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A LINK BETWEEN HANDEDNESS, GENDER, SOCIOECONOMICS, RACE, AND
PARENTAL INVOLVEMENT AND LEARNING DISABILITIES

by
Heather Reiss

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree in the Graduate Division
of Rowan University
May 2003

Approved by _____
Professor

Date Approved 5/6/03

ABSTRACT

Heather Reiss

A Link Between Handedness, Gender, Socioeconomics, Race, and
Parental Involvement and Learning Disabilities

May 2003

Dr. John Klanderman and Dr. Roberta Dihoff
School Psychology

The purpose of this study was to examine if there was a link between handedness, gender, socioeconomics, race, and parental involvement and learning disabilities. The records from a local school were reviewed and compared to the national records. When comparing the local and national records, the school was found to be close in percentage for gender and handedness. The school, however, had a much higher percentage for African Americans and a much higher percentage for free and reduced lunch services than did the national records.

Acknowledgements

I would like to thank my family and friends for all their help and support during this process. I may not have always said it but Thank You very much. I would especially like to thank my fiancé, Robert, for all his love and support. Thank you for believing in me when I sometimes didn't believe in myself.

Thank you to my advisors, Dr. Klanderman and Dr. Dihoff for their guidance through this rigorous task. Without them being there to push and encourage me, I might not have made it through this process.

Table of Contents

	Acknowledgements	ii
Chapter 1:	The Problem	
	Need.....	1
	Purpose.....	1
	Hypothesis.....	1
	Theory.....	2
	Definitions.....	6
	Assumptions.....	7
	Limitations.....	7
	Overview.....	7
Chapter 2:	Review of Literature	
	Introduction.....	8
	Learning Disabilities.....	8
	Gender.....	9
	Handedness.....	11
	Premature Birth.....	12
	Race.....	14
	Socioeconomic.....	15
	Parental Involvement.....	15
	Summary.....	16
Chapter 3:	Design of the Study	
	Sample.....	18
	Measures.....	18
	Design.....	18
	Testable Hypothesis.....	19
	Analysis.....	19
	Summary.....	19
Chapter 4:	Analysis of Results	
	Overview.....	20
	Sample Characteristics.....	20
	Testable Hypothesis.....	22
	Summary.....	23

Chapter 5: Summary and Conclusions	
Summary.....	24
Conclusions.....	25
Discussion.....	25
Implications for Further Research.....	26
References.....	27

List of Tables and Charts

Table 4.1-	Local versus National.....	20
Figure 4.2-	Local and National Comparisons.....	22

Chapter 1: The Problem

Need

This study was conducted because there were significantly large amounts of students being classified as needing special education services. According to the national statistics 5.8 million students were identified by IDEA as needing special education services. The number of students classified since 1990 had greatly increased from 4.4 million to 5.8 million in 2000. An investigation into the causes of learning disabilities needed to be done to ensure that the number of students classified as special education did not grow any further.

Purpose

The purpose of this study was to investigate the etiology of special education classification. There had been a significant increase in the past 10 years, which warranted an investigation into the classification of disabilities according to IDEA. The researcher researched handedness, gender, socio-economics, race, and parent involvement/education as possible causes for learning disabilities.

Hypothesis

A positive link existed between left-handedness, being male, low socio-economics, race, and lack of parent involvement/education with being classified as learning disabled. The independent variables were the handedness, gender, socio-economics, race, and parent involvement/education. The dependent variable was being classified as learning disabled.

Theory

There were numerous theories out there on the causes of learning disabilities. In addition, there were also numerous definitions of learning disabilities. Could this be one of the reasons the number of students receiving services had increased so drastically? One of the most important ways the definitions differed with regard to their conceptualization of learning disabilities, however, had to do with the regulations pertaining to identification criteria. One definition did not focus on psychological processes or spelling, while the other did not focus on reasoning and referred to a severe discrepancy between intellectual ability and academic achievement.

The idea behind using ability-achievement discrepancy as a part of the definition of learning disabilities emanated from parents' and professionals' concerns about differentiating children with learning disabilities from those with mental retardation. When the learning disabilities field was first forming, parents of children with learning problems who did not score low enough on IQ tests to qualify for identification as mentally retarded (a score of 85 or below) were advocating for special education services for their children.

At first, the idea of learning disabilities being defined as a discrepancy between intellectual potential and academic achievement appeared straightforward and logical. Researchers had pointed out numerous problems inherent in the ability-achievement discrepancy concept. One of the problems with intelligence and achievement tests was that they focus on the end product of learning. They gave a score but they provide little information on the processes and strategies used by the individual taking the test (Meltzer, 1994). Researchers had hypothesized that some type of Matthew effect may be

in operation. (A Matthew effect referred to the idea of the rich getting richer and the poor getting poorer.) The implication for learning disabilities was that poor reading skills may lead to poorer performance on intelligence tests, and that depressed IQ score reduced the discrepancy between IQ and achievement, which made it more difficult to qualify as learning disabled (Stanovich, 1986a).

Using a discrepancy made it difficult to identify students as learning disabled in the early grades because they were not yet old enough to have demonstrated a discrepancy (Mather & Roberts, 1994). Professionals had used a number of methods to determine a discrepancy between ability and achievement. Most of the early formulas were abandoned and in their place, some had advocated the use of formulas that were referred to as *regression-based discrepancy formulas*.

Given all the controversy surrounding the definition of learning disability, it was not surprising that some had questioned its reality independent of social context. Many critics had asked whether it was a real phenomenon that existed within a person, neurologically based, or a socially constructed phenomenon that depended on the demands, perceptions, values, and judgments of people in positions of authority.

Research findings that addressed these controversies shed light on the issue. First, learning problems arose from divergent sources including genetic, neuropsychological, cognitive-perceptual, social-psychological, and environmental factors (Stanovich, 1993). Second, “developmental lag” theories were more appropriate for children with mild reading problems than for children with severe reading deficits or dyslexia (Stanovich, Nathan, & Val-Rossa, 1986).

The search for the genetic basis of reading disabilities had been helpful in determining the relationship between environmental and genetic factors. The Colorado Reading Project (Decker & Vanderberg, 1985) found a strong relationship between reading disabilities in identical or monozygotic twins (MZ) and in same sex fraternal or dizygotic twins (DZ). The concordance rate was 71% for MZ twins and 49% for DZ twins, confirming a strong genetic basis of reading disabilities in children.

Olson, Wise, Conners, Rack, and Fulker (1989) also investigated the role of heredity in examining reading skills. They reported a greater similarity in reading abilities in MZ than in DZ twins, even though both twin groups had similar environments. Further, genetic factors accounted for approximately 40% of the variance in word recognition deficits.

Although a biogenetic foundation for language was virtually indisputable, postnatal factors associated with language development typically emphasize the influence of environmental stimulation. Infants 1 to 4 months of age were adept at discriminating speech sounds, and made discriminations between ba and ga, ma and na (eimas & Tartter, 1979). Mann (1991) suggested that children at that age, may have been aware of and able to discriminate phonemes, even though they were not aware that phonemes exist. The child had to become aware of phonemes when approaching written language for reading to develop (Mann, 1991). Mann (1991) indicated that experience plays a role in the child's development of speech perception and vocabulary, both of which were related to language acquisition on reading. The role of the environment on these factors had not been adequately investigated for poor readers.

When discussing the etiology of problems associated with reading, Torgesen (1991) indicated that developmental anomalies in the left temporal region of the brain were causative factors in phonological processing deficits. Further, Torgesen (1993) suggested that children with phonological reading disabilities had gray matter rather than white matter dysfunction, which had been associated with nonverbal learning disabilities.

A study conducted by Galaburda, Corsiglia, Rosen, & Sherman (1987) found the planum temporale in the left hemisphere was consistently larger in a majority of adults and in fetuses, newborns, and infants. The left planum temporale was thought to be the primary site for linguistic processes and reading because of its proximity to the auditory association region and Wernicke's area (Geschwind & Levitsky, 1968).

Semrud-Clikeman et al. (1991) specifically addressed the relationship between atypical symmetry of the plana and linguistic deficits. Semrud-Clikeman et al. (1991) found that atypical symmetry was related to reduced verbal comprehension abilities and to expressive language deficits. Larsen et al. (1990) also found that dyslexic subjects with phonological deficits all had symmetrical plana.

Although dyslexics and "normal" subjects differ in their pattern of symmetry/asymmetry in the left planum temporale, the exact nature of this relationship was not fully understood (Morgan & Hynd, in press). The relationship between symmetry/asymmetry of the planum temporal and dyslexia was still unclear because that feature alone did not necessarily result in dyslexia (Steinmetz & Galaburda, 1991). Further research may help to clarify whether patterns of symmetry/asymmetry are related to dyslexia or if that pattern varies in a predictable manner with linguistic skills in other non-dyslexic populations (Morgan & Hynd, in press).

Definitions

Handedness – being left handed or right handed

Least restrictive environment (LRE) – the most “normal” place which appropriate education, and the greatest access to the general education curriculum that is compatible with the student’s needs and goals can be offered

General education curriculum – the curriculum typically offered to the non-disabled student

Individualized education plan (IEP) – a written agreement of educators and parents, required by IDEA, that includes statements about the student’s education needs and the special education and related services that will be provided

Individuals with Disabilities Education Act (IDEA) – the federal law that ensures children with disabilities have access to a free, appropriate public education, and to improve educational results for children with disabilities

Independent variable – a variable that depends on another variable; it can not be manipulated

Dependent variable – a variable that can be manipulated by the researcher

Learning disabled (LD) federal government definition –“ a disorder in 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.”

Learning disabled (LD) medical definition – “are diagnosed when the individual’s achievement on individually administered, standardized tests in reading, mathematics or written expression is substantially below that expected for age, schooling and level of

intelligence” and when the learning problems “significantly interfere with academic achievement or activities of daily living that require reading, mathematical or writing skills.”

Assumptions

It was assumed that all students and data studied were of students who were properly classified. It was also assumed that the sample was a representation from a small, rural Southern New Jersey school district. Additionally it was assumed that all the tests administered were standardized and without bias.

Limitations

There were only a few limitations that the researcher encountered. The study was conducted based on the data of one small, rural Southern New Jersey school district. The sample was much smaller than would have liked, however there was a fairly equal sample of gender, race, and socioeconomic status. The sample was not randomly selected.

Overview

In Chapter 2, all the necessary articles, reports, and studies were reviewed. In Chapter 3, the researcher collected a sample, designed a study, tested the hypothesis, analyzed the data, and wrote a summary on the findings. In Chapter 4, the order of the presentation was determined, the hypothesis was restated, the results were interpreted, the significance of the information was stated, and a summary was written. In Chapter 5, a summary of the research was written, conclusions were drawn, a discussion was facilitated, and the implications for future research were implied.

Chapter 2: Review of Literature

Introduction

There had been quite a bit of research conducted on learning disabilities, however not as much had been studied on the link between handedness, gender, socioeconomics, parent involvement, and race. In this chapter, previous research was presented and reviewed at great length. The chapter was organized by research topics. The more relevant research was discussed first. This research was followed by a general review of research that had some relativity, but was not directly related to the current research. Upon conclusion, the research was summarized.

Learning Disabilities

According to the national statistics there were 13 disability categories: specific learning disabilities, speech or language impairments, mental retardation, emotional disturbance, multiple disabilities, hearing impairments, orthopedic impairments, other health impairments, visual impairments, autism, deaf-blindness, traumatic brain injury, and developmental delay. The relative distribution of students with disabilities across the 13 disability categories did not change significantly from 1998-2000. Specific learning disabilities continued to be the most prevalent disability, representing half of the students with disabilities served under IDEA (50.5 percent). From 1990-91 through 1999-2000, growth in the number of students reported with specific learning disabilities, orthopedic impairments, and other health impairments (which include ADD and ADHD) exceeded the growth rate for all disabilities among students ages 6 through 21 served under Part B of IDEA.

As stated previously in chapter 1, 5.8 million children were identified as disabled. This was a 30.3 percent increase since 1999-2000. This was a fast growing epidemic in our nation. Some asked, "What are the causes of such a significant increase"? One explanation may have been the mismatch between the definition of learning disabilities under the IDEA legislation and the conditions found, treated and studied in medical and research settings. In a study conducted by Stephen Buka and colleagues using 230 adolescents seeking treatment for chemical dependence, 11 percent (26 subjects) had been diagnosed as LD by their schools. However, only six of these met formal test-based criteria. Similarly, only 13 percent of those meeting test-based criteria were diagnosed by their school systems.

As many as 15% to 30% of children had suffered school failures because learning disorders resulted from subtle deficiencies in neurological development or mild brain dysfunctions. Learning disabilities seemed to have been caused by the brain, but the exact causes were not yet known. Learning disabilities had been related to many biological factors such as: heredity, mother's condition during pregnancy, low birth weight, postnatal conditions, poor nutrition, and chronic medical illnesses.

Gender

Since the beginning, researchers and practitioners had noted the disproportionate number of boys identified as having a learning disability. Most studies found that boys identified outnumbered girls by 4 to 1. According to the U.S. Department of Education (1992) 73% of students identified as having learning disabilities were males. As an explanation for this gender difference, some authorities had pointed to the possibility of

greater biological vulnerability for boys. Boys were at greater risk than girls for a variety of biological abnormalities, and their infant mortality rate was higher than that for girls.

The question had been raised on the issue of possible bias in referral and assessment procedures, which suggested that boys might be more likely to be referred because they were more likely to exhibit behaviors that were bothersome to teachers. Research results on gender bias had been mixed. Clarizio & Phillips (1986) found no evidence of gender bias. Leinhardt, Seewald, & Zigmond (1982) and Shaywitz, Shaywitz, Fletcher, & Escobar (1990) all concluded that their data showed a bias toward identifying more males as having learning disabilities.

More research was needed on the issue of whether the disproportionate number of males being identified for learning disabilities was due to bias. Researchers felt that some bias did exist, but that the biological vulnerability of males also played a role. The federal government's figures indicated that all disabilities are more prevalent in males (U.S. Department of Education, 1992).

According to research conducted by Skarbrevik, Alesund, & Alesund (2002) 1,158 students found eligible for special education were studied for differences between genders. Of those eligible, 70% were boys. The overall difference between the genders was found with regard to problems with vision, hearing, language, and intellectual disabilities among girls. Reading, writing, psychosocial problems, and attention deficit disorders were found among boys. The conclusion was that the higher incidence of boys in special education during the pre-school years must be attributed to genetic or biological differences between the sexes. Researchers also felt that the higher incidence of boys in special education was caused by an interaction between genetic or biological

factors and a pedagogy that did not match the educational needs of male students (Skarbrevik, Alesund, & Alesund, 2002).

Handedness

Researchers said that genes played a significant role in handedness. Only 10% to 15% of humans were left-handed as opposed to 85% to 90% of humans being right-handed. Scientists knew that the left hand was more influenced by the right side of the brain, and the right hand was more influenced by the left side. The right side of the brain controlled creativity, music, and emotions, while the left side of the brain controlled language, math, and thinking skills. The left and right hemispheres of the brain each received sensory information from and controlled movement of the opposite side of the body. In most people, the left hemisphere was more important for language production and comprehension than the right hemisphere. Most people were able to use both sides of the brain regardless of their handedness.

They also said that left-handedness was often associated with developmental anomalies. According to the Encyclopedia of Special Education, left-handedness was more prevalent in males and twins and also in children who were mentally retarded, had epilepsy, dyslexia, and infantile autism. Bakan (1977) maintained left-handedness was pathological in origin and was caused by damage to the left hemisphere of the brain during prenatal or infancy stages. According to a study performed by Geschwind and Behan (1982), there was a markedly greater frequency of immune disease, migraines, and learning disabilities in people who were left-handed.

Years ago, parents and teachers used to force children to use their right hand instead of their left. Experts no longer supported these methods. Some scientists even claimed that forcing a child to change their handedness interferes with brain functions and caused problems with stuttering and learning disabilities (Current Health, Mar97).

Handedness was set at an early age. Some scientists said babies who suffered some stress before birth became left-handed. Others claimed hand preference was inherited from the parents. One thing was for sure, however, no one knew exactly why people favored their left or right hands (Current Health, Mar97).

Premature Birth

Throughout pregnancy, the fetal brain was developing into a complex organ made of billions of specialized, interconnected nerve cells called neurons. In later stages of pregnancy, a deep ridge divided the cerebrum into two halves, a right and left hemisphere. Lastly, the areas involved with processing sight, sound, and other senses developed, as well as the areas associated with attention, thinking, and emotion.

During pregnancy, the brain development was vulnerable to disruptions. If the disruption occurred early, the fetus may die, or the infant may be born with widespread disabilities and possibly mental retardation. If the disruption occurred later, when the cells were becoming specialized and moving into place, it may leave errors in the cell makeup, location, or connections. Some scientists believed that these errors may later show up as learning disorders.

Scientists have found that mothers who smoked during pregnancy may have been more likely to bear smaller babies. This was a concern because small newborns, usually

those weighing less than 5 pounds, tended to be at risk for a variety of problems, including learning disorders.

Alcohol also may be dangerous to the fetus' developing brain. It appeared that alcohol may distort the developing neurons. Heavy alcohol use during pregnancy has been linked to fetal alcohol syndrome, a condition that can lead to low birth weight, and intellectual impairment. Any alcohol use during pregnancy may influence the child's development and lead to problems with learning, attention, memory, or problem solving (National Institute of Mental Health, date unknown).

Premature birth places children at risk for neurological damage, learning disabilities, and other disabling conditions. One study found 19% of prematurely born children with very low birth weight had learning disabilities. There were two other studies performed, one by Maureen Hack from Rainbow Babies and Children's Hospital and the other performed again by Case Western Reserve University in Cleveland, both of which found the same results. The results were as follows: 50% of premature babies had IQ's borderline normal or lower, 21% were mentally retarded, 45% were special education, 9% had cerebral palsy, 25% had significant vision problems, 25% had measurable hearing loss, 25% had serious growth problems, and 35% had abnormally small heads. In addition, it was also found that premature babies scored lower on behavioral assessments and evaluations of school performance.

In a population-based study 42 pre-term children with a birth-weight less than 5 pounds found that, although in the normal range, pre-term children had significantly lower cognitive ability than that of the control children. They performed poorly in tasks requiring spatial and visuo-perceptual abilities. The pre-term children with minor neuro-

developmental dysfunction (MND) had the most problems in neuropsychological tests, whereas the clinically healthy pre-term children and those with cerebral palsy and fewer problems. The problems of MND children emerged in the area of attention. These children also experienced the most problems in school.

Pre-term children had appropriate IQ scores on psychometric tests, but these scores had been lower than the scores of the controls or general population. In adaptive behavior and hyperactivity can lead to learning disabilities, which have been reported in 17% to 60% of pre-term children. The estimates for learning disabilities among children in the United States have been 6.5%. (Olsen, Paivi, Vainionpaa, Leena; et al, 1998)

Race

Failure to differentiate between difference and disability may account for the misidentification of students for Special Education and the over-representation of minority students in special programs. According to Hallahan, Kauffman, and Lloyd, 67.2% of whites, 21.6% of blacks, and 8.4% of Hispanics are classified as Learning Disabled. Let's compare this to the students in the general population; 70% of whites, 12% of blacks, and 13% of Hispanics.

The primary difference between black students was between their spoken and written language. These children had different assumptions about written text than did the white American English speaking child. They were often caused by not having written word- spoken word correspondence, which many teachers did not understand.

Socioeconomic

The US Census Bureau reported that 38.1 million Americans about 15% of the population, lived below the poverty level. The rate of poverty was even higher for children, with about one in five children living in poverty. 46% of African Americans, 41% of Hispanics, and 14% of Whites lived in poverty. According to the US Census Bureau, poverty heightened the risk for disability.

Because of its relationship with poor health care, inadequate nutrition, and so forth, poverty not only placed children at greater risk of having a disability, but also affected how families coped. Many parents had little or no resources available to them. Many parents who lived in poverty worked numerous jobs and had little education. The parents had difficulty finding time to spend with their learning disabled child. Parents often blamed themselves for their child's disability and became depressed and ashamed.

Parental Involvement

Research had indicated that when parents were involved in their children's education, better outcomes occurred. Evidence had further indicated that when school practices were family-centered in their orientation the outcomes were broader based with respect to parents, families, and most of all the children benefits (Dunst, 2002).

Programs established by P. L. 94-142 required early intervention and preschool program staff involve parents in their children's education. Relationships among the school and family had been influenced by the fact that substantial number of children were doing poorly in school and stronger parental involvement may be part of the solution (Dunst, 2002).

Parent engagement with school was highly valued in the research literature because it generally benefitted children's learning. In a study conducted by Lesyser (1985), by contrast, parents of students with an array of special education disabilities reported that 70% had not attended any school group meetings, 50% said they did not want to work on the IEP, and 30% to 40% did not know what an IEP was. On the contrary, 80% to 85% claimed to be satisfied with their child's special education services.

Kwai-Sang and Li-Tsang (1999) found that well-educated, middle and upper white parents who were happily married and had social supports were most likely to be involved with their children's education (Singer, 2002).

Parents living in poverty, abuse, or caring for an ill family member may have difficulty supporting a child with learning disabilities. These parents were living under much more stress with much less support systems. They often appeared distracted and seem uninterested or non-supportive of their child's education.

Summary

Previous research was discussed and reviewed at length in this chapter. While most of the research supported a link to learning disabilities there were a few areas that needed to be researched more thoroughly. One of which was parental involvement. Although Lasysyer (1985) found that 70% of special education parents don't attend school meetings, this only answered the question of parents being uninformed. Dunst (2002) did find that parent involvement greatly effected student performance.

The second area to be further researched was the area of socioeconomic as a link to learning disabilities. Socioeconomics in itself was not a link but the implications of

poverty and low birth weight were. Olsen, Paivi, Vainionpaa, Leena; et al (1998) did find that 17% to 60% of babies born under five pounds had been reported in adaptive behavior and hyperactivity which can lead to learning disabilities.

Research found that there was an over-representation of minority students in special education. One theory for this was the difference in minorities written and spoken language from that of the white American English speaking child. In addition to this, many teachers, who did most of the referring for special education services, were not familiar with other cultures. The differences in culture some times appeared to be a learning disability.

According to the study performed by Geschwind and Behan (1982), there was a markedly greater frequency of immune disease, migraines, and learning disabilities in left-handed people. Part of this may be due to the fact that the right side of the brain controlled the left side of the body and vise a versa.

The last bit of research had the greatest findings. Most studies found that boys identified as learning disabled outnumber girls by 4 to 1. The U.S. Department of Education found 73% of students identified as having learning disabilities were males. Researchers had pointed out that this might be because of greater biological vulnerability for boys.

Whatever the reason and whatever the cause, researchers had much more researching to perform. The amount of children being identified as learning disabled, had jumped to epic proportions. This was one of the biggest epidemics in the education of children.

Chapter 3: Design of the Study

Sample

The sample consisted of 113 special education students, 77 males and 36 females. These students attended a local South Jersey high school and ranged in age of 14 to 19 years. The race and socioeconomic status of these students were both diverse. 50% of the students were African American, 41% were Caucasian, and 8% were either Hispanic or Asian. Socioeconomics was measured by free and reduced lunch eligibility. 63% of the special education students received free and reduced lunch. The students were classified with various learning disabilities and came from various levels of restriction. Some of the students were in the mainstream, meaning in regular education classes, some of the students were in resource room only, a small handful were in self-contained (the same classroom all day), and the remainder of the students were in resource classes for math or English and out in regular education classes for everything else.

Measures

There was no test given to the subjects in this study. Student records were collected and information was gathered using those records. This researcher had the national information from the Department of Education to compare the data in this study to national standards.

Design

A comparative design was employed in this study. A descriptive study compares different data to see about similarities and differences among the information. After receiving permission from the Institutional Review Board and the school district, the investigator began reviewing student records and comparing them to the national records.

Testable Hypothesis

The Alternate Hypothesis or Testable Hypothesis suggested that there was a positive link between left-handedness, premature birth, being male, African American, low socioeconomics, and lack of parent involvement/education and being classified as learning disabled. There were more students classified as learning disabled who were left-handed, male, African American, premature at birth, had little or no parent involvement and came from a low socioeconomic status. The numbers from the students fell in line with the numbers from the national statistics.

Analysis

There were percentages from the school and from the US Department of Education used in this study. Graphs were used to organize and demonstrate the results. The researcher compared the data from the study to the statistics from the national study. The researcher determined if the school district fell into the national norm.

Summary

In this study the researcher reviewed records of special education students to determine if there was a positive link between left-handedness, being male, African American, premature birth, little parent involvement/education, and low socioeconomic status and being classified as learning disabled. The data from the study was compared to the national statistics. The researcher determined if the school district fell into the national standards.

Chapter 4: Analysis of Results

Overview

The hypothesis directed the analysis of data and provided comparisons between a local school district and the national data.

Sample Characteristics

A summary of percentages found in the local school and the national percentages were included in Table 4.1. Table 4.1 included gender, handedness, race, free and reduced lunch, and back to school night percentages for the local school and also the national percentages. It showed that gender, and handedness was around the same percentages as the national. The percentage of African Americans was much higher in the local school than nationally. The number of students receiving free or reduced lunch was also much higher in the local school than nationally.

Table 4.1 – Local versus National

	local	national
male	68%	73%
female	32%	27%
left	13%	10%
right	84%	90%
black	50%	20.30%
white	41%	62.90%
hispanic/asian	8%	16.80%
btsn	31%	
free lunch	63%	41%

The following 2 x 2's showed the actual school percentages to the expected school percentages based on the national data from the U.S. Department of Education.

	School	Expected
Left	9	6.7
Right	58	60.3

	School	Expected
Male	50	24.41
Female	41	75.94

	School	Expected
African Amer.	68	82.49
Caucasian	32	17.51

	School	Expected
No free & reduced	42	57.06
Free & reduced	63	42.94

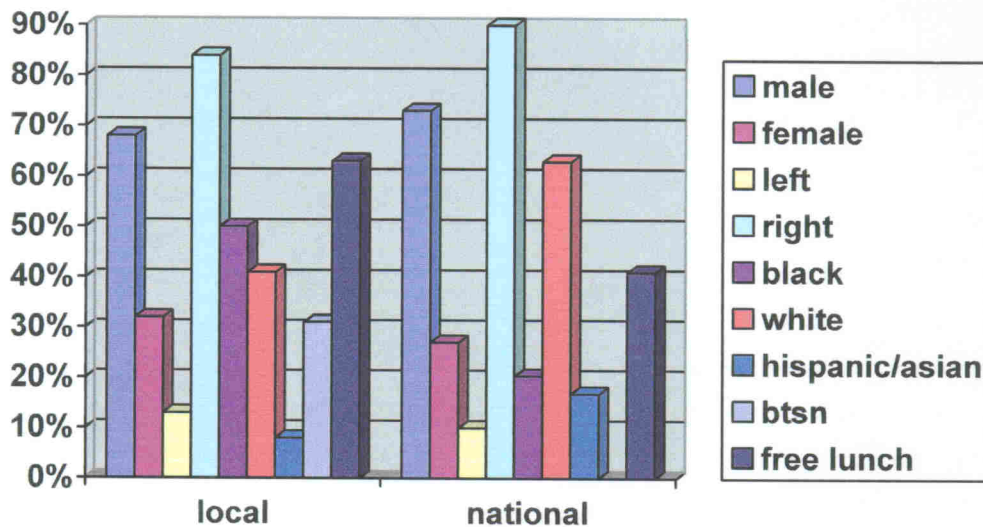
Testable Hypothesis

A positive link existed between left-handed, being male, low socio-economics, being African American, and lack of parent involvement/education with being classified as learning disabled. The independent variables were the handedness, gender, socio-economics, race, and parent involvement/education. The dependent variable was being classified as learning disabled.

After analyzing the results, there was a significant relationship in regard to being African American and also of coming from low socio-economics. Both of these variables were found to be less than .001. The chi square for being African American was 64.65 and 18.9 for free and reduced lunch.

Figure 4.2 showed another distribution of local percentages to national percentages. This chart showed that male, female, left handed, and right handed were very close in percentages. Meanwhile, African American, Caucasian, Hispanic/Asian, and free or reduced lunch were all very different from the national percentages.

Figure 4.2 – Local and National Comparisons



Summary

The hypothesis stated that a positive link existed between left-handed, being male, low socio-economics, being African American, and lack of parent involvement/education with being classified as learning disabled. The variables were the handedness, gender, socio-economics, race, and parent involvement/education, and classification. The results of the analysis showed that there was a relationship between being African American and being classified as learning disabled. There was also a relationship between low socio-economics and being classified. Both of these variables were significant because they were below the .001 level.

Chapter 5: Summary and Conclusions

Summary

While most of the research supported a link to learning disabilities there were a few areas that needed to be researched more thoroughly. One of which was parental involvement. Although Lasysen (1985) found that 70% of special education parents don't attend school meetings, that only answered the question of parents being uninformed. Dunst (2002) did find that parent involvement greatly effected student performance.

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Research found that there was an over-representation of minority students in special education. One theory for this was the difference in minorities written and spoken language from that of the white American English speaking child. In addition to this, many teachers, who did most of the referring for special education services, were not familiar with other cultures. The differences in cultures some times appeared to be a learning disability.

According to the study performed by Geschwind and Behan (1982), there was a markedly greater frequency of immune disease, migraines, and learning disabilities in left-handed people. Part of this may be due to the fact that the right side of the brain controlled the left side of the body and vise a versa.

The last bit of research had the greatest findings. Most studies have found that boys identified as learning disabled outnumbered girls by 4 to 1. The U.S. Department of Education found 73% of students identified as having learning disabilities were males. Researchers had pointed out that this was because of greater biological vulnerability for boys.

Whatever the reason and whatever the cause, researchers had much more researching to perform. The amount of children being identified as learning disabled, had jumped to epic proportions. This was one of the biggest epidemics in the education of children.

To determine if any relationship existed, files from a local high school were compared with the national statistics from the U.S. Department of Education. The school's totals were compared to the national totals to see if a link did exist.

Conclusions

Upon comparison of the local and national percentages it was found that there was no relationship among gender, handedness, or parent involvement/education with being classified as learning disabled. There was however a relationship between being African American and being classified. There was also a relationship between low socio-economics and being classified as learning disabled.

Discussion

The results of the analysis failed to support the testable hypothesis. It did support two of the independent variables, African American and low socio-economics. This

didn't mean that the research was useless; instead it emphasized the fact that more research needed to be done. There were so many children classified as needing special education services. Since 1990 the number of classified students had increased from 4.4 million to 5.8 million in 2000. A very thorough and detailed investigation into the causes of learning disabilities needed to be conducted to ensure that the number of students classified as special education did not grow any further.

There may be other factors involved that influenced the over-representation of African Americans in special education. As stated previously, most teachers didn't understand the culture of African Americans. Their written and spoken language was often very different from the European American language. Was this a reason for the over-representation of African Americans in special education? Did educators need more education on cultures? Maybe that should be something researchers think about.

Implications for Further Research

This study was lacking in random sampling due to the fact that only one school was being investigated. If more time allowed, sampling of numerous schools would have been ideal. These samples would have been more representative of the national population. Future researchers should compare the levels of restriction with each variable. Resource room, self-contained, partially mainstreamed, and fully mainstreamed are the levels of restriction that should be looked into.

Future researchers could look into the child's medical records or possibly speak with the parents/guardian of the children. This may give better insight and information on the factors leading up to the child's classification.

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