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POST SCHOOL OUTCOMES OF UNIVERSITY GRADUATES WITH LEARNING DISABILITIES AND THEIR PEERS WITHOUT LEARNING DISABILITIES

A Thesis in Special Education

by

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ABSTRACT

Due in part to legislation that was enacted over the last 25 years, the numbers of students with learning disabilities (LD) on college campuses are increasing. With these increasing numbers, it has become apparent that there is a need to focus on the post school outcomes of individuals with learning disabilities, particularly those who attend institutions of higher education. There is insufficient research regarding the success of individuals with LD who complete postsecondary education and their post school outcomes, particularly comparing them to their peers without learning disabilities.

The purpose of this study was to conduct a follow-up study of graduates with learning disabilities who had participated in the Model Program for Students with Learning Disabilities at The Pennsylvania State University. The subjects with learning disabilities were paired with peers without learning disabilities to determine their post school outcomes in the areas of employment, self-support, community involvement, and life satisfaction. The participants were 65 subjects with learning disabilities and 40 subjects without learning disabilities.

The results of this study indicate that in the areas of employment and community involvement the graduates with learning disabilities are equal to their peers without learning disabilities. In the areas of self-support and life satisfaction there are some differences between the two groups.

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CHAPTER ONE

Introduction

A learning disability (LD) does not end when a person leaves secondary education. Currently, a major focus in the learning disability literature is on adults. As awareness of adult concerns grows, it is important to focus on the post school outcomes of individuals with learning disabilities, including those who attend institutions of higher education. There is insufficient research regarding the success of individuals with LD who complete postsecondary education and their post school outcomes, particularly comparing them to their peers without learning disabilities.

An investigation of the post school outcomes of college students with learning disabilities is needed because: (a) federal legislation has provided impetus for expanding opportunities for individuals with learning disabilities, particularly in the development of service provision at the college level; (b) the majority of the research on post school outcomes has been conducted with those exiting secondary school programs and has shown mixed results; and (c) few empirical studies have been conducted to investigate the post school outcomes of adults with learning disabilities who have graduated from college and university programs.

There are three major pieces of Federal legislation, the Individuals with Disabilities Education Act (IDEA, PL 101-476), the Rehabilitation Act of 1973, Section 504 (P.L. 93-112), and the Americans with Disabilities Act (ADA, 1990, P.L. 101-336), that have outlined the educational rights of persons with learning disabilities. The Education of all Handicapped Children Act, PL 94-142, which was reauthorized as the Individuals with Disabilities Education Act (IDEA), was one of the first pieces of federal legislation that established special education services for children with disabilities. The Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) provided nondiscrimination and access to educational services for adults with learning disabilities. Knowledge of the laws and an increasing demand for support services has created a population of adults with LD who are aware of their educational rights (Gerber, 1994).

Due in part to the legislation that was enacted over the last 25 years, the number of students with learning disabilities on college campuses is increasing. After transition planning for students with disabilities became a requirement in 1990 under IDEA, the trend has been to transition youth with learning disabilities exiting secondary programs into postsecondary education settings (Levine & Nourse, 1998). Prior to the passage of the Rehabilitation Act of 1973, many colleges and universities excluded persons with learning disabilities, because they did not meet the admission criteria (Gottesman, 1994). From 1988 to 1994, the percentage of full-time college freshmen who reported having a disability increased from 7% to 9.2% (Henderson,

1995). In 1994, one half of those identified with a disability reported having learning disabilities. The significant increase in college and university students with disabilities has resulted in the development of support service programs designed to facilitate their success (Raskind & Higgins, 1995). As learning disabilities support programs began on college campuses, there were significant differences among colleges in the levels of services they provided for students with learning disabilities. While the attendance of students with learning disabilities increased and services were developed to meet the needs of these students, formal evaluations or empirical studies about the post-college outcomes of these individuals have been lacking.

Numerous researchers have focused on the employment outcomes of postsecondary age individuals with learning disabilities who have either graduated from, or have dropped out of, secondary school programs. Levine and Nourse (1998) conducted a review of 13 follow-up studies of post school outcomes of children and youth with learning disabilities. Many of those researchers provided contradictory evidence regarding employment outcomes. For example, White (1992) reported that adults with learning disabilities were only somewhat successful in getting jobs and, among those who were employed, most were underemployed. Although most of the researchers found that people with learning disabilities are unemployed or underemployed, there is evidence that the gap closes as an individual moves away from the high school level. Blackorby and Wagner (1996), who conducted a national, longitudinal study of the post school outcomes of youth, ages 13-21, with disabilities,

found that students with learning disabilities lagged behind their peers in employment, wages, education, and residential independence. However, students with learning disabilities who responded to that survey were employed at rates equivalent to their non-disabled peers 3 to 5 years after graduation.

There is a paucity of research focusing on the post school outcomes of individuals with learning disabilities who attended college and university programs. There is even less literature comparing this population of individuals with learning disabilities to their peers without learning disabilities. After conducting a review of the literature, it was found that there were only six longitudinal or follow-up studies (Adelman & Vogel, 1990; Greenbaum, Graham, & Scales, 1995; Greenbaum, Graham, & Scales, 1996; Long, Gajar, & Ofiesh, 1998; Margolis; 1996; Witte, Philips, & Kakela, 1998) in which the authors exclusively studied two and four-year college students with learning disabilities. In comparison, there were 30 or more studies involving individuals who had exited secondary education. Those six studies provided valuable preliminary information about both the use of disability support services and post-college outcomes. Only Witte et al., however, compared the employment outcomes of students with learning disabilities, who attended higher education, to their peers without learning disabilities.

Since education is often viewed as a means for advancement and opportunity, it has been hypothesized that students who obtain degrees from four-year colleges and universities will obtain higher paying jobs than those who end their education at the

secondary level (Levine & Nourse, 1998). Statistics indicate that individuals with learning disabilities are attending colleges and universities in increasing numbers, and research is needed to determine if graduates are obtaining jobs with salaries comparable to their peers without learning disabilities.

Several authors have addressed the research needs for adults with learning disabilities (Gerber, 1994; Levine & Nourse, 1998). It has been suggested that research should focus on an adult-development perspective that incorporates new ways of thinking about learning disabilities and goes beyond accommodations and services (Gerber, 1994). The authors (Gerber, 1994, Levine & Nourse, 1998) agreed that research should focus on individuals with learning disabilities throughout their entire lifespan. Levine and Nourse stated that, although information on employment rates is helpful, there are other areas of need such as social interaction, participation in the community, and levels of contentment. The present study incorporates those suggestions and analyzes employment, self-support, community involvement, and the life satisfaction of individuals with learning disabilities who attended an institution of higher education. This study also includes a comparison of a learning disabled population with a non-learning disabled cohort.

The purpose of this research project was to determine whether individuals with learning disabilities who had participated in a Model Program for Students with Learning Disabilities at The Pennsylvania State University, during the years 1982-1994, differed from their peers who did not have a learning disability. For the purpose

of comparison, subjects with learning disabilities were paired with peers without learning disabilities on the variables sex, degree earned, year of graduation, and college within the University from which they graduated. The following null hypotheses were addressed:

1. There is no difference in the employment variables of individuals with learning disabilities and their peers without learning disabilities.
2. There is no difference in the self-support variables of individuals with learning disabilities and their peers without learning disabilities.
3. There is no difference in the community involvement variables of individuals with learning disabilities and their peers without learning disabilities.
4. There is no difference in the life satisfaction variables of individuals with learning disabilities and their peers without learning disabilities.

CHAPTER TWO

Literature Review

There are large numbers of longitudinal, follow-up, and follow-along studies that have been conducted with individuals with learning disabilities who received special education services. For the purpose of this review, the term “follow-up” will be used to denote longitudinal, follow-up, and follow-along studies. All three terms indicate that research was conducted to determine the status of a group of

interest after or over some period of time (Gay, 1996). In this review, follow-up studies on individuals with learning disabilities were categorized in two ways: (a) those that focused on individuals with learning disabilities who exited secondary programs, and (b) those that focused on individuals with learning disabilities who exited postsecondary programs. Both categories of research were examined by relating them to the variables of interest in the present study: employment, self-support, community involvement, and life satisfaction. Rogan and Hartman (1990) studied a mixed group of subjects (high school graduates, college graduates, and special education graduates) and analyzed the results of those groups separately. The results of the Rogan and Hartman study are incorporated in the secondary and postsecondary sections.

Individuals With Learning Disabilities Exiting Secondary Training

Levine and Nourse (1998) conducted the most recently published literature review of follow-up studies of adults with learning disabilities exiting high school. In addition to the 13 studies that Levine and Nourse reviewed, this author found approximately 35 other studies that examined the post school outcomes of individuals with learning disabilities. The following criteria were used to select the specific studies that were included in this literature review: (a) the subjects involved were diagnosed with a learning disability; (b) the authors examined one or more of these variables: employment and wages, self-support, and life satisfaction; (c) the results of the subjects with learning disabilities were analyzed

separately; (c) if the study included other disability groups, the results derived from the subjects with learning disabilities were analyzed separately; (d) the authors examined the rates of attending postsecondary education; and (e) the study was cross referenced at least twice in other studies. Using these criteria, eight studies were chosen for review. In the following narrative, those studies are discussed in terms of employment and wages, self-support or independence, life satisfaction, and rates of attending postsecondary education.

Employment and Wages

Postsecondary outcomes for students with learning disabilities have been reported with mixed results. According to research conducted by Zigmond and Thornton (1985), people with learning disabilities are traditionally unemployed or underemployed. A national, longitudinal, post school study of youth with disabilities (Blackorby & Wagner, 1996) found that students with disabilities lagged behind their peers in regard to employment wages, education, and residential independence. However, in the Blackorby and Wagner survey, students with learning disabilities were employed at rates equivalent to their non-disabled peers 3 to 5 years after graduation. Youth with learning disabilities had higher rates of unemployment and were less likely to attend postsecondary schools than their peers without learning disabilities. In a review of 13 studies regarding the post school adjustment of persons with learning disabilities, Philips and Nourse (1998) reported that adults with learning disabilities were only somewhat successful in getting jobs, and among those who

were employed, most were underemployed. Rogan and Hartman (1990) found that of the 26 men and women contacted in their study, 18 (69%) were employed full time.

Self-support

In a review of the research on adults with learning disabilities conducted between the years 1980-1990, White (1992) found that many individuals were neither independent nor self-sufficient. Authors who studied the population of individuals with learning disabilities who had exited secondary school programs supported this finding. Sitlington and Frank (1990) found that, although 77% of their subjects were employed at the time of the study, they had not achieved an independent lifestyle. A common comparison among the researchers that investigated both employment figures and self-sufficiency was the effect of employment on independent living. The subjects in the studies conducted by Sitlington and Frank (1990), Scuccimarra and Speece (1990), and Affleck, Edgar, Levine, and Kortering (1990) were employed at rates of 77% and greater, however, they were not living independently because of low salary rates. The results of the Rogan and Hartman (1990) study were slightly different. Of the subjects they were able to contact for follow up, they found that 20 (77%) of them were living either with their spouses or with roommates, and 4 (15%) were living with relatives or in supervised housing.

Life Satisfaction

Rogan and Hartman (1990) and Spekman, Goldberg, and Herman (1992) looked at the variable of life satisfaction. Rogan and Hartman found that 15 (58%) of

their subjects were very positive in their life satisfaction. Those that expressed either mixed feelings or were dissatisfied gave reasons for this including feelings related to work, lack of an adequate social life, or their marital status. Spekman et al. examined life satisfaction utilizing a definition of success developed for their study. They defined success as an individual's perception of himself or herself as doing well and as being satisfied with his or her current life situation. Indicators of success included the individual's positive perception of himself or herself as it related to current activities, accomplishments, relationships, jobs, education/training, interpersonal relationships and community integration.

Rates of Attending Postsecondary Education

Due to the transition requirements of IDEA, postsecondary transition for all students with disabilities has become a focus of secondary special education programs. Gottesman (1992) reported that approximately two-thirds of high school students with learning disabilities were planning to go to college (Gottesman). This trend, and legal mandates for equal access, have caused the percentage of college freshmen with learning disabilities to triple since the end of the 1970s (Levine & Nourse, 1998). Students with learning disabilities are the largest contingent of students with disabilities being served on American college campuses (Gottesman, 1992). Three of the aforementioned researchers (Afleck et al., 1990; Blackorby & Wagner, 1996; Sitlington & Frank, 1990) examined the rates of those leaving secondary education to attend colleges and universities. Blackorby and Wagner and

Affleck et al. found that non-learning disabled high school graduates were significantly more likely to attend postsecondary school than their peers with learning disabilities. Although the number of students with learning disabilities who enter postsecondary education is increasing, Sitlington and Frank found that only 67% were still in school a year after their first year.

College Graduates with Learning Disabilities

Because individuals with learning disabilities have been attending college in increasing numbers, and services for students with LD have been developed at the college level, several researchers have begun to examine the outcomes for those individuals after they have left the college setting. Although college support programs have existed for approximately 20 years, there is still a paucity of studies that focus on post school outcomes. There are only six follow-up studies in which the authors exclusively examined the post school outcomes of two and four-year college students with learning disabilities (Adelman & Vogel, 1990; Greenbaum, Graham, & Scales, 1995; Greenbaum, Graham, & Scales, 1996; Long, Gajar, & Ofiesh, 1998; Margolis, 1996; Witte et al., 1998). The authors of those studies examined one or more of the following variables: (a) support services, (b) graduation rates, (c) employment information, and (d) self-support. A review of the results of these studies follows.

Graduation Rates

Adelman and Vogel (1990), Greenbaum et al. (1996), and Long et al. (1998) examined the graduation rates of students with learning disabilities who had attended

four-year colleges or universities. In the Adelman and Vogel study, all 36 of the participants had graduated from the college at which the study was conducted. Seven (19%) of them were attending or had completed graduate school. Greenbaum et al. reported that 44 (90%) of their subjects had completed their undergraduate degree, while 2 were pursuing degrees at another institution. The authors did not give information on the remaining 3 subjects. Long et al. found that 35 of their 38 subjects had graduated from college, 2 did not graduate, and 1 participant did not reply to the question.

Employment Information

There are several employment factors that have been examined by researchers who have studied college students with learning disabilities. They include salary, job titles or levels of jobs, and job satisfaction.

Employment rate. Greenbaum et al. (1996) reported that 35 (71%) of their subjects were employed, 7 were continuing their schooling, and 7 were neither working nor attending school. Forty-six (94%) of the subjects reported being employed at one time or another. Long et al. (1998) reported that 35 of 38 subjects were working at the time of the survey, and 3 were not working. Thirty-three (94%) of the subjects were working full time, and 2 (6%) were working part time. Witte et al. (1998) reported that 48 (87%) of their 55 subjects were employed full time, 5 (9%) were employed part time, one was unemployed, and one was attending medical school. A fourth study conducted by Adelman and Vogel (1990) asked their subjects

to list all of the jobs that they had held since leaving college, therefore, it was difficult to ascertain how many were actually working at the time of the study.

Job classification. Authors in three studies (Greenbaum et al., 1996; Long, et al., 1998; Witte et al., 1998) categorized the job titles of their subjects according to the Dictionary of Occupational Titles (DOT) (U.S. Department of Labor, 1991) classification system. All of the jobs held by the subjects in the Long et al. study were in the top three classification categories. Thirty (86%) were in professional, technical, and managerial occupations; 4 (11%) were in clerical and sales occupations; and 1 (3%) was in agriculture, fishery, forestry, and related occupations. Witte et al. reported that 29% of their subjects were in the job category of executive, administrative, and managerial occupations; 20% were in marketing and sales; 17% were in graduate study; 12% were in specialty occupations; and 12% were in service occupations. Greenbaum et al. reported similar results: 71% of employed subjects were in professional, technical, or managerial positions; followed by 23% in clerical and sales positions; and 6% were in service occupations.

Salary. When Long et al. conducted their study, the national average annual income for the educational attainment level of Bachelor's Degree was $37, 224 (Occupational Outlook Quarterly, 1996/97). Seventeen (48%) of their subjects were earning higher than the national average annual pay. The highest percentage 11 (31%) of the subjects in that study reported earning between $30,000 - $40,000. That was higher than salaries reported by Greenbaum et al. (1996) where the average salary

was reported to be $20,000. The salary differences could have occurred as a result of the different types of subjects that were included in each study. The Greenbaum et al. study only included undergraduate students, while the Long et al. study included students with graduate degrees who typically earn a higher salary. Witte et al. found that the most frequent salary range reported was between $20,001 and $30,000 (28% of the subjects). Twenty-three percent were in the $20,000-and-below range, 21% were in the $30,001 to $40,000 range, and 16% were in the $40,001 to $50,000 range. Two subjects reported incomes in the range of $50,001 to $75,000, and 1 reported a salary of above $100,000.

Job satisfaction. It appears that, when they are studied as a group without comparison to a cohort, college graduates with learning disabilities are satisfied with their present jobs. Of the 35 employed subjects in the Greenbaum et al. study, 33 (94.3%) were satisfied with their job. However, when they were probed further, 21 (60%) of those same individuals desired a different job and wanted higher salaries. Rogan and Hartman (1990) found that 18 (60%) employed college graduates expressed highly positive feelings about their occupations. The focus of the Witte et al. study was to determine the job satisfaction of college graduates with learning disabilities compared to non-learning disabled cohorts. They found that, overall, the group with learning disabilities was more dissatisfied than the graduates without learning disabilities across all of the job satisfaction scales. Those scales included pay, promotion opportunities, and total job satisfaction.

Self-support

In a review of the research conducted between 1980 and 1990 on adults with learning disabilities who exited high school programs, it was found that many were neither independent nor self-sufficient (White, 1992). In the studies of individuals who attended postsecondary education, the results were considerably different. Greenbaum et al. questioned their subjects about their living arrangements and found that 21 (43%) lived with their parents, 20 (41%) lived in an apartment or house with roommates, and 8 (16%) were married and lived with their spouses. In the Long et al. study, 30 (79%) of the subjects were living on their own, and 8 (21%) were living with family members. One difference between the studies was that in the Greenbaum et al. study the subjects were all undergraduates, while in the Long et al. study 6 older subjects with graduate degrees were included. Rogan and Hartman (1990) found results similar to the Long et al. study. Twenty-two (79%) of their 28 subjects were living independently with spouses or singly in their own apartment, and 5 (18%) were living with their parents or other family member.

Life Satisfaction

Rogan and Hartman (1990) were the only researchers who addressed the issue of the life satisfaction of college graduates with learning disabilities. Nineteen (68%) subjects judged their life satisfaction to be highly positive, 3 were not satisfied, and 3 were trying to improve their life circumstances. However they did not compare their subjects with learning disabilities with their peers without learning disabilities.

Conclusion

It is evident that there are some differences between those individuals with learning disabilities who were studied after they exited secondary programs, and those that were studied after they graduated from college. These differences are primarily in the areas of employment and independent living. The goal of this study was to obtain an overall picture of college graduates with learning disabilities, and compare them to their peers without learning disabilities who had similar college experiences.

CHAPTER THREE

Methodology

The current study is an expansion of a pilot study conducted by Long et al. (1998), which examined the post school outcomes of individuals with learning disabilities who participated in the Penn State Model Program. The current study included a larger number of students with learning disabilities who had participated in the Model Program, and they were compared with their non-learning disabled peers. In addition to employment status and salaries, self-support, community involvement, and life satisfaction were investigated.

Research Design

Follow-up studies are conducted to determine the status of a group of interest after some period of time (Gay, 1996). This follow-up study incorporated phone and mail surveys in order to obtain information regarding the post school outcomes of

Penn State graduates with and without learning disabilities. The two groups were compared on the following variables: employment, self-support, community involvement, and life satisfaction. To obtain data from the subjects, mail surveys and telephone interviews were conducted. The resulting data were analyzed utilizing descriptive statistical techniques and paired t-tests.

Subjects

Subjects with learning disabilities. The subjects with learning disabilities were identified from a list of individuals who had diagnosed learning disabilities and had received services from the Model Program at The Pennsylvania State University between the years 1982 and 1994. The objective of the Model Program was to provide diagnostic and academic services for the purpose of retaining and graduating university students with learning disabilities (Gajar, 1992). The components of the program included: (a) the availability of trained personnel to work with the students with learning disabilities; (b) referrals to the Program from parents, faculty, and others; (c) assessment and identification of learning disabilities; and (d) academic support service delivery. Personnel who worked directly with the students included graduate students in Educational Psychology, School Psychology, and Special Education. Under the supervision of a Licensed Psychologist, those graduate students administered diagnostic instruments to determine if students had a learning disability and wrote reports that contained both the diagnostic information and recommendations for academic assistance. The graduate students also served as

clinicians and worked one-on-one with the students. The clinicians developed Individualized Educational Plans (IEP) for each student based on the diagnostic recommendations, they developed session plans for meeting with the student, and they kept records of each contact with the students. The IEPs were focused on the individual characteristics of each student and included such services as academic accommodations (alternate methods of evaluation, use of tape recorders, etc.) and special services such as time management and study skills training (Gajar, 1992). After the evaluation was completed, it was the student's choice to continue with the academic support services. The Model Program at Penn State was funded by the U.S. Department of Education for the years 1982-1986. The program was then absorbed by the Office for Disability Services and functioned under the same structure until 1994.

The subjects were selected for this study utilizing the following criteria: (a) they received diagnostic testing to confirm or determine a learning disability, (b) they received services during 1982-1994 from the Model Program, and (3) they graduated from The Pennsylvania State University. In order to participate in the Model Program, the participants were identified as having a learning disability by a series of diagnostic measures, which included tests of intelligence and achievement. For the subjects to be accepted into the program, a 1.5 standard deviation and/or 40% potential/achievement discrepancy was considered to be an indication of a learning disability (Gajar, 1992).

Subjects without learning disabilities. A sample of students who attended Penn State University during the time period of 1982-1994, and who were not identified as having a diagnosed learning disability was selected. The subjects without learning disabilities served as controls. They were paired with the subjects with learning disabilities on the variables of sex, degree earned, year of graduation, and academic unit of the University that housed their major.

Setting

This study took place at the University Park Campus of The Pennsylvania State University (Penn State). Penn State is a land-grant institution that has grown from a student population of 64 undergraduates in 1875 to an enrollment of nearly 80,000 students at twenty-five locations throughout the state in 1999. Approximately 45,000 of these students attend the University Park campus. This campus is located in Centre County, and it is the administrative hub of the statewide system of colleges. There are 19 other Penn State campuses or colleges as well as 4 special-mission campuses throughout the Commonwealth of Pennsylvania. At the time of the study there were eleven academic units on the University Park campus that conferred degrees. These units were:

- The College of Agricultural Sciences
- The College of Arts and Architecture
- The Mary Jean and Frank P. Smeal College of Business Administration
- The College of Communications
- The College of Earth and Mineral Sciences
- The College of Education
- The College of Engineering
- The College of Health and Human Development

- The College of the Liberal Arts
- The Eberly College of Science
- Graduate School

For the purpose of this study, subjects with graduate degrees were categorized according to one of the above-cited academic units, excluding the Graduate School. Although graduate students receive their degree from the Graduate School, they list their major course of study with a particular college.

Independent Variables

Two population groups, those with learning disabilities and those without learning disabilities, served as the independent variables for this study. Having a learning disability or not would be the basis of how the individual answered the questions on the surveys.

Dependent Variables

There were four major categories of dependent variables examined: employment, self-support, community involvement, and life satisfaction. Data regarding employment included reports of employment status, job title, job responsibilities, length of time working at the current job, income, and job satisfaction. To take into account that some subjects may have had more than one job, the subjects were asked to provide the job title and job responsibilities for the job they considered to be their major present job. Self-support was defined as the person's status of living independently without needing the support of others. That information was obtained through the questions that asked about the subject's living situation and reliance on

others for monetary support. Community involvement was defined as the amount of time spent in activities outside the home that benefited the community in which the subject resided. Questions that were asked to determine community involvement included the type of organization, number of hours per month spent involved, and the role the person had within the organization. Life satisfaction was considered to be the level of contentment the subjects had with their current life circumstances. Four questions were asked to determine the person's level of happiness, their life satisfaction, and how they compared themselves with their peers on a personal/social and economic position.

Occupational Prestige Scores

Occupational status is closely related to educational status, and in most cultures a value is placed on an individual, which is directly related to that person's capacity to earn a living (Miller, Snider, & Rzonca, 1990). In essence, people are often judged not by their accomplishments and success in their personal situations, but by the job they hold, the income generated, the status the job gives them in society, and how others perceive their job prestige.

The development of Occupational Prestige Score ratings began in 1960 when The National Opinion Research Study interviewed a nation-wide cross-section of Americans with questions designed to explore some of the basic attitudes about occupations. The individuals interviewed were asked to evaluate 90 occupations on a five-point scale from "excellent" to "poor" based on their personal opinion. Those

scores were then averaged and ranked in order with the highest possible score being 100 (Duncan, 1961). These opinion studies have been replicated over the years and have been used to create the most recent occupational prestige score ratings compiled by Stevens and Hoisington (1987) with the highest possible score being 81.4.

Occupational Prestige Scores have been updated each decade, ending in 1980, to reflect continuous changes in the job market. They are based on labor force data from the U.S. Department of Commerce (Stevens & Hoisington, 1987). The scales used for this study are based on the 1980 U.S. labor force and were updated by Stevens and Hoisington. These scales take into account several factors that earlier scales did not (e.g., women in the workforce, and the addition of popular jobs in the computer industry). The ranking levels for Occupational Prestige Scores and the range of scores within each occupational category are as follows:

Occupational Category	**Range of Scores**
Executive, Administrative, and Managerial Occupations	41.79 – 62.83
Professional Specialty Occupations	36.70 – 81.09
Technicians and Related Support Occupations	39.66 – 66.75
Sales Occupations	15.84 – 55.28
Administrative Support Occupations, Including Clerical	19.30 - 49.88
Private Household Occupations	17.60 – 24.70
Protective Service Occupations	18.67 – 53.77
Service Occupations, Except Protective and Household	14.69 – 47.80
Farm Operators and Managers	18.80 – 56.00
Mechanics and Repairers	20.15 – 61.00
Machine Operators, Assemblers, and Inspectors	18.67 – 46.11
Transportation and Material Moving Occupations	21.50 – 53.38
Handlers, Equipment Cleaners, Helpers, and Laborers	17.30 – 45.30

Rationale for Use of Two Survey Methods

The task of locating individuals whose last known address may be up to 16 years old is a formidable one (Crider & Willits, 1973). In this study, it was important to locate as many individuals as possible because of the low number (approximately 135) of potential subjects with learning disabilities. Mixed mode survey research uses two or more methods to collect data for a single data set (Dillman & Tarnai, 1988). A mixed mode of both phone and mail surveys was used. Phone surveys are faster to compile and can contribute insights that mail surveys cannot (Dillman, 1978). Dillman, however, also indicated that a mail survey offers the ability to contact people who are unreachable by phone. Respondents who are not at home for telephone calls will usually pick up their mail. Mail surveys have a high probability of reaching the respondents when other methods fail. The two different types of survey instruments should be constructed carefully, because an excellent mail survey does not necessarily make a good telephone survey and vice versa.

The second rationale for using a mixed mode design involves the primary focus of this study, individuals with learning disabilities. One of the unique aspects of surveying individuals with learning disabilities is the unique communication style of the individual with a learning disability. The way the survey instrument is presented to the individual is crucial because it may interfere with, and negatively affect, both the communication and data collection processes (Raskind, Gerber, Goldberg, Higgins, & Herman, 1998). An example given in the Raskind et al. article is that of

the individual with a reading disability. A person who exhibits this specific learning disability may have difficulty responding to a questionnaire given in written form. The option of a verbal response should be given, not only for accurate data collection, but to increase the likelihood of subject participation. Raskind et al. describe different techniques that can be used to facilitate data collection, such as providing an auditory version of the survey, speaking and writing at a level that is comprehensible to the subject, and creating written materials that are free from clutter.

Survey Development

The two surveys that were utilized in this study took into account the method of delivery: phone or mail. Every effort was made to construct questions that would elicit the same response despite the mode of delivery. In addition, each survey took into account three needs: those of the respondents, the researcher, and the data analysis (Dillman, 1978). In order to obtain greater response, the needs of the subjects were foremost in the development of the survey. Those needs included the development of questions and directions that were easy to read and understand. As a whole, the survey was short and elicited the information needed by the researcher.

The development of questions followed a three-step process. The researcher examined the survey instruments used by other secondary, postsecondary, and adult outcome studies that addressed the variables of interest. Other surveys with proven validity and reliability were also evaluated. Appendix A shows the survey instrument and the source of the questions.

When the initial draft of the survey was completed, several individuals were contacted to serve in an advisory capacity. Two individuals who participated in the Model Program, two experts in the field of learning disabilities, and an expert in the field of survey research reviewed the construction and wording of the surveys. In addition, two Penn State graduates without learning disabilities were contacted to take the surveys. Individual comments and suggestions were then incorporated into the surveys.

Procedure

The proposal for this study was submitted to the Penn State University Office for Regulatory Compliance to undergo a Human Subjects Review. That office approved all of the study procedures and survey instruments.

Subjects with learning disabilities. For the 135 potential subjects with learning disabilities, demographic information was gathered from the Model Program case files. That information included the participant's name, address, phone number, and social security number. Confirmation of the date of graduation was established via the Penn State Student Information System. In three instances, social security numbers were missing. A list of potential subjects' social security numbers was submitted to the Alumni Office to obtain updated information on addresses and phone numbers.

Once the most recent addresses and phone numbers were obtained, an introductory packet of information was sent to each potential subject. Two letters of

introduction were drafted, one for the 38 subjects who had participated in the previous pilot study conducted by Long, Gajar, and Ofiesh (1998), and another for the remaining subjects. The letter of introduction explained the purpose of the study, presented the option for the subjects to complete either a phone interview or a mail survey, and outlined the procedures for selecting the preferred mode. In addition to the introduction letter, the packet contained a copy of the mail survey, two informed consent forms (one to be returned and the other for the subject's records), a response form, and a postage paid return envelope. (See Appendix B for these materials.)

After the initial mailings, two follow-ups were conducted to reach subjects who had not responded. The first was conducted by telephone one month after the initial mailing. The researcher attempted to reach those subjects who had not responded by the specified due date. If the potential subject no longer resided at that phone number, the person who answered was asked to give the researcher the potential subject's current phone number and/or address. If the person declined to give a current address or phone number, he/she was asked to forward a mail survey to the potential subject.

Six weeks after the initial mailing, another mail follow up was conducted. Sixty- six potential subjects were sent a reminder letter asking them to participate in the study and another copy of the mail survey.

Subjects without learning disabilities. After the subjects with learning disabilities had responded to the survey, the researcher compiled a list of two

variables: year of graduation, and college from which they had graduated. This list was submitted to the Alumni Office to obtain potential subjects without learning disabilities. In order to increase the chance of response, two to three matched subjects were selected for each learning disabled subject (Witte et al., 1998). The Alumni records included the following information: (a) graduate's name, (b) address, (c) phone number (in some cases), (d) work address and phone number as applicable, and (e) graduation information including major, college within the University, year of graduation, and degree earned. Initial contact was made through the mail. The potential subjects were sent an introductory packet similar to the one that was sent to the subjects with learning disabilities. The packet included a letter of introduction informing them of the purpose of the project, two informed consent forms, a response form, a mail survey, and a postage paid response envelope. Similar to the subjects with learning disabilities, the subjects without learning disabilities were given the option of completing a mail survey or being contacted for a telephone interview. Two dollars was included in the packet as a token of appreciation for completing the survey. Appendix B contains copies of these documents.

One follow-up was conducted via a reminder postcard for those who had not responded. A second follow up mailing was sent that included another letter soliciting participation and another survey instrument.

If more than one response was received from the two or three potential matches, the following procedure was used to determine which one to use: (a) if one

of the non-learning disabled matches had the same major as the subject with a learning disability, they were chosen to complete the pair, and (b) if a pair could not be obtained by matching majors, a random selection of the potential matches was conducted. Due to the limited access the researcher was given to the Alumni records, when an exact match could not be made by year of graduation, a non-learning disabled subject who graduated from the same college within a year of the graduation date of the subject with a learning disability was chosen. Since there were 65 subjects with learning disabilities, subjects without learning disabilities were solicited until the researcher reached 40 responses. This resulted in a 62% match rate.

Survey implementation. Some of the guidelines described in Dillman's (1978) Total Design Method (TDM) for telephone and mail survey research were incorporated into this study. Every effort was made to make the letter of introduction as personalized as possible. For the students with learning disabilities, each letter of introduction was addressed to them personally. In addition, the researcher individually signed each letter. Subsequent follow up mailings for the potential learning disabled subjects were again personalized by using the individual's first name in the salutation, individually signing each letter, and personally addressing each envelope.

As was suggested in Dillman's TDM (1978), every effort was made to ensure the respondent's confidentiality. In all cases, the response form and consent forms were separated from the actual survey. For all but the initial mailing to the subjects

with learning disabilities, subsequent surveys were sent out with an individual identification number in the upper right hand corner. Those numbers corresponded with the researcher's list of subjects. The lists that were obtained from the Alumni Office for both the learning disabled and non-learning disabled subjects contained information such as gender, year of graduation, college graduated from, and degree. Therefore, the survey numbering served two purposes: (a) if the subjects returned the survey but chose not to return the consent or response forms, the survey number could be matched to the researcher's list of subjects to obtain information that was important for analysis (i.e., gender, year of gradation, college within the University), and (b) follow-up mailings needed to be sent only to those who had not responded to the initial mailings. Using individual identification numbers in the upper right hand corner also allowed the subject to remove it, if they desired, for increased confidentiality (Dillman, 1978).

Incentives or tokens of appreciation for participating were given to both populations for completing the survey. Since the sample of subjects with learning disabilities was such a specific group and the focus of the study, a higher incentive was provided to them for participating. The reward, or incentive, for participating was $15.00. If the subject desired the $15.00 incentive, it was requested that he/she confirm his/her current address and social security number. For confidentiality, only the researcher could cross-reference these with the person's name. Although it is recommended that the token of appreciation be given in advance to help establish

trust (Dillman, 1978), the researcher did not want to put $15.00 in cash in the mail. For the subjects without learning disabilities, the $2.00 token of appreciation was included with the survey in the initial mailing.

Coding of Questions for Analysis

Once all the surveys were completed, the information used for analysis was put into the SPSS for Windows 8.0. For all questions that required a yes or no response, the coding was 1= no, and 2= yes. The following sections describe how all other data were coded.

Education. Both groups of subjects were asked six questions about their education upon completion of a degree from Penn State. Subjects were asked if they were currently attending school and were asked to indicate their response by 1 = full-time, and 2 = part- time. If they completed a degree or were working on a degree, they were asked to indicate the degree using the following choices: 1 = Associate degree, 2 = Bachelor's degree, 3 = Master's degree, 4 = Doctoral degree, 5 = Medical degree, 6 = Law degree, 7 = Other.

Learning disabilities information. The subjects with learning disabilities were asked four questions regarding when they were diagnosed and what academic support services they received prior to college. Three of these questions required a response other than yes or no. Table 1 shows the questions of time of diagnosis, services received in public education, and any services they may have received in special education.

Table 1

Learning Disabilities Information Coding

When diagnosed	Years received special education services	Special education services received
1 = Elementary school 2 = Middle school 3 = High school 4 = College 5 = Don't remember	1 = Primary 2 = Secondary 3 = Both	1 = Self-contained classroom 2 = Learning resource room full time 3 = Learning resource room part time 4 = Extended time on tests 5 = Tutoring assistance 6 = Other

Model program services. The subjects with learning disabilities were asked 19 questions regarding the services they may have participated in as part of the Model Program at Penn State. Fourteen of these asked them to respond to questions regarding services used. Table 2 shows the coding for these responses.

Table 2

Services Received Information Coding

Service response	Service rating
1 = don't remember 2 = no 3 = yes	1 = not at all helpful 2 = somewhat helpful 3 = helpful 4 = very helpful 5 = extremely helpful

Additionally, the subjects with learning disabilities were asked two questions about working with a clinician as part of their involvement with the Model Program. The questions asked were: (a) "For what period of time did you work with a clinician?"

and, (b) “For this period of time how many times a week did you meet with the clinician?” Table 3 shows the coding for these responses.

Table 3

Work with a Clinician Information Coding

Period of time	Times a week
1 = one semester	1 = 0-2
2 = two semesters	2 = 3-4
3 = 2-3 academic years	3 = 5-6
4 = 3 or more academic years	4 = 7-8
	5 = 9 or more

Employment. The employment section for both subject groups asked six questions that required more than a yes or no response. These questions included: why they were not working, if they worked full or part time, how long they worked at their current major job, income from their job, and job satisfaction. The coding for these questions is described in Table 4.

Table 4

Employment Information Coding

Not working	Work time	Length of time at job	Income	Job satisfaction
1= Homemaker 2 = Full time student 3 = Unable to find work	1= Full time 2 =Part time	1 = one week or less 2 = More than one week, less than a month 3 = More than a month, less than 6 months 4 = More than 6 months, less than 1 year 5 = More than 1 year, less than 3 years 6 = 3 years or more	1 = < $10,000 2 = > $10,000, < $15,000 3 = > $15,000, < $20,000 4 = > $20,000, <$25,000 5 = > $25,000, < $30,000 6 = > $30,000, < $35,000 7 = > $35,000, < $40,000 8 = > $40,000, < $45,000 9 = > $45,000, < $50,000 10 = >$50,000,< $55,000 11 = >$55,000, < 60,000 12 = > $60,000	1 = not at all satisfied 2 = somewhat dissatisfied 3 = average 4 = satisfied 5 = very satisfied

The subjects with learning disabilities were asked an additional question in the general employment section. They were asked if they felt their learning disability prevented them from seeking other employment. For this question, the response was coded as: 1 = no, 2 = yes, and 3 = don't know.

Job accommodations. The subjects with learning disabilities were asked additional questions regarding accommodations on their job. This section contained one question that was not coded as a yes or no response. When asked why they did not ask for accommodations, they could choose from the following responses: 1 = I didn't need any accommodations, 2 = I feared discrimination, and 3 = other.

Self-support. The self-support section asked three questions that were coded for analysis. These questions asked the person's marital status, their current living situation, and how much he/she relied on others for monetary support. The subjects were given six response choices for the question about current living situation, asking specifically if they were living independently or who they were living with. Table 5 shows how the self-support variables were coded.

Table 5

Self-Support Information Coding

Marital status	Living situation	Monetary support
1 = Single, never married 2 = Single, living with partner 3 = Married 4 = Separated 5 = Divorced 6 = Widowed	1 = Living with parents/guardians 2 = Living independently w/partner 2 = Living independently w/roommates/housemates 2 = Living independently w/spouse 2 = Living independently with spouse and child(ren)	1 = Not at all 2 = Very little 3 = Some 4 = A great deal

Community involvement. The subjects were asked to complete a chart that displayed any involvement in their community. This was broken into three sections: name of organization, hours per month involved in the organization, and the role they had within the organization. Since the answers were so varied, a coding structure was set up for each of these categories, which is shown in Table 6.

Table 6

Community Involvement Information Coding

Type of organization	Hours per month	Role
1 = church	1 = 1-5	1 = leader
2 = children's/school activities	2 = 6-10	2 = member
3 = civic groups	3 = 11-15	3 = volunteer
4 = local government	4 = 15 or greater	4 = coach
5 = sports team	5 = varies	5 = mentor
6 = work related volunteer		

Life satisfaction. All subjects were asked four questions about their life satisfaction. These questions probed for information about their happiness, life satisfaction, and how they compared themselves with others in terms of personal/social variables and economic variables. Table 7 displays the coding for these questions.

Table 7

Life Satisfaction Information Coding

Happiness	Life satisfaction	Personal/social and economic
1 = Very happy	1 = Very satisfied	1 = Strongly agree
2 = Pretty happy	2 = Somewhat satisfied	2 = Agree
3 = Not too happy	3 = Average	3 = Undecided
	4 = Somewhat dissatisfied	4 = Disagree
	5 = Very satisfied	5 = Strongly disagree

Data Analysis

The computer program SPSS for Windows 8.0 was used to calculate the statistics. The data that were collected by the phone, and mail surveys were analyzed utilizing descriptive statistical techniques and paired t-tests. The analysis focused on four areas: (a) employment information, (b) self-support, (c) community involvement, and (d) life satisfaction.

Descriptive statistics. Descriptive statistics, including percentages and means, were calculated for pertinent variables. Job titles were analyzed using Occupational Prestige Scores as developed by Stevens and Hoisington (1987) for the 1980 U.S. Labor Force (see Occupational Prestige Scores, p. 27).

Paired t-tests. Paired t-tests were conducted on: (a) employment information including employment status, length of time on the job, OPS, income, and job satisfaction; (b) self-support including living situation and dependence on others for monetary support; (c) community involvement including number of hours spent with the organization, and number of organizations involved with role; and (d) life

satisfaction variables including happiness, satisfaction, personal/social, and economic comparison.

The following section will present the results of the survey.

CHAPTER FOUR

Results

The chapter begins with information about how the sample of subjects with learning disabilities was obtained. This is followed by the results of the descriptive data about the subjects with learning disabilities in the following areas: personal information; education attainment from Penn State and after graduating from Penn State; involvement with the Model Program for Students with Learning Disabilities; employment; self-support; community involvement; and life satisfaction.

Following the descriptive data for subjects with learning disabilities, a description of the paired subjects without learning disabilities is presented. The chapter ends with descriptive data on the pairs and paired t-tests for the appropriate variables.

Subjects with Learning Disabilities

Sample

One hundred and sixty six persons participated in the Model Program for Learning Disabilities at Penn State University from 1982 to1994. One hundred and thirty (78%) graduated from the University. Twelve individuals did not have current

addresses and phone numbers on file with the Alumni Office. One subject from the pilot study asked not to be contacted again. Eleven surveys were returned with incorrect addresses. Three others were deemed ineligible to participate. One subject felt he did not have a learning disability and therefore was not qualified to complete the survey, and two did not graduate. That left a total of 100 potential subjects with learning disabilities.

Sixty-five individuals with learning disabilities responded to the survey. For one subject, the identifying information of gender, year of graduation, degree earned, college graduated from was not available because the initial surveys were not numbered and the individual did not return either the response or informed consent forms, which would have identified those key variables. Of the subjects who responded, 33 (52%) were female and 31 (48%) were male. Fifteen (23%) chose to respond through a telephone interview, and 50 (77%) responded via the mail survey. Sixty-four subjects responded to the questions regarding marital status and whether they had children.

Personal Information

Twenty-two (34%) were single and never married, 9 (14%) were single and living with a partner, 31 (49%) were married, and 2 (3%) were divorced. Twenty-seven (42%) did not have children for whom they are financially responsible, and 38 (58%) had children.

Learning Disabilities Information

One (1%) subject had been diagnosed with a learning disability prior to elementary school, twenty-six (40%) had been diagnosed when they were in elementary school, 2 (3%) in middle school, 3 (5%) in high school, 32 (49%) in college, and 1 (1%) did not remember the time of diagnosis of the respondents who answered the question (N = 59). Thirty (51%) had received special education services prior to entering college and 29 (49%) had not. Six subjects did not respond to the question. At the time of this study, the subjects had been out of college for a range of 5 to 17 years.

Education

Penn State education information. The subjects represented all 10 academic units of the University. Table 8 displays the percentages of subjects by academic unit.

Table 8

Percentage of Graduates from Each Academic Unit

Academic Unit	N = 64	%
Agricultural Sciences	7	11
Arts and Architecture	2	3
Business	4	6
Communications	2	3
Earth and Mineral Sciences	1	2
Education	13	20
Engineering	2	3
Health and Human Development	17	27
Liberal arts	14	22
Eberly College of Science	2	3

The degrees earned by the subjects were as follows: 4 (6%) earned associate degrees, 50 (78%) earned bachelor's degrees, and 10 (16%) earned master's degrees.

Education attainment. Twenty-seven (43%) of the subjects stated that they had continued some form of schooling after obtaining a degree from Penn State. Thirteen of the 27 had completed the following additional degrees: associate degree 1 (7.7%), bachelor's degree 1 (7.7%), master's degree 11 (84.6%). Eight (13%) of the 27 subjects were currently attending school, 1 full time and 7 part time. The one subject attending full time was working toward his law degree. For those that were attending school part time, one was working toward a bachelor's degree, four toward a master's degree, while two did not specify the degree. Six subjects said they had continued their schooling but had not completed a degree, nor were they currently in school.

Penn State Learning Disabilities Model Program

All 65 subjects with learning disabilities answered that they had been involved in at least one part of the Model Program. As described in the description of the Model Program (p. 19), all individuals referred to the Program participated in a psychoeducational evaluation to confirm or diagnose a learning disability. Each participant then decided whether he/she would participate in, and/or follow the recommendations outlined on and Individualized Educational Program. The following section shows the involvement of the subjects in the services offered by the Model Program, and how they rated the helpfulness of each service.

General services. Eight questions were asked regarding the services offered by the Model Program. Table 9 presents the responses to these questions. It must be noted, however, that in some instances a subject responded that he/she received the services but did not rate its helpfulness.

Table 9

Helpfulness as Perceived by Subjects with Learning Disabilities of Eight Model Program General Services

Question	Response	Rating				
	Yes	Not at all helpful	Some-what helpful	Helpful	Very helpful	Extremely helpful
	N = 65	1	2	3	4	5
Testing for a learning disability	54 (83%)	4 (7.3%)	4 (7.3%)	17 (30.8%)	9 (16.4%)	20 (38.2%)
Accommodation letter	34 (53.1%)	0	0	5 (15.2%)	7 (21.2%)	21 (63.6%)
Additional test time	42 (70%)	0	0	7 (17.1%)	6 (14.6%)	28 (68.3%)
Testing in different location	34 (56.7%)	0	2 (5.7%)	7 (20%)	9 (28.6%)	16 (45.7%)

Notetaking assistance	7 (11.9%)	0	0	0	3 (42.9%)	4 (57.1%)
Tape recording classes	15 (26.3%)	0	0	4 (28.6%)	5 (35.7%)	5 (35.7%)
Preferential seating	6 (10.5%)	0	0	0	1 (16.7%)	5 (83.3%)
Course substitution	16 (26.7%)	1 (6.3%)	0	1 (6.3%)	1 (6.3%)	13 (81.3%)

Work with a clinician. In addition to the general services offered by the Model Program, subjects were given the opportunity to work intensively with a clinician (see definition of clinician on p. 19). Forty (62.5%) subjects responded that they had worked with a clinician, 20 (31.1%) responded that they had not and, 4 (6.3%) did not remember. Eight (20%) worked with the clinician for one semester, 7 (17.5%) for two semesters, 15 (37.5%) for 2 - 3 academic years, 8 (20%) for 3 or more academic years, and 2 did not respond. For the time frame that they worked with the clinician, 29 (74.4%) met with the clinician one to two times per week, 7 (17.9%) 3 – 4 times per week, 1 (2.6%) 7 – 8 times per week, 1(2.6%) 9 or more times per week, 1(2.6%) stated other, and 1 did not respond. Table 10 shows the services received from the clinicians, and how the subjects rated the usefulness of the services.

Table 10

Helpfulness as Perceived by Subjects with Learning Disabilities of Clinician Services

Question	Response	Rating				
	Yes N = 40	Not at all helpful 1	Somewhat helpful 2	Helpful 3	Very helpful 4	Extremely helpful 5
Time management	27	1 (3.7%)	1 (3.7%)	8 (29.6%)	10 (37%)	7 (26%)
Study skills	34		2 (5.9%)	10 (29.4%)	9 (26.5%)	13 (38.2%)
Individual coursework	30		2 (6.7%)	2 (6.7%)	8 (26.7%)	18 (60%)
Test taking strategies	24		2 (8.3%)	4 (16.7%)	10 (41.7%)	8 (33.3%)
Notetaking strategies	24		3 (12.5%)	6 (25%)	5 (21%)	10 (42.7%)

Employment

The subjects with learning disabilities were asked 10 questions regarding their current employment. These questions included employment status, Occupational Prestige Scores, income, and job satisfaction. Additionally, they were asked questions about possible accommodations received on the job and if they felt their learning disability prevented them from seeking other employment. The results are as follows.

Employment status. Fifty-nine (90.8%) of the subjects were working at the time of the survey, and 6 (9.2%) were not. Of the 6 who were not employed, 2 (33.3%) were not working because they were homemakers, 1 (16.7%) was a full time student, 1 (16.7%) was unable to find work, and 2 (33.3%) gave other reasons including a physical disability and depression. Of the 59 employed subjects, 52 (88.1%) were working full time, and 7 (11.9%) were working part time. Table 11 shows how long the subjects had been working at their current major job.

Table 11

Subjects With Learning Disabilities - Time on Present Major Job

Time	N = 59	%
More than 3 years	40	67.8
More than 1 year but less than 3 years	9	15.2
More than 6 months but less than a year	5	8.5
More than a month but less than 6 months	2	3.4
More than a week but less than a month	2	3.4
One week or less	1	1.7

Occupational Prestige Scores. Job titles were combined with the job descriptions provided by the subjects to determine each subject's OPS. The possible range of OPS is 14.7 to 81.1 (Stevens & Hoisington, 1987). The mean occupational prestige score for the subjects with learning disabilities was 49. Some examples of jobs having this approximate OPS would be: Computer Consultant, Landscape Architect, and System Test Engineer.

Income from present major job. Of the 59 subjects who were employed, 57 disclosed their yearly income from their present major job. The mean income was in the range of more than $30,000 but less than $35,000, and the median income range was more than $35,00 but less than $40,000. Table 12 shows the frequencies and percentages of responses regarding income.

Table 12

Subjects With Learning Disabilities – Income

Income level	N = 57	%
More than $60,000	8	14.0
More than $55,000 but less than $60,000	2	3.5
More than $50,000 but less than $55,000	3	5.3
More than $45, 000 but less than $50,000	6	10.5
More than $40,000 but less than $45,000	2	3.5
More than $35,000 but less than $40,000	7	12.3
More than $30,000 but less than $35,000	8	14.0
More than $25,000 but less than $30,000	5	8.8

More than $20,000 but less than $25,000	4	7.0
More than $15,000 but less than $20,000	4	7.0
More than $10,000 but less than $15,000	2	3.5
Less than $10,000	6	10.7

Job satisfaction. A single question was asked of the subjects to determine their job satisfaction. Nineteen (32.2%) reported that they were extremely satisfied, 21 (35.6%) were very satisfied with their job, 13 (22%) rated their job satisfaction as being average, 5 (8.5%) were somewhat dissatisfied, and 1 (1.7%) was very dissatisfied.

Job accommodations. The subjects were asked four questions about job accommodations at their current jobs. Table 13 shows questions, possible responses, and the number of subjects responding to each question, the frequencies, and percentages of responses.

Table 13

Subjects With Learning Disabilities - Job Accommodations

Question	Total N	N	%
Does your current employer know that you have a learning disability?	54		
1= Yes		39	72
2 = No		15	28
Did you request accommodations for your learning disability on your current job?	51		
1 = Yes		2	4
2 = No		49	96
If no, why didn't you ask for accommodations?	47		
1 = I didn't need any accommodations		38	81
2 = I feared discrimination		4	8
3 = Other		5	11
If yes, were you given the accommodations requested?			
1 = No		0	
2 = Yes	2	2	100

Seeking other employment. Sixty subjects answered the question as to whether they felt their learning disability would prevent them from seeking other

employment. Forty-six (77%) of the subjects who were working answered that they didn't feel their learning disability would hinder them from seeking other employment, 11 (18%) felt it would or did, and 3 (5%) responded that they didn't know. Those who responded that they felt that their learning disability would hinder them from seeking other employment qualified their response by adding qualitative statements as to why.

Self-support

The next variable analyzed was self-support. The subjects were presented with three questions in this section. They were asked about their current living situation and how much they depended on others for monetary support.

Living situation. Of the 64 subjects who answered this question, 57 (89.1%) responded that they were living independently. Five subjects (7.8%) were living with their parents or guardians, and 2 (3.1%) stated "other", but did not give an explanation of those living situations. Table 14 illustrates the living situations of the subjects with learning disabilities.

Table 14

Subjects with Learning Disabilities – Living Situation

Living situation	N = 64	%
Living independently	15	23.4
Living independently with partner	8	12.5
Living independently with roommates/housemates	4	6.3
Living independently with spouse	14	21.9
Living independently with spouse and children	16	25.0
Living with parents/guardians	5	7.8
Other	2	3.1

Dependence on others for monetary support. One question was asked of the subjects to determine how much they relied on others for monetary support. All but 2 of the 65 subjects answered the question. Forty (63.5%) answered that they did not rely on others at all, 11 (17.5%) replied that they relied very little, 9 (14.4%) relied somewhat, and 3 (4.8%) relied on others a great deal.

Community Involvement

The amount of time spent in community organizations by the subjects is examined in this section. The subjects were asked to complete a chart that asked for

the name(s) of organization(s) they were involved with, the number of hours per month they contributed toward that organization, and the role they had within the organization. The organizations were categorized into the following groups: church, children's school/activities, civic groups, sports teams, and a combination of any of the organizations. The total numbers of hours spent per month was calculated. The roles in the organization were categorized as follows: leader, member, volunteer, coach, and mentor. The role that was designated for each subject was the role in which they spent the most monthly hours.

Organizations. Thirty-five of the total group of 65 subjects with learning disabilities completed the community involvement table. Twelve (34.3%) were involved with church, 3 (8.6%) were involved with their children's activities, 5 (14.3%) were involved in civic groups, 5 (14.3%) were involved with sports teams, and 10 (28.6%) were involved in a combination of several organizations.

Number of hours. The number of the hours spent participating in community activities were: 8 (23.5%) participated for 1-5 hours per month, 14 (41.2%) participated 6 - 10 hours per month, 1 (2.9%) participated 11 - 15 hours per month, 8 (23.5%) participated 15 hours or more per month, and 3 (8.8%) answered that the monthly hours varied. One subject did not give the number of hours he participated in his community activities.

Number of groups involved with. Twenty-five (71.4%) of the subjects reported that they were involved with one group, 7 (20.0%) were involved with two groups, and 3 (8.6%) answered that they were involved in three or more groups.

Roles. The subjects reported having a variety of roles in their community ranging from member to elected officials in their local governments. The results are as follows: 6 (17.1%) were leaders, 10 (28.6%) were members, 13 (37.1) were volunteers, 5 (14.3%) were coaches, and 1 (2.9%) was a mentor.

Life Satisfaction

The subjects were asked five questions to generate a picture of their overall life satisfaction. The results of these questions follow.

Happiness and life satisfaction. The first question that was asked of the subjects stated: “Taking all things together, how would you say things are these days? Would you say you are:”; this question was followed by the three descriptors “very happy, pretty happy, and not too happy”. All but 2 of the 65 subjects responded to the question. Twenty-four (38.1%) responded that they were very happy, 33 (52.4%) reported that they were pretty happy, and 6 (9.5%) stated that they were not too happy. The subjects were then asked to respond to a question that asked how satisfied they were with their life. Twenty-six (40.6%) said they were very satisfied with their life, 21 (32.8%) were somewhat satisfied, 9 (14.1%) responded that, on average, they were satisfied with their life, 6 (9.4%) were somewhat dissatisfied, and 2 (3.1%) were very dissatisfied. One subject did not respond to the question.

Personal/social and economic comparison. The next two questions asked the subjects to rate themselves in comparison to their peers on personal/social and economic planes. One subject did not answer these two questions. For the personal/social question, the results were 26 (40.6%) strongly agreed that they were on an equal plane, 23 (35.9%) agreed, 10 (15.6%) were undecided, 2 (3.1%) disagreed, and 3 (4.7%) strongly disagreed. For the question that asked about an equal economic plane, the results were as follows: 20 (31.3%) strongly agreed that they were on an equal economic plane, 21 (32.8%) agreed, 10 (15.6%) were undecided, 7 (10.9%) disagreed, and 6 (9.4%) strongly disagreed.

Effect of learning disability on life. The final question in the section examining life satisfaction asked whether they felt that their learning disability had hindered them from achieving a life similar to their peers without learning disabilities. Six (9.4%) strongly agreed with the statement, 7 (10.9%) agreed, 9 (14.1%) were undecided, 20 (31.3%) disagreed, and 22 (34.4%) strongly disagreed.

Comparative Statistics

Forty pairs were obtained in order to compare the post school outcomes of graduates from Penn State with and without learning disabilities. The following section will begin with a description of the subjects without learning disabilities. This will be followed by descriptive and paired t-tests for each variable of comparative interest: employment, self-support, community involvement, and life satisfaction.

Subjects Without Learning Disabilities Sample

Surveys were sent out to 128 graduates of Penn State University without learning disabilities. To increase the likelihood of response, for every 1 subject with a learning disability, 2 graduates without learning disabilities were mailed surveys. A total of 65 graduates without learning disabilities responded. Forty of those subjects could be paired with subjects with learning disabilities. Since pairing was done for the subjects with and without learning disabilities, the variables of gender, academic unit graduated from, and degree earned were the same for both groups. Exact pairs could not always be obtained in terms of the year of graduation. In seven cases, the learning disabled and non-learning disabled pairs graduated in different years, however, their graduation dates differed by only 1 year. Of the 40 subjects without learning disabilities, 1 (2%) responded by telephone interview and 39 (98%) responded by mail survey.

Personal information. Eight (20%) were single, never married; 6 (15%) were single, living with a partner; 24 (60%) were married; and 2 (5%) were divorced. Fifteen (37.5%) had children for whom they were financially responsible, and 25 (62.5%) did not have any children.

The section that follows will give the results of the 40 pairs of subjects. Since all subjects did not answer all the questions, the subject numbers for each question varies. SPSS automatically calculates the pairs where both subjects in a pair respond to the question.

Employment

Paired t-tests. Table 15 shows the results of the paired t-tests conducted on the two groups responses to the employment questions. An alpha level of .05 was used for all t-tests. There were no statistically significant differences between the LD and NLD groups in regard to employment status, Occupational Prestige Score, income, and job satisfaction. There was a statistically significance difference between the two groups on the question that asked about the amount of time on the job. The subjects with learning disabilities had been in their current jobs for longer than the subjects without learning disabilities. The table is based on the responses from subjects with learning disabilities and the subjects without learning disabilities who answered that they were employed.Table 15

Differences Between LD and NLD Pairs - Employment

Question	N	Mean		SD	df	t	Probability
		LD	NLD				
Time on job 1 = 1 week or < 2 = > 1 wk, > 1 mo 3 = >1 mo, < 6 mo 4 = >6mo < 1 yr 5 = >1 yr, <3 yrs 6 = >3 yrs	30	5.96	4.8	2.38	29	2.69	.012*

Occupational Prestige Score Range 14.7 – 81.1	30	47.98	46.84	17	29	.37	.715
Income 1 = < $10,000 2 = > $10,000, < $15,000 3 = > $15,000, < $20,000 4 = > $20,000, <$25,000 5 = > $25,000, < $30,000 6 = > $30,000, < $35,000 7 = > $35,000, < $40,000 8 = > $40,000, < $45,000 9 = > $45,000, < $50,000 10 = >$50,000,< $55,000 11 = >$55,000, < 60,000 12 = > $60,000	29	6.69	7.38	4.96	28	-.75	.461

Job satisfaction 1 = not at all satisfied 2 = somewhat dissatisfied 3 = average 4 = satisfied 5 = very satisfied	29	3.83	4.10	1.10	28	-1.35	.187

*Significant at .05

Self-support

Table 16 shows the results of the paired t-test that was conducted on the self-support question. The table is based on the subjects with learning disabilities and the subjects without learning disabilities answering the questions regarding self-support. An alpha level of .05 was used. There was a statistically significant difference between the two groups in regard to relying on others for monetary support. The subjects with learning disabilities relied on others for support more than did the subjects without learning disabilities.

Table 16

Differences Between LD and NLD Pairs – Self-support

Question	N	Mean		SD	df	t	Probability
		LD	NLD				

Others for support	40	1.60	1.23	1.17	39	2.02	.050*

1 = not at all

2 = very little

3 = some

4 = a great deal

* Significant at .05

Community Involvement

The subjects were asked to complete a table that listed any involvement they had with their communities. The three areas of the table were type of organization, hours per month spent with the organization, and role they had within the organization. There were 10 pairs that completed the table. This section will first show the descriptive results regarding the types of organizations and the roles of subjects in the organizations. Then the results of a paired t-test analyzing the number of hours spent per month by both groups of subjects in community organizations will be presented.

Descriptive results. The subjects were asked to name the organizations in their communities that they were involved with. Table 17 shows the type of organization the subjects involve themselves with and those who are involved in a combination of several different groups.

Table 17

Community Involvement – Type of Organization

Question	N = 20			
	LD		NLD	
	N	%	N	%
Type of Organization				
Church	4	40	2	20
Children's activities	1	10	0	0
Civic groups	1	10	1	10
Sports teams	1	10	1	10
Combination of different groups	3	30	6	60

Roles in the organizations. The subjects were asked to identify the roles they had in the community organizations they were involved with. Table 18 shows the roles the subjects had with the organizations with which they spent the most time.

Table 18

Roles in Community Organizations

Question	N = 20			
	LD		NLD	
	N	%	N	%
Role in the organization				
Leader	3	30	1	10
Member	2	20	2	20
Volunteer	4	40	7	70
Coach	1	10	0	0

Paired t-tests. Paired t-tests were conducted on the other two community involvement questions regarding the number of hours spent per month in community involvement and number of organizations. The results are shown in Table 19. An alpha level of .05 was used for all of the t-tests. There was no statistically significant difference between the two subject groups in regard to number of hours they were in community organizations.

Table 19

Differences Between the LD and NLD Pairs - Community Involvement

Question	N	Mean		SD	df	t	Probability
		LD	NLD				
Number of hours per month 1 = 1-5 2 = 6-10 3 = 11-15 4 = 15 <	10	2.09	2.40	2.02	9	.785	.435

Life Satisfaction

Paired t-tests. The results of the paired t-tests conducted on the four life satisfaction questions are presented in Table 20. An alpha level of .05 was used for all of the t-tests. There were no statistically significant differences between the two groups in regard to their responses to the questions about their overall happiness and whether they felt they were on an equal plane with their peers in regard to personal/social and economic issues. Although the data show no significant difference, the direction of the responses showed that the subjects with learning disabilities were less happy and did not agree that they were on an equal plane with their peers without learning disabilities. There was a statistically significant difference between responses of the groups on the question that asked how satisfied they were with their lives. The subjects with learning disabilities were not as satisfied with their lives as were those without learning disabilities.

Table 20

Differences Between the LD and NLD - Life Satisfaction

Question	N	Mean		SD	df	t	Probability
		LD	NLD				
Life happiness	40	1.65	1.45	.966	39	1.31	.198
1 = very happy							
2 = pretty happy							
3 = not too happy							
Life satisfaction	40	1.95	1.35	1.35	39	2.80	.008*
1 = very satisfied							
2 = somewhat satisfied							
3 = average							
4 = somewhat dissatisfied							
5 = very dissatisfied							
Personal/social plane	39	1.95	1.82	1.50	38	.531	.598
1 = strongly agree							
2 = agree							
3 = undecided							
4 = disagree							
5 = strongly disagree							

Economic plane	38	2.45	2.21	1.95	37	.748	.459

1 = strongly agree

2 = agree

3 = undecided

4 = disagree

5 = strongly disagree

*Significant at .05

CHAPTER FIVE

Discussion

This study was conducted to determine if there is a difference between the post school outcomes of university graduates with and without learning disabilities. It was hypothesized that there would be no difference between the groups in the areas of employment, self-support, community involvement, and life satisfaction. Ten questions were analyzed comparatively; three of the questions resulted in significant differences between the groups. The following narrative addresses the results for each of the four hypotheses. This is followed by a discussion of the implications of the results, limitations of the study, and suggestions for future research.

Results for Hypothesis 1

There is no difference in the employment variables of individuals with learning disabilities and their peers without learning disabilities in this study.

One goal of attending college is to become employed after graduation. Previous research has shown that people with LD who end their schooling at the secondary level are traditionally unemployed or underemployed (Zigmond & Thornton, 1985). More current researchers are finding that individuals with learning disabilities, particularly those who attend college, are becoming employed in professional jobs. This study's results regarding the employment status of the subjects with learning disabilities can be compared to two other types of studies: first, with studies of graduates from secondary and postsecondary settings, and secondly, with studies regarding peers and national statistics. A discussion of occupational prestige scores, length of time on the job, income, and job satisfaction concludes the section on employment.

Comparison with secondary and postsecondary studies. The analysis of the employment rate of the subjects in comparison to those in other studies found that subjects in this study were employed at a higher rate. They were employed at a rate of 90.8%. This number increases to 95.4% when three subjects who were unemployed are eliminated from the formula (because they are not actively seeking employment). Compared to high school graduates, this rate is higher. For example, Sitlington and Frank (1990) found that high school graduates were employed at a rate of 47%, and Scucimarra and Speece (1990) showed an employment rate of 88.5% for their subjects with learning disabilities.

Comparing the results of this study to studies of college graduates, the rate of employment is similar. Greenbaum (1993) found that 86% of those who were actively seeking employment were employed. Witte et al. (1998) and Long et al. (1998) both found that 96% of their subjects were employed. The high employment rate of subjects evaluated by this study supports the current trend in the disability literature indicating that the employment rate for individuals with learning disabilities tends to increase in conjunction with a higher level of education. The high employment rates found in this and other college graduate studies supports Levine and Nourse's (1998) theory that an individual's educational level is a means for advancement and opportunity. For individuals with learning disabilities, graduating from college is associated with higher levels of finding employment.

Peers and national statistics. As stated previously, there was no statistically significant difference between the subjects with learning disabilities and those without in regard to employment rate. For each group, there were 6 subjects who were not employed. For those with learning disabilities, this is an employment rate of 90.8%, and for those without learning disabilities an employment rate of 85%. According to the Bureau of Labor Statistics (1999), the employment rate of those who have attained a Bachelor's Degree is 98.1% and a Master's Degree is 98.4%. Therefore, in this study, the subjects with learning disabilities came closer to the national employment rate for their degree attainment than did those without learning disabilities.

Occupational prestige. Occupational Prestige Scores (OPS) were used to rate the jobs of the subjects. These scores help to determine the prestige of an individual's job as viewed by society. As Stevens and Hoisington (1987) state:

> Perceptions of the positions of occupations in the occupational hierarchy, whether fully based on objective characteristics or not, have real consequence for how persons perceive themselves, and perceive and treat others. Agreement about occupations' relative prestige rankings is generally considered to be high within the general population and relative levels of occupational prestige appear to be quite stable over time and across the country. (p. 74)

There was no statistical difference between the two groups in their OPS rating. The individuals with learning disabilities in this study were employed in jobs that held similar levels of prestige as their peers without learning disabilities. When comparing the results of this study to other college studies, both the subjects with and without learning disabilities had similar job ratings. Although other researchers used other rating scales, such as the Dictionary of Occupational Titles classification system, rather than the OPS ratings, the results were similar. Greenbaum (1993), Long et al. (1998), and Witte et al. (1998) all found that the majority of their subjects were working in professional, technical, and managerial positions. The same held true for this study. When they were categorized according to job titles, 45 (69%) of the

subjects held jobs in the occupational categories of Executive, Administrative, and Managerial; Professional Specialty; and Technicians and Related Support Occupations. In addition, it is interesting to note that the subjects with learning disabilities had a higher OPS rating, 78.30, than did the subjects without learning disabilities, 67.92. These findings show that when prestige is linked to the job the person holds, there is no significant difference between how the jobs held by those who had learning disabilities and those without learning disabilities are viewed.

Length of time on the job. There was a significant difference between the two groups in regard to the length of time on their present job. The subjects with learning disabilities responded more frequently that they had been in their current jobs for 3 years or more. Greenbaum (1993) found that her subjects were employed for approximately 1 1/2 years. The majority of subjects in the Greenbaum study, however, had only been out of college 2 1/2 years, while the subjects in this study had been out of school between 5 and 17 years. Comparisons, therefore, are not possible.

The fact that the subjects with learning disabilities had held their jobs for three years or longer, however, has stronger ramifications when examined in combination with the following survey inquiries: (a) “Do you feel your learning disability would prevent you from seeking other employment?” and (b) “Please indicate by circling the appropriate number how satisfied you are with your current job on a scale from 1 to 5, 1 being not at all satisfied to 5 being very satisfied.” Seventy-seven percent of the subjects who were working answered that they didn’t feel their learning disability

would hinder them from seeking other employment. Those who responded that they felt that their learning disability would hinder them from seeking other employment qualified their response by adding that it would prevent them from seeking jobs that they would not be able to do well as a result of having a learning disability. In addition, there was a high level of job satisfaction among the subjects with learning disabilities. One subject who wrote about her work situation expressed a sense of pride about working for a long time in one job: “worked at the same company for 9 years (very proud)!”

Income. Income is discussed in relation to national earnings and the results of postsecondary studies. The most recent findings published by the Bureau of Labor Statistics (1999) was obtained from data collected in 1997. The national median earnings for an educational attainment level of a bachelor’s degree was $40,100 and for a master’s degree, $50,000. In this study, the median income for both the subjects with and without learning disabilities was in the range of more than $35,000, but less than $40,000. This range is less than the national average. When they conducted their study in 1996, Long et al. (1998) found that 48% of their subjects were making higher than the national average annual pay. This is higher than salaries reported by Greenbaum et al. (1996) where the average salary reported was $20,000. The Greenbaum et al. study, however, only included undergraduate students, whereas the Long et al. (1998) study and the current study included students with graduate degrees. These comparisons should be looked at with caution due to differences in

each of the studies including the amount of time the subjects were out of college (2 1/2 years in the case of the Greenbaum et al. study and 3-14 years in the Long et al. study) and the level of education attained.

Witte et al. (1998) compared subjects with and without learning disabilities. Like this researcher, Witte et al. found that there were no significant salary differences between the two groups. Twenty-one percent of the Witte et al. subjects were making salaries between $30,001 to $40,000, which is similar to the 26.3% subjects in this study who were making between $30,000 to $40,000. These findings suggest that when individuals with learning disabilities attend college, they are able to obtain competitive jobs with salaries similar to those with equivalent degrees.

Job satisfaction. The subjects were asked one question regarding job satisfaction. The responses to this question were mostly positive. Of those who were employed, 89.8% of the subjects with learning disabilities described their job satisfaction by saying they were extremely satisfied. Rogan and Hartman (1990), Greenbaum (1993), and Witte et al. (1998) reported varied results in their examination of job satisfaction. Rogan and Hartman found high job satisfaction ratings for their subjects. This finding is similar to the finding in this study. Greenbaum also found high job satisfaction on her first question. This result, however, was changed and modified by subsequent questions about job satisfaction on which the subjects responded that they would like another job. Those responses

indicated a level of dissatisfaction that was not obvious when subjects responded to the first job satisfaction question in this survey.

Since there are such differing results on the job satisfaction ratings among studies, this area needs to be explored further. It appears that the major difference between the ratings is the number of questions that were asked about job satisfaction. When subjects are asked an initial question about job satisfaction, the job satisfaction rating is high. However, when they are probed further, subjects may realize that they are not as satisfied with their jobs as they initially indicated.

Another aspect that should not be overlooked, when looking at job satisfaction, is the phenomenon coined by Reiff, Gerber, and Ginsburg (1997) as "goodness of fit." This is the ability of an individual with a learning disability to fit themselves into an environment where their strengths are optimized and their weaknesses minimized. This phenomenon was apparent in the current study. Many subjects expressed that they were working in jobs that capitalized on their strengths rather than the limitations of their disability. One subject, who was working as a Senior Copywriter, indicated that he had difficulty in the area of written expression. His boss values his work, although he is a "lousy speller and very disorganized." He expressed his feelings about his job in relation to his learning disability in the following way: "Senior Copywriter (ironic, isn't it?), I write print, TV, and radio commercials for lots of money. I believe my disability is directly related to my artistic ability. I have always been gifted in the arts – drawing, writing, storytelling, etc."

This subject, as well as others, attributes his success on the job to understanding his learning disability and finding employment that fits his strengths, and employers who value his expertise.

Results for Hypothesis 2

There is no difference in the self-support variables of individuals with learning disabilities and their peers without learning disabilities in this study.

Two variables were examined when analyzing this hypothesis: the subject's living situation and their reliance on others for monetary support.

Living situation. As was found with employment, the living situation of individuals with learning disabilities and those without learning disabilities changes the longer a person is out of high school. Students exiting secondary education report living with others due to limited income. White (1992) and Sitlington and Frank (1990) examined the living situation and dependency on others for financial support for those exiting secondary training. They found that the majority of their subjects were not living independently or were not self-sufficient. The living situation of individuals with learning disabilities appears to change as they graduate from college. Two researchers (Greenbaum et al., 1996; Long et al., 1998) looked at the independent living situation of college graduates. Greenbaum et al. reported that more than half (57%) of their subjects with learning disabilities were living on their own. Long et al. found that 79% of their subjects were living on their own.

The current study found that the majority, 57 (89.1%) of the subjects with learning disabilities, were living independently. There was no difference between the subjects with learning disabilities and those without learning disabilities in the area of independent living. This research supports the hypothesis that when higher degrees are earned, the level of independent living increases.

Dependency on others for monetary support. One of the significant findings of this study was that there was a statistically significant difference between the groups in the area of dependency on others for monetary support. A possible explanation for this significance may be that, in addition to being diagnosed with a learning disability, 2 of the 6 subjects who were not working had other disabilities. One had severe physical impairments, and the other was diagnosed with depression. Both were receiving assistance from the government in the form of Social Security Disability Insurance (SSDI). In addition, another subject who had been working had been involved in a car accident, leaving her with a head injury that limited her ability to work full time. She relied on her partner for income. These types of disabling factors resulted in the need for relying on others for monetary support. The subjects without learning disabilities did not mention disabling factors. Only one of the subjects without learning disabilities reported receiving any form of government assistance. This exception was a mother who received Social Security Insurance (SSI) for her daughter who had a disability.

Results for Hypothesis 3

There is no difference in the community involvement variables of individuals with learning disabilities and their peers without learning disabilities.

One of the research needs addressed by several authors is the relationship between the individual and his/her community (Gerber, 1994; Levine & Nourse, 1998). This study sought to look comprehensively at the subjects' lives to determine how they were functioning outside of the realm of employment. Half of the individuals with learning disabilities who were included in this study were active in their communities. Most subjects were involved in organizations for 6-10 hours per month. Approximately half of both of the groups completed the survey questions that asked about community involvement. This finding suggests there is equal participation in community activities by both groups. When the groups were paired for comparison, there were 10 comparison cases. Due to the low numbers of comparison cases these results should be viewed with caution. However, comparing these results indicates that individuals with learning disabilities are as equally involved as their peers in their communities, and they contribute an equal number of monthly hours, and their roles within the community organizations are similar. This author found no other studies that examined, quantified, and compared the community involvement of individuals with learning disabilities who exited either secondary or postsecondary schooling. This is an important finding. It suggests that

individuals with learning disabilities are active members of their communities and spend their free time contributing to the communities in which they live.

Results for Hypothesis 4

There is no difference in the life satisfaction variables of individuals with learning disabilities and their peers without learning disabilities in this study.

To understand the post school outcomes of college graduates, you must look beyond the indicators of employment and living situation and examine how satisfied they are with their lives. This study sought to do this by asking the subjects four questions about happiness, satisfaction, and how they compared themselves with others personally/socially and economically. The subjects with learning disabilities were asked a fifth question that asked if they felt their learning disability had hindered them from achieving a life similar to their peers.

Over half (52%) of the subjects with learning disabilities indicated that they were very happy with their lives, and most felt that they were on an equal personal/social and economic plane with their peers. These questions resulted in non-significant findings; both groups were equally happy and compared themselves favorably with others. The satisfaction question yielded less positive results. The subjects with learning disabilities had a satisfaction rate of 40.6% compared with their peers without learning disabilities who responded had a 72.5% satisfaction rate. This result was statistically significant. In addition, the low response by subjects with

learning disabilities was also lower than that found by Rogan and Hartman (1990). Eighty-six percent of their subjects with learning disabilities judged their life satisfaction to be highly positive.

The low response of subjects with learning disabilities on the question addressing life satisfaction is difficult to interpret. On all other indicators of satisfaction included in the survey, such as happiness and comparison with others, the results were not significantly different. However, the directions of the responses for the subjects with learning disabilities were more negative than the subjects without learning disabilities. It is hypothesized that the survey did not include enough queries about life satisfaction. Probing further may have clarified this finding.

Implications

Theoretical Implications

We need to look beyond the traditional beliefs that individuals with learning disabilities are unemployed, underemployed, and rely on others for support. As the focus of research on individuals with learning disabilities moves from the transition from high school to postsecondary and competitive employment settings (Gerber & Reiff, 1991), individuals with learning disabilities compare favorably with individuals without learning disabilities. Legislation, such as the Rehabilitation Act and the Americans with Disabilities Act, has opened the door for further opportunities for individuals with learning disabilities. From a theoretical perspective, part of Bandura's (1997) cognitive social learning concept called "self-efficacy' applies to

the subjects with learning disabilities. Self- efficacy (Bandura, 1997) is defined as an individual's ability to master a situation and produce positive outcomes. This study shows individuals who have come to understand their learning disability and where they fit, for example, into the world of employment can be successful. They seem to have come to understand where the most appropriate work setting is for them, and although they may disclose their disability, they do not need accommodations because they have learned how to compensate for their areas of difficulty. As one subject stated, "working in a technical feild (sic) sometimes I find it hard to talk to other co workers (sic) until I get to know them. I can not raddle (sic) off the numbers and names of things they remmember (sic). Sometimes I feel stupid when I speak. But I keep notebooks with me for reference and I know my work shows I am not "stupid." People tend to value my opinion and listen to me when I do speak."

The findings in this study regarding the length of time the individual has held his/her current job, the high Occupational Prestige Scores, and positive happiness indicators contribute to the literature indicating that, when individuals with learning disabilities are provided with opportunities, they can be compared favorably to their peers without learning disabilities.

Applied Implications

The target audiences for this study's findings are: (a) those who work with students with learning disabilities at the secondary level and (b) postsecondary learning disability service providers. Since transition planning is mandated by IDEA,

those working with students with learning disabilities at the secondary level can be shown that college is a viable option for students with learning disabilities, which can result in jobs similar to their peers. Students with learning disabilities should be encouraged to take advantage of opportunities provided by legislation and attend college.

Reviewing the results of the subjects with learning disabilities use of the Model Program services, most used at least one of the services offered. The services used most often were: testing for a learning disability 54 (83%), additional test time 42 (70%), working with a clinician 40 (62%), testing in a different location 34 (56.7%), and receiving an accommodation letter 34 (53.1%). Sixty-two percent of the subjects worked with a clinician. Of the additional services the clinician provided, study skills assistance, help with individual coursework, and time management skills, were those most frequently used.

In addition to using the services offered by the Model Program, the subjects highly rated the helpfulness of these services. Looking at the top three services indicated as used most often (testing for a learning disability, additional test time, and working with a clinician) shows that there were few who felt they were only somewhat helpful or not at all helpful. Testing for a learning disability was rated as follows: 20 (38.2%) extremely helpful, 9 (16.4%) very helpful, 17 (30.8%) helpful, 4 (7.3%) somewhat helpful, and 4 (7.3%) not at all helpful. Of those who rated the helpfulness of working with a clinician, 19 (48.7%) indicated that it was extremely

helpful, 9 (23.1%) indicated it was very helpful, 8 (20.5%) rated it as helpful, 2 (5.1%) indicated it was somewhat helpful, and only 1 (2.6%) indicated it was not at all helpful. In addition, for those who indicated they had an accommodation letter, 21 (63.6%) rated it as extremely helpful, 7 (21.2%) as very helpful, and 5 (15.2%) as helpful. No one indicated that it was only somewhat helpful or not at all helpful. This held true for the majority of the services used; the subjects rated them as helpful to extremely helpful.

Although it cannot be judged from this study whether there was a correlation between the services the subjects received as part of the Model Program and the post school outcomes, the fact remains that services at some level were provided. This is encouraging to both individuals with learning disabilities and the service providers at the postsecondary level. This study demonstrates that when individuals with learning disabilities attend institutions of higher education and graduate, they are able to obtain jobs and salary levels similar those with equivalent degrees, live independently, be involved in their communities, and be happy with their lives.

Research Implications

One strength in the implementation of this study was giving the subjects the option of completing the survey in the mode (mail or phone) of their choosing. Another strength was using the guidelines of the Total Design Method presented by Dillman (1978), such as personalizing the letters of introduction to the survey and subsequent follow-ups.

As was suggested (Dillman, 1978) the use of incentives typically increases the response rate. However, an interesting phenomenon occurred with both populations in this study. Of the 65 subjects with learning disabilities, 24 said they did not want the incentive. Five subjects asked that the money be donated to a specific cause, and several simply stated that they were happy to participate without reward. For the subjects without learning disabilities, 10 sent the $2.00 incentive they received with their survey back to the researcher. Both groups showed that the reward was not their sole reason for responding; they had a true interest in contributing to the research.

Limitations

Research Design Limitations

There were several limitations regarding the design of the study, including the limitations of non-random matching and the reliability of self report data. When random sampling is not done, there is a high probability of experimental error. However, some random sampling was conducted when pairing the subjects without learning disabilities to the subjects with learning disabilities. The researcher was provided with an extensive list of Alumni from which to choose on the matched variables. From that list names were randomly selected to receive letters of participation.

There are mixed results regarding the reliability of data that is analyzed according to self-report. It is difficult to validate self-reported behavior in comparison to actual behavior (Gay, 1996). However, there is evidence to support that the further

away the interviewer gets from his/her subjects, the more valid are the responses obtained (Dillman, 1987). In addition, mail surveys have been demonstrated to have less bias relative to other forms of survey data (Dillman, 1987). The majority of the subjects in this study responded by mail, thereby increasing its reliability.

Survey Limitations

Although this study yielded high response rates given the pool of potential subjects, there were areas that could have been improved upon. The initial mailing for the potential subjects without learning disabilities was not personalized. The salutation was generally addressed to "Penn State Alum", and mailing labels created by the Alumni Office were used. As Dillman (1987) emphasized, the more personalized the survey instruments, the more positive the response.

In order to generate the lists of potential subjects without learning disabilities, the researcher had to submit general variables, such as a range of years and college within the University, to the Alumni Office. Limiting the number of subjects available for matching with available subjects with learning disabilities limited the number of potential subjects from which to generate pairs.

General Limitations

Given the heterogeneity of individuals with learning disabilities, it should be stated that these subjects with learning disabilities may not be representative of all individuals with learning disabilities. In addition, these subjects received services under a specific learning disabilities program that may not be available at other

colleges and universities. It also does not take into account individuals with learning disabilities who attended other types of postsecondary education, such as vocational training programs and community colleges. In short, this study was conducted with a representative sample of individuals with learning disabilities at Penn State and the extent to which the findings can be generalized to other populations is unknown.

Utilizing additional questions could have strengthened several areas of the study. This is particularly true in the area of life satisfaction. Additional questions in the area of life satisfaction would have helped to clarify in which areas of their lives the subjects' felt dissatisfied.

There were also limitations in the life satisfaction questions that asked the subjects to rate how they felt they compared to their peers in regard to personal/social and economic standing. It was assumed that if they responded that they felt they were not on an equal plane with their peers, it meant that they felt they were on a lesser plane. However, the person could have been responding in the opposite way, they felt they were on a higher plane. This limitation could have been avoided by including more choices that would have indicated directionality of the response.

Future Directions

There are several areas of this study that need to be built upon in subsequent studies. For example, this researcher couldn't find any other studies involving adults with learning disabilities that examined their involvement in their community. More importantly, further studies that compare individuals with learning disabilities to their

peers, rather than a general population of individuals without learning disabilities, need to be conducted. A strength of this study is that it paired those with learning disabilities with those without learning disabilities on very specific variables. Other researchers have been more general in identifying their controls. One exception, Witte et al. (1998), paired subjects with learning disabilities and those without. This type of statistical pairing should produce a much more precise body of data on which to base conclusions about individuals with learning disabilities.

This study incorporates several important trends that should be continued when researching adults with learning disabilities. These include: (a) examining their lives comprehensively, beyond simply their employment status; (b) studying them in comparison to those without learning disabilities utilizing specific matching variables, and (c) allowing them to answer questions in a mode that promotes high response rates.

Summary

This study contributes to an important area of research concerning individuals with learning disabilities. It supports the assertion that learning disabilities as a lifetime condition (Greenburg, 1993). In order to continue to provide support and opportunities for this population, knowledge about how a learning disability impacts individuals throughout their lives (Rieff & Gerber, 1992) is crucial.

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