more negative than in the peer nomination test, the variance was so large that no conclusion could be drawn. Hence, it was not possible to determine here if mainstreamed elementary school children with learning disabilities occupy a lower peer status than their peers when measured by peer rating. Results of the meta-analysis are found in Table 4.6 and Figure 4.5.

Table 4.6

Effect Size Results for Hypothesis 5: Peer Status of Children with Learning Disabilities Compared to Peers Using Peer Ratings

Quantiles				Moments	
maximum	100.0%	-0.0140		Mean	-0.8681
	99.5%	-0.0140		Std Dev	2.3653
	97.5%	-0.0140		Std Err Mean	0.1679
	90.0%	-0.0140		upper 95% Mean	-0.4810
quartile	75.0%	-0.5367		lower 95% Mean	-1.2552
median	50.0%	-0.8744		N	9.0000
quartile	25.0%	-0.9989		Sum Wgts	198.5096
	10.0%	-1.4766			
	2.5%	-1.4766			
	0.5%	-1.4766			
minimum	0.0%	-1.4766			

Test Mean=value

Hypothesized Value	0
Actual Estimate	-.86808

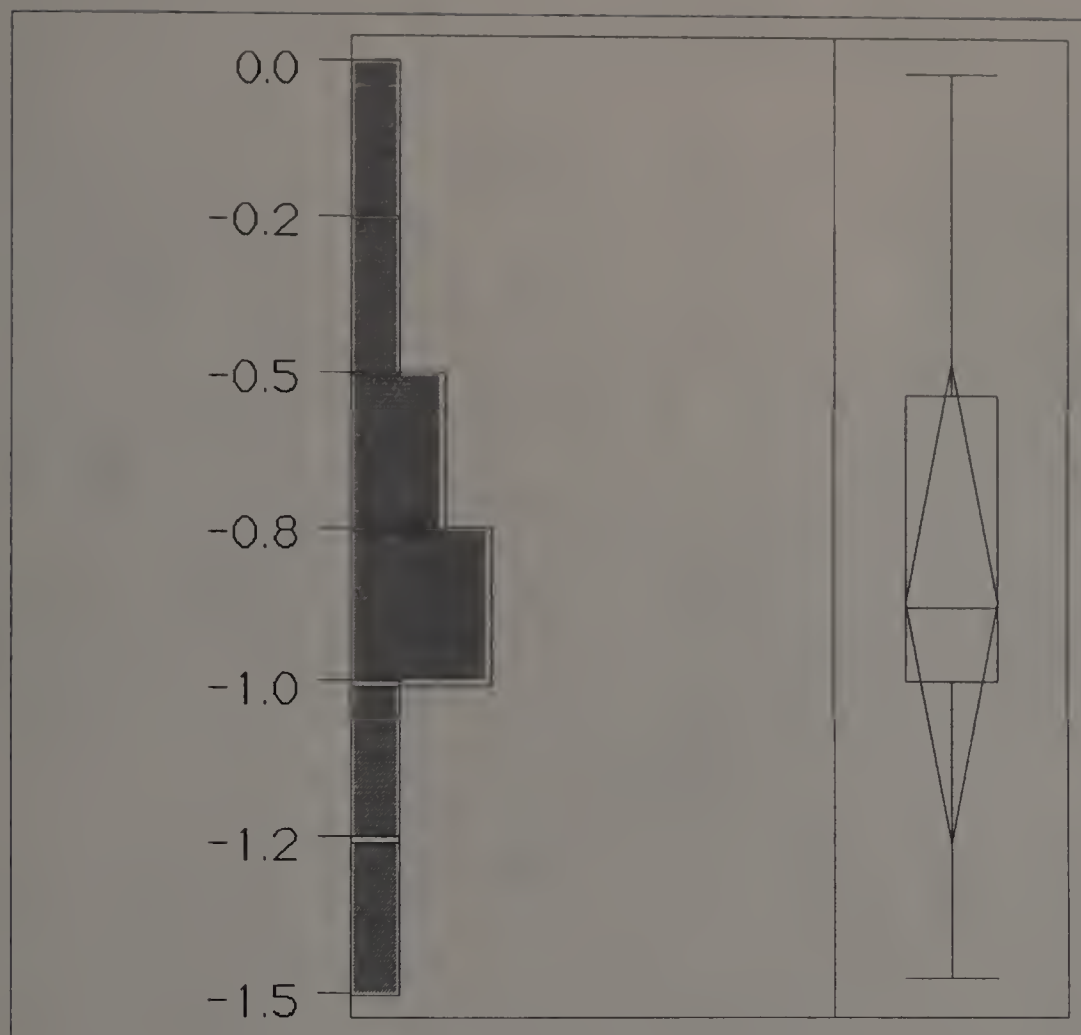|	t Test	Signed-Rank	
Test Statistic		-5.171	-4.500
Prob > |t|	0.001	0.629	
Prob > t	1.000	0.686	
Prob < t	0.000	0.314	

Figure 4.5

Effect Size Results for Hypothesis 5: Peer Status of Children with Learning Disabilities Compared to Peers Using Peer Ratings

Hypothesis 6.

Hypothesis 6 tested the difference between status of mainstreamed elementary school children with learning disabilities when measured by peer nomination compared to when measured by peer rating scales. To determine this, a regression analysis was performed. The positive and statistically significant (p=.04) coefficient for the Peer_Nom variable indicated that learning disabled students possess higher status when nominated by peers, relative to rated by peers. Therefore, the null hypothesis that there is no difference in the peer status of students with learning disabilities and their peers when measured by peer nominations compared to when measured by peer ratings was rejected. Hence, mainstreamed elementary school children with learning disabilities were shown to occupy a closer peer status to their peers when measured by peer nomination than when measured by peer rating. Results of the regression analysis are displayed in Table 4.3.

Hypothesis 7.

Hypothesis 7 compared the differences in status of children with learning disabilities and their peers, as measured by a sociometric instrument, in studies published from 1970 to 1989 compared to those published from 1980 to 1989. A regression analysis was performed to determine results. As shown in the regression estimates on Table 4.3, there appeared to be a trend toward higher peer status in the 1980s than in the 1970s. Results were not significant at conventional levels. However, the regression estimate suggested that learning

disabled children occupied a peer status somewhat closer to that of their peers in the 1980s than the 1970s.

Hypothesis 8.

Hypothesis 8 compared the status of students with learning disabilities and their peers, as measured by a sociometric instrument, when rated by same-gender peers. A regression analysis was performed to determine the influence of this variable. Regression estimates, seen on Table 4.3, provided no basis for concluding that the gender of the rater had any influence on measures of social status. Therefore, it was not possible to reject the null hypothesis. Hence, it was not possible to determine if there is a difference in the peer status of children with learning disabilities and their peers when rated by their same-gender peers compared to when rated by both boys and girls.

Hypothesis 9.

Hypothesis 9 compared the ratings of learning disabled children and their peers, as measured by a sociometric instrument, in settings where children with learning disabilities who were integrated up to 50% of the time to those in which children with learning disabilities who were integrated more than 50% of the time. A regression analysis was performed to determine the effect of the degree of mainstreaming on the peer status of the learning disabled population. As seen in Table 4.1, results were not significant at conventional levels. However, the results suggested that children

with learning disabilities tend to be somewhat more accepted when they spend more than 50% of their time in the regular classroom.[2]

Intercept Term

For all of the regression estimates, the result of principal interest was the intercept term, which estimates the difference in mean effects, <u>conditioned</u> on the other included variables. This effect size (-.37), while statistically significant at the 0.01 level was nevertheless only slightly over half the size of the overall effect size (-.63) shown in Table 4.1. This indicated that other included variables account for a substantial portion of the difference. Less than half of the total variance in effect sizes was explained ($R^2 = .40$), indicating that other unmeasured (and perhaps unmeasurable) variables accounted for much of the study-to-study variation in effects.

Fail-safe N

For the overall ES (hypothesis 1), fail-safe N was computed by multiplying the number of data sets (21) by the mean of all studies minus an accepted measure of a medium size effect. Using the formula by Orwin (1983), this was then divided by the accepted measure of a medium size effect minus zero.

$$N_{fs} = \frac{21\,(.13)}{.5-0} = 5.5$$

Results show that if there were 5.5 undiscovered data sets with effect size = 0, results of the meta-analysis would remain the same. Separate computation resulted in a fail-safe N of 6.8, if all undiscovered data sets had an effect size = .1

$$N_{fs} = \frac{21(.13)}{.5\text{-}.1} = 6.8$$

These fail-safe N numbers were computed in order to avoid sampling bias. Results of the fail-safe N computations show that there would need to be at least six unlocatable sets of data for sampling bias to occur.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Background

The passage of PL 104-476 (originally referred to as PL 94-142) and the Regular Education Initiative have led to the placement of more children with learning disabilities into regular classroom settings (Bateman, 1992). Although much controversy exists as to a true definition for learning disabilities (e.g., Epps, Ysseldyke & Algozzine, 1985; Frankenberger & Fronzaglio, 1991; McLeskey & Waldron, 1991), research evidence shows that children who are classified as having a learning disability are more likely to occupy a lower status than other children, when rated by their classroom peers (Bryan, 1974; Bruininks, 1978a; Gresham & Reschly, 1986; Kistner & Gatlin, 1989a).

Researchers have been examining the issues surrounding the peer status of children with learning disabilities in mainstream settings for almost twenty years. Although we know that in most settings a child with learning disabilities is more likely to occupy a lower status than a child without learning disabilities, there are as yet no clear explanations for this occurrence. Because of this, much research still needs to be done to discover the variables which correlate with low status in learning disabled children.

The Study

The purpose of this study was to use the meta-analytic technique to examine the peer status of elementary school children identified as having a learning disability. The data base used for this study consisted of twenty-one (21) data sets from fourteen (14) studies conducted on this topic from 1976 to 1990.

There were two parts to this study. The first part involved measuring the peer status of mainstreamed elementary school children with learning disabilities across studies, including those finding no difference in status. The second purpose was to examine the common variables reported in those studies, in order to determine if any of these variables correlated with the learning disabilities category, and might possibly be related to low status in this population. The variables examined were gender of both rater and child rated, type of sociometric instrument used, date of publication, and degree of integration, The variables of grade, race/ethnicity, and peer status were not examined because this data was incomplete, unusable or missing from many studies.

The technique of meta-analysis allows researchers to quantify, integrate and analyze findings from many studies on a research topic (Thomas & French, 1986). The meta-analyses performed here resulted in findings not possible to obtain in traditional reviews of the literature on this topic (e.g., Dudley-Marling & Edmiaston, 1985; Gresham & Reschly, 1986; Madden & Slavin, 1982). The fail-safe N

number of six was felt to be adequate, as only 21 data sets were used in these meta-analyses.

A total of nine (9) hypotheses were drawn up and tested using meta-analysis and regression analysis. The following are the major conclusions that have been drawn from this study.

Conclusions

Results of the main analysis showed that, even when studies finding no difference were considered, learning disabled children occupied a status six-tenths of a standard deviation lower than their peers. This result was similar to that of a review of seven studies by Gresham and Reschly (1986), who found the mean peer status of mildly handicapped children in elementary classrooms to be between one-half and one full standard deviation below that of their peers.

Using data from the overall meta-analysis of all studies, regression estimates showed that children with learning disabilities occupied a higher peer status when a peer nomination method was used than when a peer rating method was used to measure status. A separate meta-analysis in hypothesis 4, however, showed that learning disabled children still occupied a significantly lower status than their peers even when peer nomination was used. This finding that children with learning disabilities occupy a differing peer status with peer nominations than when peer ratings are used is in agreement with the definition used by Gresham (1981), who suggested that peer nomination and peer rating scales measure

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different dimensions of peer status. However, it was in contrast to Asher and Taylor (1981), who suggested that peer nominations may underestimate status. Perhaps the higher results found for peer nomination in this dissertation reflect the use of many studies that only measured acceptance (for example: choose three children you like to play with most), and not rejection. This may produce higher ratings than the peer rating method, which includes both positive and negative ratings.

Because of the lack of sufficient data, it was not possible to determine whether gender plays a role in the low peer status of learning disabled children. However, many studies (Bryan, 1974; Scranton & Ryckman, 1979; Gottlieb et al., 1986; Kistner & Gatlin, 1989b; LaGreca & Stone, 1990) have found that learning disabled girls, particularly Caucasian girls, are less accepted by their peers than learning disabled boys or girls of color. It is possible that Caucasian girls with learning disabilities are less accepted than other categories of children with learning disabilities because academic achievement is a more important expectation for Caucasian girls than other populations (Kistner & Gatlin, 1989b). Some evidence suggests that academic failure, not success, contributes to the positive peer status among African-American students (Gregory, 1992). Researchers hypothesize that perhaps it is the discrepancy between performance and peer expectations that causes lower status (Bryan, 1974; Gresham & Reschly, 1987; Kistner & Gatlin, 1989b). Kistner and Gatlin (1989b) have also suggested that there may be a selection bias, causing Caucasian learning disabled girls to be

selected on a different basis than the rest of the learning disabled population.

This meta-analysis found no difference in the status of learning disabled children between ratings performed by both-gender or same-gender peers, although Singleton and Asher (1977) found gender bias in children's sociometric ratings of other children. The finding of no difference may have been because of the fact that children of many different ages, including younger students, were included in the studies in the meta-analysis, whereas the children in Asher's study were age 9 and 10.

This study found no significant differences between studies published in the 1970s and 1980s. There was, however, a trend showing that children with learning disabilities tended to be more accepted in studies published in the 1980s. This meta-analysis also found no significant difference in status between those children mainstreamed up to 50% of the time and more than 50% of the time. Once again, however, a trend was found pointing toward higher status in learning disabled children who spent more than 50% of the time in the regular classroom. Taken together, these last two results could point toward a tentative conclusion that learning disabled children have become gradually more accepted and less rejected as they have become more integrated into the regular classroom setting in the last decade. Another possible explanation for these trends could be the gradual improvement in research techniques in the last 20 years.

Analysis of these findings are subject to two limitations. First, the findings of this meta-analysis are limited by the differing practices of identifying and placing students in programs for children with learning disabilities (Epps, Ysseldyke & Algozzine, 1985; Frankenberger & Fronzaglio, 1991; McLeskey & Waldron, 1991). Because many different standards are employed in deciding which children should be categorized as learning disabled, results of these studies may not generalize to all learning disabled populations. A second limitation of this meta-analysis involves the issue of correlated data. Because data may have been correlated, six sets of data were not included in any of the analyses in this study. Although there is a fail-safe N of 6.8 studies, there is a possibility that results may have been different if all data could have been included.

The major finding of the research is that learning disabled children in mainstream settings occupy a lower peer status than their non-handicapped peers. It can also be concluded that peer nomination and peer rating represent different dimensions of status. Although it is not possible to draw definite conclusions regarding year of study and degree of integration, it is possible, from the data, to suggest that learning disabled children occupy a somewhat higher status since the passage of P.L. 101-476, the Individuals with Disabilities Education Act (1990). Due to small sample sizes, it is difficult to draw other conclusions regarding the gender differences in children with learning disabilities.

Recommendations

The issues involved in the social status of mainstreamed children with learning disabilities are complex and multi-faceted. Although they can not all be discussed here, the following are some issues which warrant further study.

Sociometric Research

Recent sociometric research has led to a number of current issues that warrant further investigation. Among these are studies of rejected children, and studies which measure the variables of gender and race.

Studies of Rejected Children Research on children who lack friends in school has expanded rapidly in recent years (Asher, Hymel & Renshaw, 1984). Studies of both learning disabled and non-learning disabled students point to the need for more focus on rejected children. Many studies, including those in this meta-analysis, use only positive peer nomination methods to determine peer status. However, low scores on positive sociometric measures do not discriminate between rejected and neglected children (Coie & Kupersmidt, 1983). If peer nominations are used, they must include negative nominations in order to discriminate rejected from neglected children (Coie, Dodge & Coppotelli, 1982). Peer ratings can also be used to discriminate neglected from rejected children, when the lowest rating is used to identify rejected children (Asher & Dodge, 1986).

Discriminating between neglected and rejected children is an important distinction, because it appears that rejected children are a high-risk subset of children. Studies show that rejected children are more likely to remain rejected when placed in a new group, whereas neglected children are more likely to become average or popular (Coie & Dodge, 1983; Coie & Kupersmidt, 1983). Other research shows that children who are rejected by their peers at the beginning of kindergarten perform at lower levels, and like school less, by the end of the school year, than other children (Ladd, 1990). Furthermore, rejected children are particularly at risk for later adjustment problems (Asher, Hymel & Renshaw, 1984).

Studying Students by Race and Gender In the earliest study focusing on the social status of children with learning disabilities, Bryan (1974) found differences in peer population base on race and gender. The recent reemergence of interest in these two variables is of importance because evidence is mounting that Caucasian learning disabled girls are more at risk for low status than other students with learning disabilities (Kistner & Gatlin, 1989b; LaGreca & Stone, 1990).

Social Skills Training Programs

Numerous social skills training programs have been developed over the past several years to improve the status of learning disabled and other special needs children (Maag, 1989). Yet, in reviewing the intervention strategies used with special needs children, Strain, Odom and McConnell (1984) wrote "we do not hesitate to suggest that currently available interventions have done little to improve the social

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skills, acceptability and social adaptation of special needs children (p.21)". Lack of progress in this area may be due to two important factors, which most researchers have failed to take into account. These are the importance of using appropriate outcome measures and the recognition of social reciprocity.

Measuring Outcomes McIntosh, Vaughn and Zaragoza (1991) provided an excellent review of the research in social skills training programs for learning disabled children. Of particular concern to McIntosh et al. (1991) in their review was the lack of evidence of peer acceptance resulting from social skills training programs. These researchers found that, even when programs successfully trained students to make behavioral changes, these changes failed to result in actual changes in peer status. Five of the twenty-two studies investigated by McIntosh et al. (1991) measured the effects of social skills training on peer social acceptance. Of these five studies, only one (Vaughn, Lancelotta & Minnis, 1988) reported significant increases in sociometric ratings for learning disabled elementary school children in a regular classroom setting. McIntosh et al. (1991) called for future researchers to use outcome measures, such as peer status, which relate to actual changes in social climate and not merely to frequencies of target behavior.

Social Reciprocity Strain et al. (1984) attribute the failure of traditional social skills intervention to faulty assumptions regarding social skills training and assessment. First, these interventions have assumed that absence of social behaviors is due to lack of skills,

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contrary to evidence showing that peer group behavior is a strong influence on an individual child's social behavior (Charlesworth & Hartup, 1967). Second, traditional training programs have focused on the behavior of the target individual rather than social exchanges between all members of the peer group, although interventions including target children and peers have shown both short and long term effects (Strain, Shores & Kerr, 1977). Thirdly, Strain et al. (1984) concluded, traditional social skills training programs have focused

on remediation of discrete behaviors, ignoring the reciprocal, give-and-take quality of children's interactions.

Changes in Classroom Atmosphere

All of the studies included in this meta-analysis have employed pull-out programs in largely traditional settings. In 1985, Madeleine C. Will, Assistant Secretary for the Office of Special Education and Rehabilitative Services,U.S. Department of Education, proposed the Regular Education Initiative (Will, 1986). This initiative called for the elimination of the pull-out programs, because they lead to stigmatization and lowered expectations for academic and social performance. However, there is good reason to believe that the traditional classroom itself contributes to the low status of learning disabled and other special needs students, because students in almost all classrooms are in competition for academic grades and other awards (Madden & Slavin, 1982).

Two programs which have been found to improve the peer status of mildly handicapped students while allowing them to remain in the mainstream classroom are Cooperative Learning and Team Assisted Individualization. Although neither of these approaches deals specifically with learning disabled children, learning disabled children either are said to be included in the target population, or can be assumed to be included since learning disabled children are often among those children with mild academic handicaps (MAH) who are mainstreamed (Gresham, 1981; Madden & Slavin, 1982).

Cooperative Learning Cooperative learning is a means of structuring the regular classroom in a way that is different from that in most classrooms. In traditional classrooms, 85% of classroom time consists of lectures, seatwork, or competition (Johnson, Johnson, Holubec & Roy, 1984). Moreover, the structure of most classrooms is competitive; the performance of students who do well adversely affects other students who are graded in comparison to them.

In 1985, Yager, Johnson, Johnson and Snider compared the effects of cooperative learning to an individualized approach in which children were told not to interact. Before cooperative learning, special needs students in all conditions received high numbers of negative and few positive peer nominations. At post test, these statistics remained the same for students in the individualized condition, while students in the cooperative condition showed a large increase in positive and decrease in negative nominations. Positive

nominations increased and negative nominations decreased when cooperative learning was implemented, but reversed when it was replaced by individualized instruction.

Team Assisted Individualization Team Assisted Individualization (TAI), which combines both individualized instruction and cooperative learning for teaching mathematics, was specifically developed to improve the outcomes of mainstreaming for mildly academically handicapped (MAH) students (Madden & Slavin, 1982). The authors designed TAI to capitalize on the ability of individualized instruction to accommodate wide ranges of student levels and on the ability of cooperative learning to motivate students to do academic work, to break down barriers to friendship, and to help solve the management problems in individualized programs (Slavin, 1984a). In the TAI approach, students are assigned to four or five member teams, mixed for ability, gender and ethnic group. Children work on individualized curriculum materials in their teams, working in groups of two or three within their team. Team members provide help where needed and score answer sheets; teachers are asked for help only if the team cannot solve a problem. To introduce new skills, teachers work with small groups of students who are at the same point in the curriculum. Cooperative Integrated Reading and Comprehension (CIRC) uses similar methods to teach language arts subjects (Slavin, Stevens & Madden, 1988).

Slavin, Madden and Leavey (1984) reported the results of an experiment using the TAI program. In this experiment, MAH

children and peers in grades 3, 4, and 5 who participated in the TA I group were compared to children in an individualized instruction group using TAI materials and to a traditional classroom group. In this study, TAI students gained significantly more than controls in sociometric ratings of "best friend" and received fewer "rejection" choices than controls. At post-test, in fact, TAI-MAH student's scores were indistinguishable from those of control classroom non-handicapped children. MAH students in the Individualized Instruction treatment also showed significant gains in many areas, including scores equal to TAI-MAH students in sociometric ratings of "best friends".

Peer Relationship Support

In 1977, Asher reported positive results from a social skills training program which combined coaching and modeling in a program that fostered interaction between special needs children and their peers. Recently, other authors have discussed social skills training methods which have also used peers to improve the social relationships of children with special needs. Stainback and Stainback (1990) have discussed a number of ways for teachers to foster supportive relationships and friendships between students with special needs who lack friends and their peers. These include strategies to provide opportunities for interaction, encourage support and friendship development, teach peer support and friendship skills, foster understanding and respect for individual differences, and be a positive support and friendship model. Foster and Pearpoint (1990) have discussed another innovative solution for helping

students who are experiencing social problems. They have used a structured program in which peers assist a student with peer and school relationship problems. This involves developing a "circle of friends" for that student. Efforts such as these have not yet been tried in many situations. They are exciting possibilities, though, because they provide a direct link between children experiencing difficulties and their classroom peers.

Final Statement

Most state and local agencies have interpreted the concept of education in the least restrictive environment to mean that children with learning disabilities and other children with special needs should be mainstreamed into regular classrooms with their peers. The majority of studies reviewed by this author, however, have shown that children with learning disabilities occupy a lower peer status than their peers in the regular classroom. Only a few recent studies have found no differences in status between children with learning disabilities and other children in their mainstream classroom setting. In addition, despite over 15 years of study, researchers have found few solid answers to explain this diminished status. As we approach the twenty-first century, we are challenged as researchers and practitioners to find ways in which to transform classrooms into places which respect and nurture all children, including those with learning disabilities.

END NOTES

1. For the purposes of the regression analysis, data involving gender of child rated were divided into two categories. The first category, female studies, was discussed in hypothesis 2. The second category, "both", which included data for boys and girls, was not analyzed

2. The tentative language used here in discussing the effects of the integration and year of publication studies is motivated by the significance levels attached to the coefficients of these two variables. These variables don't attain the 5 or 10% significance level which is typically associated with rejection of a hypothesis, but are of a magnitude to suggest that real effects may be obscured by the size of the standard errors and relatively small sample size.

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