Introversion and Self-Advocacy:
Concomitant Predictors of End-of-Year Attrition Rates for
College Freshmen with Learning Disabilities

by

Shirley E. Tucker

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Liberty University
October 2005
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Abstract

This attrition research investigated the social aspect of two independent variables, introversion and self-advocacy, and explored whether they functioned as a concomitant unit to reliably predict end-of-year attrition rates for college freshmen with learning disabilities. The Myers-Briggs Type Indicator categorized subjects dichotomously as introverts or extraverts while the Tucker Self-Advocacy Tool used a continuous scale to indicate the degree of self-advocacy each subject exhibited.

Several statistical procedures facilitated this correlational study: the Fisher's Exact Test compared the percentage of dropouts between the introvert and extrovert groups while a two-sample t-test compared the average self-advocacy score between the group that dropped out and the group that did not dropout. Binomial multivariate logistic regression allowed investigation of the subjects' self-advocacy scores, after adjusting for personality, and whether they might predict attrition for college freshmen with learning disabilities.

Three hypotheses, tested at the .05 confidence level, yielded insignificant statistical results, indicating that non self-advocacy and introversion may not be accurate predictors of attrition for college freshmen who are learning disabled. However, 93% of the extraverts in the study registered for their sophomore year, compared to only 66% of the introverts who re-enrolled. Therefore, further investigation may be warranted with a
larger sample size, in the event that the small sample size (n = 20) of this study influenced the failure to find statistically significant results.
Author's Statement

This Dissertation represents a partial fulfillment of the requirements for a Doctorate of Education degree at Liberty University and is available in the libraries of Liberty University and the Lancaster Bible College for borrowers under the guidelines of the respective libraries.

Under copyright law, brief quotations from the text of this dissertation are allowed without special permission, provided that accurate acknowledgement of the source is made. However, it is a violation of copyright to reproduce, in whole or part, by any means, the separately copyrighted Tucker Self-Advocacy Tool found in the appendix, without the express written permission of the author.
Acknowledgements

It is with great appreciation that I acknowledge the members of my dissertation committee. I am especially indebted to the chair of my committee, Dr. Pauline Donaldson, Dean Emeritus. I have been the recipient of her insight, encouraging words, and constructive criticism and I am most appreciative of the time she so graciously gave.

During the development of the design of this research, the late Dr. Ron Allen approved the general design of the study and confirmed the statistical procedures to be used. His low-key approach kept this high-strung, statistics-fearing graduate student less ruffled.

Dr. John Pantana, of School of Education faculty, stepped into Dr. Allen’s position on the committee, graciously doing so at the beginning of an exceptionally busy semester. His willingness to do so enabled me to continue to progress towards the dissertation defense.

I am also fortunate to have had Dr. Karen Parker, Dean of Liberty University’s School of Education, on my committee. Her calm personality and affirming comments were of great encouragement, especially during the defense preparation.

It would have been impossible to carry out this research without the gracious assistance of Denton McHaney, Coordinator of the Office of Disability Academic Support at Liberty University, and his colleagues, Connie Hansen and Heather Schoffstall. Each gave considerable personal
time to solicit volunteer subjects for this study. Because of the physical distance between my home and the university, their collective support made this aspect of this study immeasurably more manageable.

I am indebted, too, to the college students at both institutions who are represented in the statistical data of this study. They were the impetus behind this dissertation topic and I appreciate the personal time they freely gave.

In addition, I am grateful to the disability service providers across the nation who reviewed the draft of the Tucker Self-Advocacy Tool used in this research. Their critique of the self-advocacy tool assisted in establishing item and sample validity. Thank you, colleagues: Sara Baum, Donna Maheady, Carolyn Malloch, Gayle Maul, Kathy McGillivray, Nancy Mott, Kristina Puent, Steve Robillard, Jane Rufino, Dorothy Wells, and Sammie Young.

Many others supported me as well: Diane Breach and Justina Sanner Martin competently took on additional work-related responsibilities so that I could have extended time to complete the dissertation writing, and Carol and Jim DeVries, Pat and Warren Whitney, Linda Watts, and Peggy Weston consistently prayed for me.

Obviously, I have been encouraged and blessed by many wonderful people, and that extends to family members, as well. My parents, Dexter and Muriel Tucker, my sisters, Jan and Bev, and my brother-in-law, Charles, have shown their love to me in many ways over the years; their gracious
resolve to not “interrupt” during the dissertation writing and defense preparation was yet another demonstration of their support. Their encouragement, patience (particularly when I lacked it), and especially their ongoing prayers, kept me from despair during this major undertaking.

Thank you all. May God bless you for the part you have played in my dissertation “life.”

Shirley E. Tucker
Soli Deo Gloria
October 20, 2005
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1. Introduction

Understanding why students leave college before earning their academic degrees has intrigued American researchers for several decades. Many theories attempt to explain both voluntary (drop out) and involuntary (dismissal) withdrawals and posit how to lower college attrition rates (Astin, 1975, 1993; Braxton, 2000; Dey, Astin, & Korn, 1991; Tinto, 2002), yet recent data indicates that these rates continue to be high, especially from the freshmen to sophomore year (American College Testing, 2003; U.S. Department of Education, National Center for Educational Statistics, 2002b). In a country that values higher education for improving society and raising personal earning power, college attrition is a puzzling dilemma for college officers who attempt to lessen it through programs and policies designed from attrition studies spanning the last 30 years. However, compounding today’s attrition problem is the composition of the present post-secondary college populace, which does not reflect the post-secondary community of years past. This is especially true within the last fifteen years, as increasing numbers of commuters, part-timers, minorities, community college attendees, and students with disabilities have crossed the threshold into post-high school education (Astin, 1993; Braxton, 2000; Tinto, 1999; 2002; Horn, Berktold & Bobbitt, 1999). In particular, those with disabilities have heightened college educators’ concerns about attrition because these students, though academically qualified, have higher withdrawal rates than
their peers without disabilities (Report of the President's Commission on Excellence in Special Education, 2002; U.S. Department of Education, 2000c). Though this increase in college attendance has risen sharply in recent years, (Henderson, 1999; 2001) no major longitudinal studies exist that examine why students with learning disabilities leave (Brinckerhoff, McGuire & Shaw, 2002). College administrators need research that investigates whether these undergraduates are negatively influenced by particular variables that correlate with a higher attrition rate for them. Therefore, the purpose of this study was to investigate a correlation between introversion and non self-advocacy, and to analyze whether freshmen with learning disabilities (LD) who are both introverts and non-self-advocates are at greater risk for dismissal or voluntary withdrawal by the end of their first year of college than LD students who are extroverts and self-advocates.

The remainder of this chapter establishes a basis for the study by presenting a synopsis of the historical background of topics connected to the study, a statement of the problem, research question, and hypotheses, a brief summary of the research methodology, the professional significance of the study, limitations, and delimitations. The chapter concludes with definitions of key terms used in this study.

Historical Background of the Study

Societal changes in the United States (U.S.) that influenced legislation regarding the education of developmentally delayed school-aged children date
back to the 1800's. Lerner (2003) indicates that in the earliest years, medical and psychological doctors had oversight of children with developmental delays. Over the next 150 years, many transitions came about as these professionals raised philosophical, moral, ethical, and legal questions about the type and extent of education that students with developmental delays should receive, what terminology should be used to describe them, and who should advocate on their behalf. (Dybwad & Bersani, 1996; Lerner, 2003). By the mid-1900's parents and educators had joined the physicians and psychologists in asking these questions. Eventually, these issues spurred interested parties to form several national organizations, especially after World War II when the rising birth rate in America reflected an increase in the number of children with disabilities (Dybwad & Bersani, 1996). Progress surged forward in 1963, after psychologist, Dr. Samuel Kirk, suggested that the term learning disabled replace the misnomer brain-injured, and that those with learning disabilities who struggled to learn by conventional methods, needed advocates and educational services distinct from the services provided for students who were deaf, blind, and mentally retarded (Lerner, 2003). Since then, a number of federal legislative mandates and many national organizations that represent special education interests have facilitated the students' with disabilities pursuit of appropriate post-high school education (Dybwad & Bersani, 1996; Lerner, 2003; Rothstein, 2002). Several of these legislative acts are relevant to this study because they
specifically address the needs of college level students with disabilities and/or help the reader to understand the evolution and development of learning disability services. A chronological presentation of the legislation is discussed next.

First, Section 504 of the Rehabilitation Act of 1973, also known simply as Section 504 or Public Law 93-112 (PL 93-112), stipulates that personnel cannot discriminate against students in the college admissions process or in provision of services when a student discloses a disability (Brinckerhoff, McGuire, & Shaw, 2002; Rehabilitation Act of 1973; Spillane, McGuire, & Norlander, 1992). A second piece of legislation, the Education of All Handicapped Children Act of 1975 (EAHCA) referred to as Public Law 94-142 (PL 94-142), ensured free, appropriate K-12 grade public school education and related services to meet the particular educational needs of students with disabilities (Brinckerhoff et al., 2002). Renamed and re-enacted as the Individuals with Disabilities Education Act (IDEA) in 1990 (Brinckerhoff et al., 2002), it replaced the term handicap with disability (Maroldo, 1991) and mandated that students' high school education include transition skills for life after high school, including post-secondary education (IDEA 1990; Lerner, 2000; 2003; Brinckerhoff et al., 2002). The fourth legislative mandate is the reauthorization of IDEA 1990 as IDEA 1997. A major directive of this reauthorization is that all legal rights transfer directly to students with learning disabilities when they finish high school (Brinckerhoff et al., 2002).
Essentially, the combined effect of the IDEA 1990 and IDEA 1997 amendments is that students who reach the age of majority, which in the United States is 18 years old, are required to be self-advocates. A fifth law, The Americans with Disabilities Act (ADA) of 1990, or Public Law 101-336 (PL 101-336), provides equal opportunities for people with disabilities as well as civil rights protection for individuals after high school, including equal access for otherwise qualified students desiring postsecondary education (Americans with Disabilities Act, 1990, 29 U.S.C.§ 794; see also Brinckerhoff et al., 2002). (A further reauthorization of IDEA does not go into full effect until July, 2005, and is not covered in this study.)

The aforementioned legislation brought a dramatic increase in college attendance for students with disabilities (Blackorby, J. & Wagner, M., 1996; Brinckerhoff et al., 2002; Janiga and Costenbader, 2002; Wittenburg, Fishman, Golden, & Allen, 2000), as seen in the rise in enrollment figures from 2.6% in 1978 to 9.2 % in 1998 (Henderson, 1999; U.S. Department of Education, National Center for Education Statistics, 2002a). Although the proportion dropped to 5.3% in 2000, the National Center for Education Statistics (NCES) (2002c) reports that even that percentage represents 27% of those with general disability status, nearly 1,700,000 students. (Blackorby, J. & Wagner, M., 1996; National Center for Education Statistics, 2002).
It is apparent, especially since the 1990’s, that legislative provisions have eased the way for high school students with disabilities to pursue postsecondary education (Brinckerhoff, 1994, Brinckerhoff et al., 2002; Cook Gerber, and Murphy, 2000; Mangrum & Strichart, 1988; U.S. Department of Education. National Center for Educational Statistics, 2003) and have produced a previously untapped pool of potential undergraduates for college recruiters. However, the influx of enrollees with disabilities has also brought an unanswered concern about high attrition rates for this population of students. Enrollment for these undergraduates has tripled since the late 1970’s (Henderson, 1995; U.S. Department of Education (NCES), 2000b) yet many leave college without a degree (Astin, 1991; Brinckerhoff 1993; Dey et al., 1991; Dunn, 1996; National Longitudinal Transition Study, 2003 (NLTS-2); Tinto 1975; 1993; 2001; Wolf, 2001). High attrition rates for these students may be related to the fact that while the Americans with Disabilities Act governs college-level civil rights protection and guarantees equal access to education for those who qualify, it does not require that an Individual Education Program (I.E.P.) be provided to outline appropriate programs, services, and accommodations for those studying at the college level. Instead, Section 504 of the Rehabilitation Act of 1973 mandates that the role of advocator becomes the student’s responsibility after high school and therefore, self-discloser of their LD diagnosis is necessary if they desire to receive disability services. Pre-college students with learning disabilities
who depend on high school I.E.P.'s and adults who advocate for them under IDEA guidelines may be at particular risk as college freshmen if they are unaware of this new responsibility. (Brinckerhoff, 1996; Brinckerhoff et al., 2002; Kincaid, 2004; U.S. Department of Education, Office of Civil Rights, July 2002).

In addition, research indicates that students' college academic standing, without regard for the disabilities themselves, are in jeopardy when students do not confidently and competently communicate their needs by exercising self-advocacy skills (Bradshaw, 2001; Brinckerhoff et al., 2002; Fichten & Goodrick, 1990; Lock & Dayton, 2001; Lynch & Gussel, 1996; Palmer & Roessler, 2000; Skinner, 1998). Furthermore, longitudinal research indicates that students who have poor interpersonal and social skills often do not remain in college (Astin, 1984; 1993; Brinckerhoff, 1993, 1994; Brinckerhoff et al., 2002; Dey et al., 1991; Janiga & Costenbader, 2002; Pascarella & Terenzini, 1991; Terenzini & Pascarella, 1977; Tinto, 1987; 1993; 1998; 2002; Wolf, 2001.) These skills seem to be closely aligned with undergraduates' ability to self-promote, and proficiency in self-advocacy and social interaction skills are routinely accepted in post high school settings as necessary college survival skills (Astin, 1984; 1993; Brinckerhoff et al., 2002; Janiga and Costenbader, 2002; Pascarella & Terenzini, 1991; Tinto, 1987; 1993; 1998; 2002). However, as Brinckerhoff et al. (2002) posits, parents, guardians, school counselors, and teachers generally act as students'
advocates in high school, so that proficiency in these skills may be lacking for the student with disabilities.

The Problem Statement

Compared to their cohorts, more learning disabled students drop out of college than their non-disabled peers (Brinckerhoff et al., 2002; Henderson, 1995; Skinner, 1998; U.S. Department of Education (NCES), 2002b). In addition, Skinner (1998), Lock et al., (2001), and others indicate that non-employment of self-advocacy skills may be an element of higher attrition rates for these students. Since self-advocacy requires social interaction, this raises the question of whether personality traits play a role in one's decision to put such skills into practice. For example, if students with learning disabilities have introverted personalities that prefer to reflect inwardly and not focus on the "outer world" of people around them (Myers, 1987, p 224), might this proclivity serve to dissuade these students from using the social skills needed to self-advocate? With this question in mind, it seemed prudent to investigate whether there is a correlation between introversion and willingness to self-advocate that negatively influences continued matriculation for college students with learning disabilities.

Research Question

Specifically, the objective of this study was to answer the question: Does personality type and degree of self-advocacy predict end-of-year attrition rates for college freshmen with learning disabilities?
Research Hypotheses

To investigate the research question, three statistical hypotheses were tested in this study:

1. The percentage of college freshmen with learning disabilities that drop out is the same for introverts and extroverts.

2. The average self-advocacy score is the same for college freshmen with learning disabilities who stay in school and college freshmen with learning disabilities who drop out.

3. After adjusting for the affects of personality type, self-advocacy score is not predictive of attrition rates for college freshmen with learning disabilities.

Professional Significance of the Study

The subjects in this study represent a unique body of individuals for whom little research has been done concerning their high college attrition rates. It is important to extend present knowledge to benefit undergraduates who have disabilities and are seeking to obtain a college degree, if variables that negatively influence these students’ success are identified and solutions suggested.

College administrators, who know that it is far more costly to recruit one new student than to retain 3-5 already enrolled students (Astin, 1993; Noel, Levitz, & Saluri, 1985; Pascarella & Terenzini, 1991; Tinto, 1993), may be willing to procure additional funding for their institution’s Office of
Disability Services, to provide programs geared to the research findings that keep more students with disabilities enrolled.

In a similar manner, college deans who see retention potential could suggest a new design of the freshmen orientation courses so that personality and self-advocacy concerns are routinely addressed, needed skills are identified, and training is made available for those who desire it.

Moreover, college admissions personnel who recognize the impact that these tailored freshmen orientation classes could have for recruiting prospective students could assist institutions’ retention level by mentioning Freshmen Orientation classes as a means of promoting the college’s interest in securing a successful college experience for its students.

Further, disability service providers at both the high school and post-secondary level could implement programs that identify students who need specific self-advocacy and social/interaction skills training to counteract their propensity for dismissal or withdrawal before meeting personal academic goals.

If at-risk students use the skills they are taught, there is more potential to maintain academic status until degree completion goals are met. Therefore, if provision of additional funding, revision of Freshmen Orientation classes, and provision of skills training is undertaken, the ultimate result could be the building of a better-educated society.
In conclusion, this study investigated whether there is a correlation between personality type and degree of self-advocacy and whether they are concomitant predictors of end-of-year attrition rates for freshmen with learning disabilities. Information gleaned from this study could provide new knowledge for college administrators, deans, admission's counselors, and students that may help thwart the potentially negative affect of these variables on end-of-year attrition rates for students with disabilities.

Overview of Methodology

This section provides the reader with a brief description of the methodology used to undertake this quantitative investigation to determine whether there is a relationship between personality type and degree of self-advocacy that are predictive of end-of-year attrition rates for college freshmen with learning disabilities.

To determine whether this is the case, attrition (dependent variable) was measured at the end of the school year on a nominal scale (dichotomous). For example, 0 = the participant maintained status as a matriculated student versus 1= the participant dropped out by the end of the freshman year. Personality type (independent variable) was measured on a nominal (dichotomous) scale. For instance, in this study, 0 = introvert versus 1 = extravert. In contrast, self-advocacy (independent variable) was measured on a continuous scale. A number between 0 and 20 represented an individual’s self-advocacy score, since there are 20 items on the self-advocacy
questionnaire. With this in mind, the lower numbers on this continuous scale indicated less self-advocacy while the larger numbers indicated more self-advocacy. To illustrate, 5 = very little self-advocacy while 18 = high self-advocacy.

Three hypotheses, as stated in the Problem Statement section of this chapter were tested. All analyses were performed using version 13 of the Statistical Package for the Social Sciences software program (SPSS 13.0, 2003). Frequency and percent for categorical scaled variables, and measures of central tendency (mean and median) and dispersion (standard deviation and range) for continuous/ordinal scaled variables, describe the study sample. All of the analyses were two-sided with a .05 alpha level.

For Hypothesis 1, a comparison of percentage of dropouts of college freshmen with learning disabilities between introverts and extraverts was made using a Fisher's Exact text.

For Hypothesis 2, a comparison of the average self-advocacy score between the group of college freshmen with learning disabilities that dropped out and the group of college freshmen with learning disabilities that did not drop out was made using a two-sample t-test.

For hypothesis 3, multivariate logistic regression was used to determine if the self-advocacy score predicts attrition for college freshmen with learning disabilities, after first adjusting for personality type.
Throughout the statistical analyses, assumptions for the statistical procedures used (e.g. normal distributions) were noted and where necessary, either non-parametric techniques or transformation of variables were used to achieve normal distributions.

This study utilized convenience sampling, a non-random procedure most often used in educational research (Gay & Airasian, 2003). Candidates from the two private, faith-based, undergraduate institutions in this study who qualified were those who provided professional documentation of a learning disability, were at least 18 years old, and had matriculated as full-time students (12 or more credits) in the fall of 2003. All qualified students who volunteered to take part in the study were considered participants if they completed both the Myers-Briggs Personality Inventory-Form G, and the Tucker Self-Advocacy Tool.

This investigator obtained an aggregate of 20 participants who qualified under the guidelines mentioned in the preceding paragraph. Solicitations came from two private, faith-based undergraduate schools, one located in Virginia and the other in Pennsylvania. Krejcie and Morgan (1970), indicate that the aggregate number obtained for this research was an appropriate sample size (n) for populations (N) with finite sizes. Nevertheless, sample size justification and power calculations were carried out using Power Analysis and Sample Size (PASS, 2002). The power and effect size for hypotheses 1-3, allowed the investigator to determine whether
the sample size was adequate to meet the objectives of the study with a .05 alpha level of significance. Hypothesis 1 assumed 6 introverts and 14 extraverts; hypothesis 2 assumed 3 dropouts, 17 non-dropouts, and a standard deviation of 3.33; hypothesis 3 adjusted for personality type and assumed a standard deviation of 3.3. A full description of the methodology, including a restatement of each hypothesis is presented in Chapter three.

Delimitations of the Study

It is important to consider delimitations and limitations regarding the attrition rates of college freshmen with learning disabilities attending post-secondary institutions. The following paragraphs address these considerations, which relate to the participants' context and setting, the timeframe of the study, and sampling method and size.

First, the study took place at two suburban, private, faith-based, undergraduate institutions with varied, but predominately white student bodies. Both colleges reflect gracious entrance policies for those with learning disabilities and offer considerable individualized academic support to them. The students in this study, therefore, may not be typical of the college LD population for those accepted as undergraduates at institutions that have more stringent admissions policies or have a more diverse student body and may not generalize to those who attend school in urban settings, who matriculate at community colleges, and/or who attend secular institutions.
A second delimitation relates to participant qualifications. Solicitation to participate required that students be at least 18 years old, be enrolled as first time, full-time (at least 12 credits) students during the fall semester of 2003, and provide professional documentation of a learning disability. Those who met these requirements volunteered to be members of this convenience sample. This nonrandom method is a type of sampling seen most often in educational research (Gay & Airasian, 2003), but may not represent the potential results found if solicitation of first-time freshmen with disabilities was without regard for age or full-time status.

In addition, because all solicited students had the personal option of deciding whether or not to participate, it is possible, by virtue of personality type, that outgoing individuals may have chosen to participate in higher percentages than those with more reserved personalities. Therefore, volunteers in this study may not necessarily reflect non-volunteers (Gay & Airasian, 2003); a different set of volunteers might yield different results. Consequently, readers should be cautious about the generalizability of this research to the entire population of LD students.

Limitations

A weather-related school closing was a limitation in this study: the participants at one institution had a rescheduled meeting time because of inclement weather. The revision of time and meeting place, including
settings other than the traditional classroom may have inadvertently allowed some students to take a less serious approach to the data-gathering session.

A second limitation involves the maturation factor. Three students did not complete a second administration of the Tucker Self-Advocacy Tool, which was in the original design of the study to take into consideration maturation that may have occurred over the course of the first semester, after the initial administration was completed. However, after tabulating both semesters' Self-Advocacy scores, it was determined that there had been very little change in scores from one semester to the next. Notably, none of the 17 students who earned self-advocacy scores the low range during the fall earned scores in the high self-advocacy range in the spring. Similarly, no one who scored in the higher range of self-advocacy in the first semester reverted to a lower range of self-advocacy in the second semester. In view of the fact that these results did not indicate a maturation factor, three students who had been removed from the study because they had not completed both administrations of the self-advocacy questionnaire were re-entered into the study. However, because this researcher cannot be certain whether these three subjects' scores may have evidenced significantly different results if taken twice, it is a limitation of this study.

When the Myers-Briggs Personality Inventory and the Tucker Self-Advocacy Tool were administered at the VA-based university, the sessions were tape recorded so that they could later be played for the administrations
at the college. This procedure insured identical presentation of the directions and questions. However, this procedure became a third limitation of this study, since it is possible that students at the VA-based university may have felt inhibited about asking for clarification of directions or questions because they knew that the tape would record whatever was asked.

A final limitation is that students at the college knew this researcher and may have volunteered at a higher rate due to this knowledge.

Definitions of Key Terms

There is a considerable amount of scholarly research related to attrition and retention rates, students with learning disabilities, and personality types, but not all peer-reviewed literature uses the same definitions for the terms in its studies. To clearly communicate and clarify meaning, this research used the following operational definitions:

**Attrition**

Loss of membership/enrollment because of dismissal (e.g. low grade point average; non-conformance to school standards) or voluntary withdrawal (dropout). In this study, only attrition that occurred before students with learning disabilities completed their first semester sophomore classes were considered. Terms associated with attrition in this study include: non-persistence, withdrawal, dropout, fail-out, and departure.
**Extravert**

A personality preference determined by the dichotomous scales (Introversion/Extraversion) of the Myers-Briggs Personality Indicator, Form G, that describes a person as having an “attitude that orients attention and energy to the outer world of people rather than the inner world of ideas” (Myers, 1993, p 224). Its opposite trait is introversion.

**Freshmen**

Undergraduates attending the two post-secondary institutions in this study who qualified to participate as volunteers because they matriculated as first time, full-time college students during the fall semester of 2003 and provided professional documentation of a learning disability. Whether these students were dismissed, voluntarily withdrew, or continued to attend college, did not affect membership in this group.

**Full-time student**

In this study, a full-time student was any volunteer participant who carried at least 12 credit hours per semester.

**Introvert**

A personality preference determined by the dichotomous scales (Introversion/Extraversion) of the Myers-Briggs Personality Indicator, Form G, that describes a person as having an “attitude that orients attention and energy to the inner world of ideas rather than the outer world of people” (Myers, 1987; p 224). Its opposite is extravert.
Learning Disability

This research study used the U.S. government's Office of Special Education and Rehabilitation Services' (OSERS) definition of a learning disability: "A disorder in one or more of the central nervous system processes involved in perceiving, understanding, and/or using concepts through verbal (spoken or written) language or nonverbal means. This disorder manifests itself with a deficit in one or more of the following areas: attention, reasoning, processing, memory, communication, reading, writing, spelling, calculation, coordination, social competence, and emotional maturity" (U.S. Office of Special Education and Rehabilitative Services, ¶ 6, 1985). It should be noted that the OSERS definition includes attention in its delineation of disabilities, and also that this study required professional assessments as recommended by the Association on Higher Education and Disability (AHEAD, 1997), including (but not limited to) such tools as the WISC-R or the WAIS, to document qualification as an LD participant.

Non Self-Advocate

Students who did not have critical self-knowledge and/or the skills (see definition of self-advocate) necessary to discuss/request assistance for their academic needs, and/or students who had the knowledge and skills necessary, but did not willingly choose to use them.
**Persister**

Participants in this study who enrolled in the fall of 2003, remained in college through the spring of 2004, and returned for the fall of 2004.

**Retention**

College students who continued their enrollment in college after completion of their first year of classes. Terms associated with retention include: persistence, continuation.

**Self-advocate**

One who speaks on his own behalf. In this study, Goldhammer & Brinckerhoff’s definition (1993) of self-advocacy was used. It states, "the ability to recognize and meet the needs specific to one's disability without compromising the dignity of oneself or others" (¶ 1) and includes: 1. knowing the essential details of one's learning disability 2. being able to explain one's disability in everyday terms to those who need to know (e.g. professors and service providers) 3. being able to articulate how the disability manifests itself in personal (academic) strengths and weaknesses 4. knowing which accommodations are appropriate for the particular disability one has and how to request these as reasonable services 5. knowing what legal recourse is available and how to obtain it when one's needs are not being met. This multi-faceted definition, as noted, expected utilization of these skills when needed, not just having head knowledge of them.
Type

One of 16 personality preferences which are delineated in four quadrants on the Myers Briggs Type Indicator and include introversion/extraversion, thinking/feeling, judging/perceiving/ and sensing/intuition. These quadrants provide 16 different combinations of four preferred personality traits (e.g. ISTP, ENFJ) called “types” (Myers, 1983). In this study, only the dichotomous traits of introversion and extraversion were considered.

Conclusion

In conclusion, this chapter presented a research problem, the hypotheses that were tested, and a brief overview of the statistical procedures that were employed to analyze whether there was a relationship between introversion and non self-advocacy, the independent variables in this investigation, and the attrition rates (dependent variable) of college freshmen that have learning disabilities. The chapter concludes with the definitions of key terms used in this investigation.

Looking ahead, Chapter 2 provides an in-depth review of literature pertinent to the study, providing a knowledge base for understanding the reason for pursuing this study.
2. Literature Review

The review of literature in this chapter relates to this writer's research on the attrition rates of college freshmen with learning disabilities (LD). Presented is a summary of literature regarding the nature of learning disabilities and the historical development in this field as well as a review of associated legislation affecting the current understanding of this special aspect of education. In addition, self-advocacy's relatively recent development, its purpose and usefulness on the college campus, and the legislation that has encouraged its use are established. Next is a description of several college attrition models and their findings. The chapter concludes with a discussion of personality type and its relationship to self-advocacy and the hypothesis of this researcher's investigation.

Introduction

College attrition research spans 30 years and includes data from federal government and national organizations as well as several longitudinal studies. However, while government and organizational data include attrition statistics for college students with learning disabilities, major educational longitudinal studies do not identify learning disabilities as a purposely-investigated variable. Nevertheless, disabilities are recognized as life-long conditions and Section 504 of the Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 (ADA) protect individuals with disabilities by ensuring access to post secondary education
for otherwise qualified students (ADA, 1990; National Joint Committee on
Learning Disabilities, 1999; Rothstein, 2002). One result of these federal
provisions is increased college attendance by students with disabilities, but
recent government reports and other national data reveal that the attrition
rate for students with disabilities is higher than for undergraduates without
disabilities (American Council on Education 2000; Henderson, 2001; U.S.
Department of Education, National Center for Educational Statistics,
2000b).

By the 1990’s, peer-reviewed literature began casting self-advocacy (S-A) as an important skill for those with learning disabilities, routinely suggesting that a lack of self-advocacy was a factor in college attrition rates. Even so, no comprehensive, standardized list exists to ascertain students’ self-advocacy ability or as the basis for training college (or college-bound) students with learning disabilities to be competent in this area. By the mid-1990’s, literature commonly links self-advocacy to self-determination. However, no literature addresses factors that may affect one’s ability or willingness to self-advocate, such as personality. There are personality studies based on GPA and graduation rates that indicate introverted college students are generally more successful (i.e. remain in school until degree completion) than their extroverted peers, (Myers, 1983) but many studies also indicate that introverts are less social, poor verbal communicators, and less assertive (Pilkonis, 1977). Unfortunately, there are no major
longitudinal studies that investigate what role introversion and/or self-advocacy (an assertive skill) may have on academic success when undergraduates with learning disabilities are analyzed as a separate entity from their peers without disabilities. Therefore, this chapter reviews the literature on learning disabilities, self-advocacy, related legislation, college attrition, and personality as a basis for investigating whether personality type and self-advocacy skill influence persistence beyond the first year, for college freshmen with learning disabilities.

Learning Disabilities

Introduction

There is considerable literature and federal government legislation related to learning disabilities, but at the collegiate level, one concern immediately surfaces. While the Individuals with Disabilities Education Act of 1997 (IDEA '97) defines disabilities for school-aged children, once these students graduate from the kindergarten through twelfth grade (K-12) system, the IDEA '97 definition and guidelines no longer apply. Instead, the Adults with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act (Sec. 504) govern post-secondary students (Brinckerhoff et al., 2002; Latham, n.d.; Lerner, 2003; Leuchovius, 2004). Although these Acts grant legal provisions to disabled adults, including students, neither Act defines specific learning disabilities or delineates particular accommodations (Rothstein,
Because research for this dissertation involved undergraduate freshmen who were learning disabled, an historical understanding of learning disabilities aimed at assisting this special category of learners is important. The following section of this chapter addresses the origin and development of the learning disability field, considers differences in several currently employed definitions of learning disabilities, and discusses the implications of federal legislation for students with disabilities who are pursuing education in the post secondary setting.

**Historical Development of Learning Disabilities**

Lerner (2000) explains the present concept of learning disabilities (LD) by documenting its evolution over the past 200 years. Beginning with the 1800’s, she explains its development as proceeding in four distinct segments. During the “Foundation” phase (p. 36), physician-researchers investigated behaviors by focusing on the functions of the adult brain. They observed and analyzed patients who had lost the ability to read or speak and eventually linked specific language functions to particular regions of the brain. This important research and its associated discoveries continued into the 1930’s. In the next phase, from the late 1930’s to the 1960’s, the focus shifted to a clinical approach that studied children, which Lerner labeled as the “Transition” period (2000, p. 38). During the early years of this period,
Samuel Orton, a psychiatrist and neurologist (who later designed learning strategies for dyslexics), challenged prior theories of learning problems and associated the source of learning difficulties with the lack of “cerebral dominance” (Lerner, 2000, p. 38; see also, Duchan, 2001a). By the 1940's, Alfred Strauss began identifying children with language handicaps as brain-injured and designing specialized educational programs for them (Duchan, 2001b; Lerner, 2003; Strauss, & Lehtinen, 1947). However, this phrase was perceived negatively by the public and implied that all children with brain injuries had learning problems (Lerner, 2003). By the 1960's, Dr. Samuel Clements began suggesting that behavior disorders were not caused by undiagnosed brain damage but by a type of dysfunction, which he termed minimal brain dysfunction (MBD) (Making a World of Difference, 2002). However, the transition from Orton's cerebral dominance to Strauss' brain-injured to Clements' minimal brain dysfunction did not bring automatic resolution to the educational needs of this child-focused era. Parents with children classified as MBD recognized that a strong unified voice was necessary to request specific academic services for their children (“History of the IDEA”, n.d; Lerner, 2003). Up to this point, the federal government provided deaf, blind, and mentally retarded children with educational assistance through specially trained teachers and technology (i.e. captioned films, Braille writers) for the unique needs of these children, but parents whose progeny did not fit those categories did not have such provisions
Parents whose children were not receiving assistance formed an advocacy platform after attending a conference on the perceptually handicapped child where Dr. Samuel Kirk used the phrase "learning disability" in his keynote address to them ("History of the IDEA", n.d.). In his professional writings of that same period, Kirk defined learning disabilities as:

...children who have disorders in development in language, speech, reading, and associated communication skills needed for social interaction. In this group, I do not include children who have sensory handicaps such as blindness or deafness, because we have methods of managing and training the deaf and the blind. I also exclude from this group children who have generalized mental retardation. (Larson & Majsterek, ¶'s 8-9; n.d.)

The convention overtly clarified the inappropriately assumed limited intellectual ability and provided "the framework for legislation, theories, diagnostic procedures, educational practices, research and training models" (Crawford, n.d.). Notably, the conference brought to fruition the national Association for Children with Learning Disabilities (ACLD), which incorporated in January of 1964 and is presently known as the Learning Disabilities Association (LDA) (Lerner, 2003; Larson & Majsterek, n.d.). This incorporation marked a transition from the clinical study and
observation of children into Lerner’s (2000) third segment, the “Integration Phase” (p. 44).

This third period, from the mid-1960’s until 1980, marked a “rapid expansion of school programs” for those with learning disabilities (Lerner, 2000, p. 44). By 1968, the National Advisory Council on Handicapped Children, also lead by Kirk, presented its first annual report with an expanded clarification of his earlier learning disabilities definition (Larson & Majsterek, (n.d.); Lerner, 2003; National Joint Committee on Learning Disabilities, 1997). Parents, professionals, and educational researchers kept learning disability issues in the forefront, thereby facilitating public awareness of their concerns, which legislative initiatives bear out. For example, just one year after Kirk clarified and revised his LD definition, Congress incorporated it into Public Law 91-230 (PL 91-230), the Children with Specific Learning Disabilities Act of 1969 (Lerner, 2003). By 1975, this definition was also included in Public Law 94-142, the Education for All Handicapped Children Act (Larson & Majsterek (n.d.); Lerner, 2003; Lloyd, (n.d.)). As Lerner (2003) indicates, these legislative Acts lent credibility to the learning disability field by mandating and facilitating new methods of diagnosis, standard services, resource rooms, and remediation programs at the elementary, and eventually at the secondary level. During this period, parents developed a strong voice through its national ACLD organization, acted as advocates for their children with disabilities, and fought for
appropriate educational programs for them. These developments set the stage for Lerner's (2000) last segment, the "Current Phase" (p. 45).

This latest phase, from the late 1980's to the present, continues to enlighten the public about disabilities. Reauthorized and new legislation promotes understanding, ongoing research, and innovative programs while guaranteeing accommodations that encourage high school graduation and promote college attendance for those who qualify (Bashir, Goldhammer & Bigaj, 2000; Brinckerhoff et al., 2002; Ganschow, Phillips & Schneider, 2001; Hicks-Coolick & Kurtz, 1997; Lerner, 2003; Lynch & Gussel, 1996; Palmer & Roessler, 2000; Skinner, 1998; Smith et al., 2002; Thoma et al., 2002). New legislation has encouraged students with disabilities (SWD) to become independent through education. For example, Section II of the Americans with Disabilities Act (ADA) provides those with disabilities equal access to further education, including pursuits at the college level (1990). Updated legislation such as the Individuals with Disabilities Education Act (IDEA 1997; 2004) also encourages independence by requiring SWD's to be taught appropriate skills for making a smooth transition into post-high school life settings and for taking personal responsibility for planning and meeting future educational goals (Atkinson, 1997; IDEA, 1997; Janiga & Costenbader, 2002; Smith, English, & Vasek, 2002; Wittenburg, Golden, & Fishman, 2002). Such mandates, along with technology developments, the formation of over 700 disability support organizations over the last 25 years
(Mitchell, 1997), and recent national educational reforms such as Goals 2000 and No Child Left Behind demonstrate that this phase is one characterized by many “changes in direction” with “the development of new concepts and ideas” (Lerner, 2000, p. 45). It is also a period characterized by self-determination and self-actualization. Indeed, literature confirms a move away from earlier doctor- and parent-directed advocacy and a move towards personal self-advocacy. (Dybwad & Bersani, 1996; Lerner, 2003; Brinckerhoff et al., 2002; Janiga & Costenbader, 2002; Smith et al., 2002; Thoma et al., 2002; Wehmeyer, 2000). Especially in the last 10 years, this shift has precipitated new challenges as increasing numbers of high school graduates with disabilities pursue a college education (Donahoo, 2003; Henderson, 2001; Janiga & Costenbader, 2002; Skinner, 1998).

Unfortunately, federal legislation that protected these students’ learning environments and provided accommodations during their elementary and high school years has not kept pace with their higher education setting. For example, those who qualify for college-level studies find that there is no federally mandated undergraduate equivalent of the pre-scripted Individual Education Plan (I.E.P.) and accommodations that accompanied them through their K-12 school years (Janiga & Costenbader, 2002; Rothstein, 2002; Smith et al., 2002; Thoma et al., 2002; Wehmeyer, 2000). In fact, while IDEA 1997 requires K-12 disability service providers to pro-actively secure accommodations and services for students with disabilities during their pre-
college years, the ADA (1990) and Section 504 of the Rehabilitation Act (1973) require the college student with disabilities to personally take on that responsibility by self-disclosing their disability, providing appropriate documentation of it, and requesting appropriate services and accommodations (Rothstein, 2002; Janiga & Costenbader, 2002; Rehabilitative Act, Section 504, 1973; Smith et al., 2002; Thoma et al., 2002). In addition, unlike the high school setting, colleges do not assume the cost of psychological-educational evaluations; college students who need additional or updated documentation are responsible to underwrite that cost (U. S. Department of Education, Office of Civil Rights, July, 2002; Rothstein, 2002). Furthermore, both the ADA and Section 504 provide guidelines that insure equal access for those who meet college entrance requirements, but neither Act delineates particular learning disabilities or the specific accommodations that may be needed (Rothstein, 2002; Janiga & Costenbader, 2002; Smith, English, & Vasek, 2002; Thoma, Nathanson, Baker, & Tamura, 2002).

Moreover, to receive services at the college level, both Section 504 and the ADA require documentation that indicates a disability that "substantially limits one or more major life functions" (Rothstein, 2002, p. 75). Section 504 specifically indicates that this includes post secondary school learning, while the ADA addresses all settings to which those with disabilities may desire access, including school (Brinckerhoff, Dempsey, Jordan, Keiser, McGuire, Pompian et al. 1999; Rothstein, 2002). The phrase "substantially limits..."
(Rothstein, 2002, p. 75) is especially important, because it allows attention
deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) to
be recognized as a disability at the college level. While in their pre-college
years, students receive ADD/ADHD accommodations under either the U.S.
Department of Education’s policy memorandum of September 1991 clarifying
IDEA, or under Section 504 of the Rehabilitation Act’s classification of “other
health impaired” (Rothstein, 2000, p. 73). At the college level, IDEA no
longer applies; instead, the ADA and Section 504 prevail (Latham, n.d.; U.S.
Department of Education, Office of Civil Rights, July, 2002; Rothstein, 2002).

The American Psychiatric Association acknowledges ADD/ADHD in
their Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), with
its delineation of attention deficit and hyperactivity (DSM-IV, 1994). These
conditions are considered disorders that substantially limit daily life activity
under the ADA and clarifies that learning disability accommodations are
appropriate at the college level if one is classified as ADD/ADHD. This
classification is essential because some well-known disability organizations
such as the National Joint Committee on Learning Disabilities (NJCLD) and
Association on Higher Education and Disabilities (AHEAD), do not include
attention deficit and hyperactivity in their definitions of learning disabilities
(Appendix A). While these groups acknowledge ADD/ADHD as disorders for
which accommodations are appropriate, they are not classified as learning
disabilities by every entity within the special education field. Therefore, it is
important to note that some agencies, including the U.S. government’s Rehabilitation Services Administration (RSA), which focuses on post-high school individuals with disabilities, does embrace ADD/ADHD as a learning disability by explicitly identifying “attention” in its 1985 definition:

A specific learning disability is a disorder in one or more of the central nervous system processes involved in perceiving, understanding, and/or using concepts through verbal (spoken or written) language or nonverbal means. This disorder manifests itself with a deficit in one or more of the following areas: attention (italics added), reasoning, processing, memory, communication, reading, writing, spelling, calculation, coordination, social competence, and emotional maturity.

(RSA, ¶6, 1985)

Notably, the Rehabilitation Services Administration definition of learning disability also includes a lack in social competence, which is also important for several reasons. First, it is commonly accepted that LD and ADHD often occur co-morbidly (Hallahan, Kaufmann, & Lloyd, 1999; Hallahan, & Keogh, 2001; Interagency Committee on Learning Disabilities, 1987; Kotkin, Forness, & Kavale, 2001; Lerner, 2003; National Joint Committee on Learning Disabilities, 1989; Rock, Fessler, & Church, 1999; Vaughn, LaGreca, & Kuttler, 1999) and that individuals with ADHD often are socially inept (Hallahan et al., 1999; Hallahan & Keogh, 2001; Interagency Committee on Learning Disabilities, 1987; National Joint

Second, several major studies reveal a relationship between socialization and college attrition rates: students who do not consistently interact with peers and faculty are more prone to drop out of college (Astin, 1975; Bean, 1980; Bean & Metzer, 1985; Cabrera, Castaneda, Nora & Hengstler, 1992; Sandler, 2000; Tinto, 1975; 1987; 1993; 1998). The 1993 Goldhammer and Brinckerhoff article underscores this lack of social proclivity, which defines self-advocacy as “the ability to recognize and meet the needs specific to one’s learning disability without compromising the dignity of oneself or others,” (¶ 1). Based on this definition, the ability to socially interact appropriately is a necessity for students who must meet their needs by requesting accommodations. However, self-advocacy is a relatively new concept in the field of disabilities; therefore, its 15-year evolution to its present day significance and a detailed definition are the focus of the next section.

Self-Advocacy

Historical Development of Self-Advocacy

Bersani (1996) explains the present day concept of self-advocacy through documentation of its progression over the past 150 years. Its evolution is described through three chronological periods, each of which reveals a distinct focus regarding client advocacy: from doctor-directed, to parent-directed, and finally, to self-directed advocacy, or self-advocacy.

The earliest period, beginning in 1850, coincided with the “Foundation” phase (Lerner, 2000, p. 36) for learning disabilities and reflected the public’s
belief that professionals were the ultimate authority regarding matters related to children with special needs (Dybwad, 1996; Bersani, 1996; Lerner, 2003). Parents unquestioningly trusted experts' diagnoses and their directives regarding whether offspring could profit from specialized treatment. Bersani (1996) explains that these experts were often the sole determiner of the lifetime direction of the patient-client and as Wehmeyer (2000) points out, often considered these progeny as subhuman. Parental reliance on doctor-directed advocacy was the modus operandi for nearly 100 years until the second “wave” (Bersani, 1996, p. 258) emerged after World War II, when the population of individuals with physical disabilities increased significantly.

Bersani (1996) and Wehmeyer (2000) report that with the Second World War behind us, two major experiences changed the way society viewed disabilities. First, some veterans came home not only as war heroes but also as persons with physical disabilities. Second, soldiers returned home and became fathers, and as the birthrate rose, so did the number of offspring born with disabilities (Beilke & Yssel, 1999; Wehmeyer, 2000). At the same time, medical and scientific advances such as the polio vaccine and prosthetic devices facilitated support for life-extending views not entertained in the earlier period so that rehabilitation took on new meaning (Beilke & Yssel, 1999). Wehmeyer (2000) confirms society’s changing view towards disabilities as one that “…offered hope for greater cures for disabling
conditions...people with disabilities came to be viewed as objects to be fixed, cured, or rehabilitated...” not cast aside by being institutionalized (Wehmeyer, 2000, “Powerless Lives”, ¶ 4).

As positive views towards rehabilitation emerged, parent groups began to shift their focus from mutual support of each other to child-centered advocacy as they sought ways to increase educational progress in their offspring (Bersani, 1996; Wehmeyer, 2000). This reflected society's changing attitude that people with disabilities were also individuals with inherent value (Beilke & Yssel, 1999; Monaghan, 1998) and, as noted above, worthy to be “fixed, cured, or rehabilitated” (Wehmeyer, 2000, “Powerless Lives” ¶4). As Bersani (1996) and Wehmeyer (2000) report, by the late 1950’s and through the end of the 1960’s, medical and educational professionals also began considering parental input as worthy concerns when determining best practices for children with developmental disabilities. It was during this time, as discussed in the History of Learning Disabilities section, that the term learning disability replaced the negatively perceived phrase minimal brain dysfunction (Lerner, 2003; Lloyd, n.d.) and that the Association for Children with Learning Disabilities (ACLD) was incorporated. This was the first group to provide a platform for parents to advocate for their children who had learning disabilities. Consequently, by the end of the 1960’s support for those with disabilities evolved from a thoroughly doctor-directed advocacy into parent-directed advocacy, marking the end of the second “wave”
(Bersani, 1996, p. 258) in the move towards self-advocacy. The third wave came about as children with disabilities began to reach their adult years.

The third wave began in the early 1970's, as society began to recognize that the term disability was not synonymous with the word helplessness and that those with disabilities were capable of speaking for themselves (Bersani, 1996; Wehmeyer, 2000). Disability support groups and networks of service providers formed within many states and internationally as well, so that in the span of 20 years most states had organizations for those with all types of disabilities (Bersani, 1996; Dybwad, 1996; Shoultz & Ward, 1996; Wehmeyer, 2000). One of those state associations, People First, adopted a definition of self-advocacy in 1991 and commissioned a group to investigate the need for a national organization. This led to the incorporation of Self-Advocates Being Empowered, a group credited with helping to advance the self-advocacy concept (Bersani, 1996; Dybwad, 1996; Shoultz & Ward, 1996; Wehmeyer, 2000). Initially, self-advocacy was associated with cognitive limitations, but Mitchell (1997) reports that self-advocacy organizations now represent all types of disabilities.

Paralleling this move towards self-advocacy in developmental disabilities was a similar trend in the learning disabilities field. Learning disabilities professionals were also using the self-advocacy phrase in the early 1990's (Byron, 1990; Goldhammer & Brinckerhoff, 1993; Wehmeyer, 2000) and by the mid 1990's, the term regularly appeared in learning
disabilities literature in conjunction with, or as a subset of self-determination. Brinckerhoff et al., (2002), Field, Sarver, & Shaw, (2003), and Vogel, (1992; 1997) are nationally known professionals in the college LD field whose work since the mid-90's reflect this self-advocacy and/or self-determination phraseology, often in conjunction with a discussion of expected proficiencies or suggested behaviors that may assist this at-risk college population to reach their academic goals (see also, Bashir et al., 2000; Durlak & Rose, 1994; Field, 1996; Skinner, 1998; Smith et al., 2002; Thoma et al., 2002). Effective self-advocacy is not only linked to self-determination, but also to social competence and communication skills (Bashir et al., 2000; Coolick & Gause, 1998; Field, Sarver, & Shaw, 2003; Goldhammer & Brinckerhoff, 1993; Hicks-Coolick & Kurtz, 1997; Palmer & Roessler, 2000; Pocock, Lambros, Karvonen, Test, Algozzine, Wood, & Martin, 2002; Skinner, 1998; Vogel, 1997). The topic of transition planning for life after high school is also frequently linked to social skills. Though transition planning is federally mandated through IDEA, most Individualized Transition Plans (I.T.P.) do not require students to learn how to be self-advocates since IDEA does not delineate specific skills one needs in order to be an effective one (Brinckerhoff et al., 2002; Durlak & Rose, 1994; Field, Sarver, & Shaw, 2003; IDEA, 1997; Johnson, Stodden, Emanuel, Luecking, Mack, 2002; Kincaid, 2004; Smith et al., 2002; Wehmeyer, Agran, & Hughes, 2000; Wilson, 1994)). A final topic often addressed in self-advocacy literature is the high attrition
rate for college students with disabilities (Blackorby & Wagner, 1996; Braxton, 2000; Field et al., 2003; Fremont, 1999; Horn & Premo, 1995; Izzo & Lamb, 2002; Janiga & Costenbader, 2002; Witte, Philips, & Kakela, 1998). Most cite recent government and longitudinal data, which indicates that approximately 50% of SWD do not remain in college as compared to the 36% of non-LD peers who leave (U.S. Department of Education: Beginning Postsecondary Students Longitudinal Study (BPS-94), 1994; Donahoo, 2003; Janiga & Costenbader, 2002; Lerner, 2000; National Clearinghouse on Postsecondary Education for Individuals with Disabilities, 2005; U.S. Department of Education, National Center for Educational Statistics (NCES), 2002b).

Along with self-determination, social competence, communication ability, and attrition rates, self-advocacy literature suggests that college students lack sufficient understanding about their disability, cannot adequately explain how the disability affects their learning, cannot enumerate their personal strengths and weaknesses, and do not have sufficient knowledge about which accommodations may be most beneficial for their particular disability. In addition, because most students with disabilities have not had specific high school transition training in self-advocacy, they are often unaware of their college-level (as opposed to high school) legal rights and responsibilities as students with disabilities. All of these are key aspects of self-advocacy but the most important concern is that
literature addresses each of these topics in the context of being at high risk for leaving college (Brinckerhoff et al., 2002; Izzo & Lamb, 2002; Kincaid, 2004; Vogel, 1997; Ward, 2005). Possible reasons for this are discussed next.

First, the federal guidelines of the reauthorized IDEA 1997 mandate post high school transition planning for junior and senior high school students with disabilities, but as mentioned earlier, specific skills are not delineated; instead the Individual Transition Plans (I.T.P.) are general and call for a “coordinated set of activities designed within an outcome-oriented process that promotes movement from school to post-school activities, including post secondary education” (IDEA, 1997, § 300.29). The Director of Special Education programs for the U.S. Department of Education indicated in a fall 2002 memorandum that it is the individual high school disability specialists and/or counselors who determine what transition skills, including self-advocacy, to promote (Stephanie Lee, memo, November 21, 2002; see also, Brinckerhoff et al., 2002). However, a recent study by Thoma, Nathanson, Baker, and Tamura (2002) suggests that not all disability service providers believe that teaching self-advocacy is as important as teaching academic material. In addition, Brinckerhoff et al. (2002) and others posit that the requirement that parents/guardians, not the students themselves, sign the yearly I.E.P. and I.T.P. paperwork to authorize services and accommodations perpetuates low self-advocacy ability for students with disabilities (Izzo, Hertzfeld, & Aaron, 2002; Johnson et al., 2002;
Pennsylvania Department of Education, 2004; Ward, 2005; Wehmeyer, Agran, & Hughes, 2000). Even if students with disabilities do attend I.E.P. and/or I.T.P. meetings, their active participation is not expected. Rather, attendance at these meetings merely exposes students with disabilities to the decisions made and the services that they will receive (Brinckerhoff et al., 2002; Field et al., 2003; IDEA, 1997; Johnson et al., 2002; Ward, 2005). So, although IDEA-mandated transition plans represent a step forward in preparing students with disabilities for post high school, there are no specifically prescribed self-advocacy skills to be taught. Furthermore, there is no mandated participation in I.E.P and I.T.P meetings that might facilitate the use of self-advocacy skills (Brinckerhoff et al., 2002; IDEA, 1997, 2004; Field et al., 2003; U.S. Department of Education, 2002a; Johnson et al., 2002).

A second reason for lack of self-advocacy skills in college students with disabilities is a lack of legal knowledge, especially about legislation that pertains to students with disabilities who desire to attend institutions of higher learning. For example, many college freshmen with disabilities do not realize that LD documentation is not sent with high school transcripts during the college application process, and are unaware that I.E.P.'s also do not follow them to post secondary institutions (Brinckerhoff et al., 2002; Kincaid, 2004; Lynch & Gussel, 1996). Moreover, some students with disabilities also reflect a lack of legal astuteness because they expect post secondary
institutions to be proactive in identifying them and their academic needs when, in fact, colleges will not (and legally cannot) ask whether students have a disability (ADA, 1990; Brinckerhoff et al., 2002; Rothstein, 2002; U.S. Department of Education. Office of Civil Rights, July 2002; Vogel, 1997). Equally significant, many students are not aware that IDEA 1997 does not apply after they leave the K-12 school system and that legal protection for equal access to education in post secondary settings resides within the Americans with Disabilities Act (ADA, 1990) and Section 504 of the Rehabilitation Act of 1973 (Brinckerhoff et al., 2002; Field et al., 2003; Pennsylvania State Department of Education, 2004; Stodden, Jones, & Chang, 2002; Rothstein 2002). Since these acts require students to self-disclose their disability and present appropriate documentation to the disability service provider before services and accommodations are given, those who arrive on campus without knowledge of these legal responsibilities cannot adequately self-advocate, and put themselves at substantial academic risk (Brinckerhoff et al., 2002; Stodden, Conway, & Chang, 2003; Ward, 2005; Vogel, 1992; 1997).

However, even students who do self-disclose must have formidable knowledge and be able to articulate it, if they intend to be effective self-advocates at the undergraduate level. Many concur with Goldhammer and Brinckerhoff (1993) that students must be able to explain their disability in non-technical language, including how the disability manifests itself, and be
able to convey learning strengths and weaknesses to faculty (Brinckerhoff, 1994; Brinckerhoff et al., 2002; Kincaid, 2004; Pennsylvania State Department of Education, 2004; Vogel, 1997). They must also be able to explain which accommodations are reasonable for their particular disability, identify which psycho-educational or neurological documentation supports their request(s), and clarify how the requested accommodations will assist their learning strengths and minimize their academic weaknesses. Moreover, they must know what legal recourse they have, if they are denied equal access to education via accommodations (Brinckerhoff, 1994; Brinckerhoff et al., 2002; Hicks-Coolick & Kurtz, 1997; Kincaid, 2004; Palmer & Roessler, 2000; U.S. Department of Education. Office of Civil Rights, July 2002; Vogel, 1997; Ward, 2005). Numerous articles since the original Goldhammer and Brinckerhoff (1993) self-advocacy publication reiterate these skills though, as previously mentioned, they sometimes appear as a subset of self-determination (Bashir, Goldhammer, & Bigaj, 2000; Brinckerhoff 1994; Coolick & Gause, 1998; Durlak & Rose, 1994; Field, 1996; Field, Sarver, & Shaw, 2003; Hicks-Coolick & Kurtz, 1997; Janiga & Costenbader, 2002; Thoma et al., 2002). Each of these responsibilities requires students to socially interact and collectively, they represent a comprehensive awareness of self-advocacy for the student with disabilities.

Though literature clearly declares the importance of self-advocacy for all students and specifically indicates that those with disabilities are at
higher risk of dropping out than their peers without disabilities (Brinckerhoff, 1993; 1994; 2002; Lamb, 2002; Roessler, Brown, & Rummill, 1998; Stodden, Conway, & Chang 2003; Stodden, Jones, & Chang, 2002; Ward, 2005), the issue of self-advocacy is not entirely a student problem. Many authors suggest that not all college professors are well informed about learning disabilities and are sometimes resistive, making self-advocacy difficult for students with disabilities. This aspect of self-advocacy is discussed next.

First, college professors have not generally been trained to teach students with disabilities, since coursework related to disabilities is not generally an academic requirement for those preparing to teach in a post secondary setting. Rather, college professionals’ specialized training, expertise, or employment experience related to specific academic course content qualifies them for teaching at this level. As a result, learning disabilities and the educational concerns related to them, are foreign to some faculty (Burgstahler, Crawford, & Acosta, 2001; Hill, 1996; Izzo, Hertzfeld, & Aaron, 2002; Jensen, McCrary, Krampe, & Cooper, 2004; Kincaid, 1996; Leyser, Vogel, Wyland, & Brulle, 1998; Scott & Gregg, 2000; Thompson, Bethea, & Turner, 1997; Vogel, Leyser, Wyland & Brulle, 1999; Ward, M. 2005). In fact, Ward (2005) points out that many faculty members “have limited knowledge of their obligation under federal law, [of] specific disabilities, and [of] appropriate accommodations”(¶6). For example, some
faculty do not realize that individuals with disabilities are qualified students under ADA and Section 504 guidelines; they have met the entrance requirements of the school (or a particular program) on the basis of their merits and by the same standards as their peers, without special considerations (Kincaid, 1996; Leyser et al., 1998; Rothstein, 2002; Ward, 2005). As a result, these students are legally entitled to receive appropriate, reasonable accommodations as an equal access provision (ADA, 1990; Kincaid, 1996; Rehabilitation Act, Section 504, 1973; Rothstein, 2002; Thompson et al., 1997; Ward, 2005). Moreover, because of their limited knowledge, some college professors “struggle with ethical concerns regarding the effects of those accommodations on the academic integrity of individual courses, overall programs, and the institution as a whole” (Jensen et al., 2004, ¶ 4; see also, Bourke & Strehorn, 2000). Furthermore, lack of disability knowledge results in some faculty erroneously viewing students with learning disabilities as being incapable of college level work, or as obtaining an unfair advantage over other students, or of being lazy, or even of being mentally retarded (Wehmeyer, 2000). This latter belief may come from professors’ exposure to national media coverage in the early 1990’s, which initially focused on individuals who had limited cognitive ability (Bersani, 1996; Mitchell, 1997; Wehmeyer, 2000). Professors who remain uneducated regarding the intellectual potential of undergraduates who have disabilities, or who remain uninformed of students’ rights under the law thwart students’
efforts to obtain the academic accommodations to which they are legally entitled (Brinckerhoff et al., 2002; Kincaid, 1996; Leyser et al., Vogel et al., 1999; Rothstein, 2002; Scott & Gregg, 2000; Ward, 2005).

In conclusion, self-advocacy is still an emerging concept in the disabilities field. The role it plays in actualizing students' potential without "compromising the dignity of oneself or others" (Goldhammer & Brinckerhoff, 1993, ¶ 3) is not fully accepted. Without recognition of its legitimate use by both faculty and the students who have disabilities, then qualified students are at greater risk for leaving college, as current attrition literature reports (Blackorby & Wagner, 1996; Brinckerhoff et al. 2002; Burgstahler et al., 2001; Henderson, 2001; Witte, Philips, & Kakela, 1998). College attrition has also been the focal point of several major studies discussed in the next section of this chapter.

College Attrition

Attrition rates for academic institutions offering post high school educational opportunities have been a focus of research studies since World War II, but until the 1970’s, most research was descriptive and not grounded in theory (Grayson & Grayson, 2003). Kuhn refers to this as the "preparadigmatic period" (qtd in Grayson & Grayson, 2003, p. 11), which ended in the early seventies when college attrition became the principal point of several psychological theories for freshmen departure. Grayson and Grayson (2003) identify four prominent attrition models from the 70’s to the present...
as the Tinto “Student Integration Model” (p. 11), the Bean and Metzer
“Student Attrition Model” (p. 15), the Cabrera, Nora, Castaneda & Hengstler
“Model Integration” (p. 17), and the Astin “Student Involvement Model” (p.
17). Each of these models considers social integration as an attrition-related
variable for college students. Since the ability to interact (socialization) with
others is often associated with self-advocacy, the ensuing paragraphs explain
each attrition model’s findings related to socialization.

Attrition Models

Tinto’s Integration Model

The first model, Tinto’s (1975) Integration Model, is often referred to
as interactionalist theory and is well known as a student departure theory.
More than 775 citations have been made to his student departure paradigm
over the past 30 years (Braxton, Hirschy, & McClendon, 2004). Though
Tinto’s retention theory was first presented in 1975, he made revisions in
1987, and again in 1993. In the 1993 version, Tinto suggested considerations
for increasing freshmen retention rates not only in 4-year programs (as his
earlier models dictated) but also in 2-year colleges, commuter colleges, and
other post high school educational settings (Braxton et al., 2004; Grayson,
2003; Tinto, 1993).

Tinto (1975) explains attrition in his early model of departure theory
as one that includes students’: (1) degree of involvement into the social and
academic aspects of their college of choice (2) choice of major/occupational
goals and how well those mesh with the academic institution they are attending; and (3) background characteristics of the student (i.e. high school GPA, SAT scores). Within this framework, Tinto's model considered characteristics from Van Gennep's Rites of Passage theory and Durkheim's Suicide theory by incorporating helplessness, detachment, and non-integrative behaviors as a basis for his research on college persistence (Tinto, 1975) and student departure (Tinto, 1987).

Regarding Van Gennep's Rites of Passage, Tinto proposed that students were especially susceptible to feelings of isolation and personal weakness during their first weeks of transition into the undergraduate setting, at a time when so many experiences were outside the realm of familiarity (Grayson, 2003). Tinto (1987) suggested that this "normlessness" (p. 93) occurred at a time when freshmen were choosing their degree of involvement in both the informal and formal aspects of their institutions' social and academic systems. He held that students' greater depth of involvement in college-sponsored entities (clubs, informal and formal faculty/student meetings) and events that required social interaction (sports, music, dorm living), had a positive effect in solidifying students' sense of belonging and of being legitimate members of the college community. He posited that the level of formal and informal social involvement, along with individual characteristics and personal academic goals, affect students' willingness to persist in the college setting (Tinto, 1975).
Concerning Durkheim’s Suicide theory, Tinto held that there was a similarity between those who consider suicide and those who leave college: in many situations, both “represent a form of voluntary withdrawal from local communities” (1987, p. 99). A lack of interaction and integration characterize this withdrawal, which allows Tinto to maintain his premise that the socialization component is central to the attrition/retention issue, and that it has more influence than other variables on students’ decisions to persist after the freshmen year (Tinto, 1975).

Tinto refined his model in 1987, in part by restructuring the academic and social systems of his earlier model with a re-categorization of the formal and informal socialization activities. By 1993, his writings often discussed the (social) integration in reference to “communities” as reflected within several of his titles: Constructing Educational Communities (1994), Building Learning Communities (1994), Classrooms as Communities (1997), Colleges as Communities (1998). Still, his fundamental premise has remained that students who are more socially involved because of consistent interaction with campus peers and college faculty and staff, tend to reflect a higher retention rate. In fact, Tinto places little emphasis on exogenous factors such as high school grade point average (GPA) and Scholastic Aptitude Test (SAT) scores stating that they are “largely subsumed” as one enters the college setting (1987, p. 125).
In 1994, Tinto’s writings addressed criticism that his research reflected undergraduates attending school in traditional settings and did not consider those attending 2-year colleges, vocational-technical programs, community colleges, and non-residential (commuters) schools. However, it is important to note that Tinto’s revisions did not take him away from the foundation of his early research; he continues to rely on social interaction theory as a means of retaining its students in the college family.

Bean & Metzer’s Student Attrition Model

A second model, the Student Attrition model, evolved from an industrial-organizational prototype proposed by Bean and Metzer in 1985 (Freeberg, 1994). Grayson (2003) reports that this model addresses exogenous factors such as “finances, opportunity to transfer, and outside friends” (p.15) that are not considered in the Tinto model. Nevertheless, there is some overlap of other Tinto variables and though systematized differently, include socialization factors. The main difference between the Bean and Metzer model, compared to Tinto’s, is its strong focus on the external factors that may also affect student attrition (Grayson, 2003). However, the statistics for this study produced only somewhat higher positive indicators than the Tinto model (Grayson, 2003). Subsequently, other researchers began analyzing the Tinto Student Integration and the Bean and Metzer Student Attrition models, hypothesizing that if all the variables from both models were combined, the emerging model might yield further insight.
regarding freshmen attrition rates (Grayson, 2003). Two such models are discussed next.

*Cabrera, Castaneda, Nora & Hengstler’s Model Integration*

Cabrera, Castaneda and Nora, and Hengstler (1992) designed their Model Integration Models to investigate the combination of variables from the Tinto Student Integration Model and the Bean and Metzer Student Attrition Model. Grayson (2003) reports that the combined model resulted in minimal increase in statistical effect, but did provide a more realistic identification of internal and external factors, including socialization factors used as predictors of attrition. Consequent to these studies, Sandler (2000) made further modifications by introducing additional variables related to non-traditional, non-residential, adult undergraduates (Grayson, 2003).

Although Sandler’s findings examine and explain these additional attrition elements, the factors related to socialization yield similar results to both the original Tinto Model and the Bean and Metzer version (Grayson, 2003).

*Astin’s Student Involvement Model*

A final model, Astin’s (1984) Student Involvement model, which Grayson (2003) indicates is not based in grounded theory, warrants discussion, nonetheless, since Astin’s assumptions have some correlation with the findings of the other models and like Tinto, there have been a substantial number of investigations by other researchers based on his work. Astin’s premise that “the amount of physical and psychological energy that the
student devotes to the academic experience” (1984, p. 297) constitutes involvement and if that academic involvement, which automatically mandates interaction with faculty, staff and students is high, it will lead to better retention rates. While Astin perceived his model as different from Tinto’s, it nevertheless aligns with the social aspects of the Tinto model (Grayson, 2003). Grayson (2003) notes that Berger and Milem (1999) confirmed this alignment after designing a research model that incorporated Astin’s Student Involvement model into the social and academic conceptualizations of Tinto’s Student Attrition model. Within their framework, Berger and Milem (1999) investigated the degree of involvement with peers, faculty, and college community life. This was completed in conjunction with an investigation of the participants’ actual behaviors and attitudes, and the changes in them from the beginning of the first year to the end of the school year. Their study found positive relationships for retention if freshmen had ongoing (fall and spring) interaction with faculty and if they had solid interaction with peers, particularly in the first semester of their college year. Berger and Milem (1999) established that the principle negative influence on retention/persistence was a lack of involvement in college life and activities, and as Grayson (2003) notes, students’ social behavior early in the first semester predicts third semester (second year) retention. This aligns with Tinto’s observations.
While government attrition reports do not specifically address socialization issues, their data confirms the Berger and Milem (1999) research finding which indicates that many freshmen do not remain in college if they are not involved in the life of the college (Henderson, 2001; U.S. Department of Education (NCES), 2000b; Ward, 2005). However, the same government reports reveal that a SWD subset within the freshmen cohort is even more prone to leave college than their peers without disabilities (American Council on Education, 2000; Brinckerhoff et al. 2002; Henderson, 2001; U.S. Department of Education (NCES), 2000b). This attrition has been a discussion in much learning disability literature and echoes concerns regarding high school transition programs and self-advocacy training presented earlier in this chapter.

In summary, though the four models are diverse in the variables investigated, all four have social integration and involvement associated with them, whether categorized in formal academic spheres or informal college activities. Clearly, the research gleaned from these attrition studies collectively validates the premise that socialization plays a significant role in persistence beyond the freshmen year of college. On the other hand, while these studies have shown a relationship between socialization and persistence at the college level, and while personality has been investigated as a general variable, the dichotomous poles of extraversion and introversion made famous by Carl Jung have not been identified as an investigated
variable in these attrition models. Since personality and specifically introversion has been linked to socialization in many studies, introversion is discussed next.

**Personality**

**Jung**

Carl Jung, a Swiss-German psychoanalyst, is credited with the development of the dichotomous “attitudinal” (Edinger, 1968, ¶6) poles of introversion and extraversion as well as the dichotomous psychological “functions” [of] “thinking, feeling, sensing and intuition” (Edinger, 1968, ¶11). Since this researcher’s study investigates the influence of introversion on attrition rates of learning disabled college students, only introversion and extraversion and their relationship to socialization are discussed here.

**Extraversion**

Edinger (1968) describes the opposite poles (i.e. introversion vs. extraversion) as temperament differences, with differentiations made according to how individuals perceive and react to life situations. In his summary of the basic concepts of Jung’s theories, Edinger (1968) characterized extraversion as having:

- interest, attention and drive...flow outwards...and gives greatest interest and value to the object – people, things, external accomplishments, etc. He or she will be most comfortable and successful when functioning in the external world and human
relationships, and will be restless and ill at ease when alone without diversion (Edinger, 1968, ¶7).

Introversion

Conversely, Edinger defines introversion as having one's:

interest, attention and drive...flow inwards...connecting him or her with the subjective, inner world of thought, fantasies and feelings. Greatest interest is given to subject – the inner reactions and images.

The introvert will function most satisfactorily when free from pressure to adapt to external circumstances. He or she prefers their (sic) own company and is reserved or uncomfortable in large groups (Edinger, 1968, ¶8).

Myers-Briggs

These statements mirror Myers' (1983) description of introversion and extroversion. In writing about these attitudinal poles, she also supports Jung's belief that one's inclination towards either preference is equally appropriate with neither introversion nor extraversion considered superior to the other. “For both kinds, the natural preference remains, like right- or left-handiness” (Myers, 1983, p. 8). So, individuals’ preferences regarding their ability or willingness to socialize are a natural part of who they are and dictate how they behave in the presence of others. Though individuals can consciously choose to belie preferences if a situation absolutely demands it, it will not be a comfortable choice, because proclivity towards either pole
remains stable throughout one’s lifetime, as test-retest results in studies completed by Carlyn (1977), Levy, Murphy, and Carlson (1972), Morris (1979), Strickler and Ross (1964), indicate. This last point is an important point, for two reasons. First, any research that requires introversion-extraversion classification must have a reliable tool to determine that preference. Second, it is clear from the descriptions of each pole that attitudinal preference dictates socialization, interaction, and integration with others, which has importance as one looks at reasons why college freshmen may not choose to interact with peers and faculty. As Tinto (1993) and Astin (1993) and others point out, freshmen who do not interact with peers and faculty have a much higher risk of not remaining in college. Similarly, Brinckerhoff et al. (2002), and others emphasize that socialization skills are a necessity if students expect to be adequate self-advocates. Therefore, personality, especially as it relates to the Extraversion-Introversion poles, is discussed next.

Many studies exist that investigate the characteristics of introversion. Bledsoe (1990) and DeVito (1985) discuss several that have a direct connection to the issues raised in this research. For instance, Pilkonis (1977) reported that introverts are not generally inclined to reveal much about themselves, are less sociable, are significantly more anxious than extroverts, and are uncomfortable when they are unable to alleviate distress by avoiding interaction with others. Similarly, McCroskey and Richmond (1987)
characterize introverts as those who are quiet and withdraw from social contact, while Bledsoe (1990), Burgoon (1976), and Fremouw (1984) describe introverts as those who avoid communication. Most notable for the purposes of this writer’s research, Averett and McManus (1977) describe introverts as non-assertive. More recently, Harrington and Loffredo (2001) found that introverts are more socially anxious and more self-conscious than their extraverted peers are. Though these studies describe introverts, none address whether willingness to self-advocate is influenced by a non-assertive, non-interactive, quiet personality. Coupled with this is the question of whether students with learning disabilities, who are already at greater risk for dropping out when compared to their non-disabled cohort, would be at even greater risk if their personality preference reflected introversion.

Summary

Chapter 2 considers the historical development and current understanding of learning disabilities and self-advocacy and presents related legislation affecting their development. In addition, the findings of four college attrition models are detailed and discussed in relation to socialization factors that may put students at risk for dropping out of college. Finally, personality is discussed, particularly introversion and its connection to socialization.

The literature review begins with the historical development of learning disabilities, tracing its progression from the brain research of the
earliest years, through the clinical study of children during the 1930-1960’s, and into a period of “rapid growth” (Lerner, 2003) of school-based learning disabilities programs, which included new diagnostic tools and specially trained teachers. The current phase is described as still emerging, with ongoing research, technology, and legislation continuing to support the LD field.

Within the framework of those phases, several pieces of legislation contribute to the development of this specialized field. First, the initial instance of federal recognition of learning disabilities was the authorization of the Children with Specific Learning Disabilities Act of 1969, also known as the Amendments to the Elementary and Secondary Education Act. (Section B of this Public Law includes the Education of the Handicapped Act). Then, the Rehabilitation Act of 1973, especially Section 504, assured equal access to education (including college) for those whose disabilities restricted their “major life functions” (Rothstein, 2002, p. 75). Next, the Education for All Handicapped Children Act of 1975, also known as Public Law 94-142, secured free, appropriate public school education for students with disabilities, ages 3-21. When it was reauthorized as the Individuals with Disabilities Education Act (IDEA) in 1990 and again in 1997, each required transition planning in preparation for life after high school. (The 2004 reauthorization also mandates transition preparation, but this new version does not go into full effect until the summer of 2005 and therefore, is not discussed in this
dissertation.) Finally, the Americans with Disabilities Act of 1990 (ADA) expanded the prevention of discrimination as covered in Section 504 by guaranteeing equal access to post-secondary educational settings for qualified students with disabilities.

In the discussion of disability law, it was clarified that although attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) are not listed as specific disabilities under IDEA, students with the disorder do qualify for services/accommodation under IDEA’s category of “other health impaired” and/or under Section 504 of the Rehabilitation Act. Also, since the provisions of IDEA do not extend beyond high school, it was explained that college-bound students with learning disabilities must qualify for services under the provisions of the ADA and Section 504 of the Rehabilitative Act and must personally disclose their disability if they desire accommodations.

In the section on self-advocacy, it was noted that the concept of self-advocacy is a recent development, which can be understood by tracing the historical changes from the original doctor-advocate, to the parent-advocate, to its present day client-directed, self-advocate. Effective self-advocacy for today’s college students with disabilities (SWD) includes the ability to explain their disability in everyday language, to identify the resultant personal learning weaknesses that affect their learning, and to request reasonable accommodations that provide equal access to the post secondary education
they are qualified to pursue. Undergraduates with disabilities must be self-advocators if they expect to remain in college, but self-advocacy skills training in high school for those planning to attend college is not common. In addition, some college faculty members are not aware that reasonable accommodations are legally mandated; they sometimes exhibit resistive attitudes towards students with disabilities who request accommodations.

Recent government reports on college attrition rates show that students with learning disabilities are at greater risk for leaving college. In addition, an overview of the four most prominent attrition studies identifies socialization and integration into campus life as an important variable in student retention rates. The best-known longitudinal study, begun in 1975 by Vincent Tinto, posits that the greater the depth of involvement on campus, including consistent interaction with faculty, leads to a sense of belonging. Other studies investigated additional variables and analyzed the combined effects of some, with the result that each attrition model identified socialization as one explanation for higher attrition rates for college freshmen.

Socialization was also discussed in relation to personality. The personality trait of introversion was talked about in relation to social competence since Carl Jung’s Theory of Personality and the Myers-Briggs Personality Inventory based on his theory, posit that some individuals are more inclined towards socialization because of their extraverted personality.
Both Jung and Myers are careful to state that one’s propensity towards introversion or extraversion is strictly a preference and that neither attitudinal pole is better than the other; nevertheless, socialization as it relates to the introversion-extraversions poles, raises questions not answered by current attrition models and provides the focus for this study. In particular, is there a relationship between one’s preference towards introversion and one’s willingness to self-advocate? Specifically, does a relationship exist between introversion and non self-advocacy that concomitantly influences attrition rates for students with learning disabilities more than it does for those who do not have both of these characteristics? Chapter 3 discusses these questions more fully and provides the research method used to analyze whether the questions raised were legitimate concerns when considering the attrition rates of college freshmen with learning disabilities.
3. Methodology

Introduction

This chapter explains the methods and procedures used in this quantitative investigation and includes information regarding the context, the subjects, sample size justification, instrumentation, and the research design. It concludes with an explanation of how the data was analyzed.

Population

Sample size and gender

The students in this study were matriculates at two faith-based institutions of higher education, one in Pennsylvania (PA) and the other in Virginia (VA). Of the 20 participating students, 15 attended the larger, VA-based University and five attended the smaller, PA-based College. In the aggregate sample, nine subjects were female (45%), 11 were male (55%), with an age range from 18-20 years old; the average age was 18.5 years.

Full-time Status and Major

All students were first-time, full-time undergraduates carrying a course load of at least 12 credits. Although some students had been accepted into their respective postsecondary institutions with a requirement that they carry no more than 12 credit hours during the first semester, this study did not require a limited load. Declared majors for the volunteer subjects from both institutions ranged from traditional, secular occupations to ministry-oriented faith-based professions.
Diversity

The university in Virginia is on the edge of a city in a suburban, mountainous setting. This institution’s total undergraduate enrollment for the 2003 year was approximately 7,600 and had a diverse student body with approximately 25 percent of its students being nonwhite. However, the 15 white, non-Hispanic subjects who participated in the study did not reflect this diversity.

In contrast, the college property in Pennsylvania, though suburban, borders farmland. At the time of this study, the total undergraduate enrollment was 748, approximately 1/10th the size of the VA-based university. The five subjects enrolled in the college reflected the institution’s 93.5% white population, as all subjects were white, non-Hispanic students.

Learning Disability Documentation

A requirement of this study was that all subjects were required to have been registered with the disabilities support (DS) offices at one of the two participating schools and were to have been classified as learning disabled on the basis of current documentation on file in these offices. For the purpose of this research, this researcher used Educational Testing Services (ETS) and the Association on Higher Education and Disabilities (AHEAD) qualifying standards for documentation of learning disabilities (Appendix B).
Sampling Method

Convenience sample

This study used convenience sampling, a non-random procedure most often employed in educational research, with volunteers from existing groups (Gay & Airasian, 2000). Candidates for this research were existing groups of students with LD who were attending the two private, faith-based undergraduate institutions in this study.

Selection process

In this study, students were qualified as subjects if they: 1. Provided current, professional documentation of their learning disability from a non-related, appropriately licensed counselor, psychologist, neurologist, or other relevant medical doctor; 2. Were at least 18 years old; and, 3. Were enrolled as full-time (12 or more credits) students with disabilities during the fall semester of 2003. Those who met these criteria and subsequently completed both the Myers-Briggs Personality Inventory-form G and the Tucker Self-Advocacy Tool were qualified as subjects for this research.

Sample size justification

This investigator obtained an aggregate of 20 participants from the two undergraduate schools mentioned above who qualified under the guidelines mentioned in the preceding paragraph. Krejcie and Morgan (1970) indicate that the aggregate number (20) obtained was an appropriate sample size (n) for populations (N) with finite sizes, for this type of correlational
research. Nevertheless, sample size justification and power calculations were carried out to show that the objectives of the study could be met with a .05 alpha level of significance.

**Instrumentation**

This study used two instruments. The Myers-Briggs Type Indicator (MBTI) was selected to classify the subjects in this study as either introverted or extraverted personality types (1977). The Tucker Self-Advocacy Tool (S-A) was employed to determine the degree to which the individual subjects practiced self-advocacy skills (2005). A description of each tool and a discussion of the reliability and validity for each of these instruments is discussed next.

**Myers Briggs Type Indicator**

*Introduction to the MBTI-G.* Isabel Briggs Myers and her mother Kathryn Briggs developed the Myers-Briggs Type Indicator (MBTI) after examining Carl Jung’s theory of personality type. Jung, and Myers and Briggs posited that the way individuals take in information, the manner in which they make decisions, and whether they prefer to interact primarily with other people or with facts and ideas are what shapes individuals’ personalities. They also believed that these preferences are not capricious but quite predictable. Myers and Briggs expanded on Jung’s theory by adding a fourth dimension, which addresses how individuals judge and perceive (J-P) the information they absorb. With this addition to the Jungian
theory, Myers and Briggs developed the MBTI instrument to reflect four dichotomous scales. The other dimensions include: the Sensing-Intuition (S-N) scale which examines how individuals perceive information, the Thinking-Feeling (T-F) scale which indicates subjects’ decision-making preferences, and the Extraversion-Introversion (E-I) scale which describes whether subjects prefer to focus on the inner (i.e. thoughts and ideas) or outer (i.e. people) world.

*Format.* The MBTI uses a 126-item, forced-choice, self-reporting format to identify an individual’s combination of four personal preferences, called types (e.g. INTJ or ESFP) (Appendix C). The MBTI is administered individually or in groups. The instructions for completing the assessment are printed on the front cover of the question booklet and clients record their answers on scantron sheets, which can be hand or electronically scored. The manual suggests an average of 30-40 minutes to complete the inventory, depending on the reading facility of the individual subjects. The inventory is appropriate for individuals from grade nine through adulthood.

This researcher’s study used only the extraversion-introversion (E-I) index to investigate if there was a relationship between introversion and self-advocacy skills that influenced attrition for college freshmen with learning disabilities. Therefore, considerations of validity and reliability are limited to this specific measure.
Reliability. There is considerable information available on the reliability and validity of the longstanding MBTI, including DeVito's critique in the Mental Measurements Yearbook (MMY) (1985). While positive in many respects, he does not present statistical data. However, several studies provide a more in-depth discussion of the MBTI. For example, regarding split-half reliability coefficients (Pearson r), the MBTI manual (1962) reports a range from .77 to .85. Carlyn (1977) indicates that although Myers (1962), Webb (1964), and Stricker and Ross (1962) used different statistical procedures to determine split-half reliability, all reported ranges from .76 to .82 for the E-I dimension. In addition, Myers and McCaulley (1985) indicate that the Spearman Brown split-half procedures range from .77 to .89; this reflects very similar findings (.77 to .85) to the reports in the original manual (1962).

Heineman (1995) reports that the test-retest results are high, with correlations averaging .79. In addition, the Nova Southeastern Center for Psychological Studies Website reports test-retest intervals from five weeks to 21 months with reliability coefficients ranging from .73 to .83 for the E-I dimensions. Moreover, the Consulting Psychological Press (publisher of the MBTI) website posts Reliability of Preferences (test-retest) scores ranging from .82-.86 on the MBTI-Form G, which is the form used in this researcher's investigation. In addition, Myers and McCaulley (1985) indicate that the least likely of the indices to change over time was the E-I, that changes
tended to occur in only one dimension, and then only if the initial preference score was low. That same year, several studies reviewed by Burns (1985) reported that 70-88% of the subjects remained the same on at least three of the four indices.

**Validity.** DeVito's review in the Mental Measurements Yearbook (1985) points out that the MBTI correlates with other widely accepted personality assessment tools including the Jungian Type Survey (aka: Gray-Wheelwright Questionnaire), thereby validating the MBTI. The Survey was chosen for correlation with the MBTI because it purports to identify the same Jungian dimensions (minus the J-P, which is not Jungian). DeVito states that the "correlations between corresponding dimensions (e.g. E-I) are moderately high and statistically significant" (p. 1031); Myers and McCaulley (1985) report those correlations as .68 for extraversion and .66 for introversion. In a correlation study of the Eysenck Personality Questionnaire completed by Steele and Kelly (1976), there was a .74 correlation with the E-I scales of the MBTI. DeVito (1985) indicates that many other assessments have been correlated with the MBTI, while the Nova Southeastern University Psychological Studies Department website states that a "...wealth of circumstantial evidence has been gathered and results appear to be quite consistent [correlate] with Jungian theory" (n.d., ¶ 4). These statistics and statements persuasively confirm construct validity for the MBTI.
**Tucker Self-Advocacy Tool**

**Introduction to the Self-Advocacy Questionnaire.** Self-advocacy was an independent variable in this research; however, at the time of this study no valid, reliable published instrument specifically addressed the self-advocacy practices of college students. Therefore, the second instrument used in this study was a researcher-designed, peer-reviewed tool that differentiated strong self-advocators from those who were weak or non self-advocators.

**Format.** The 20-item multiple-choice design of the S-A Questionnaire addresses pertinent self-advocacy topics to determine responders' personal practices and degree of self-advocacy (Appendix D, E). This instrument allowed the researcher to measure participants' responses on a continuous scale, to facilitate a more in-depth analysis of the relationship of self-advocacy (one dependent variable) with subjects' personality type (the other dependent variable).

To lessen subjects' assumptions that a particular column represented self-advocacy or non-self-advocacy responses (ex. choosing the “A” column for all self-advocacy answers), the assessment questions required subjects to choose from both the “agree” and “disagree” columns when selecting self-advocacy answers. This design enhanced the likelihood of thoughtful responses that would yield accurate data. Furthermore, two of the items (numbers 18 and 20) on the questionnaire asked respondents to answer according to the number of times (given as ranges) they had independently
chosen to use the listed behavior during the past semester. These questions aided in the determination of whether students with self-advocacy knowledge actually practiced self-advocacy and to what extent they did so.

In addition, to further differentiate the degree of self-advocacy, a scoring chart was devised that linked particular S-A questions to other S-A items and/or to data on the general information-gathering form that the subjects completed during their initial meeting (Appendix F). This researcher tallied the S-A scores by referring to the chart, which required that linked questions be answered as self-advocator responses, in order for either linked item to be tallied as such (Appendix G, H). For example, the general data-gathering form completed at the initial meeting concludes with a fill-in-the-blank item requesting specific identification of one's particular learning disability. Subjects must have definitively answered that fill-in-the-blank question in order to earn self-advocacy credit for items on the 20-item Self-Advocacy Questionnaire that asked whether the subjects could identify their disability and/or describe it.

Content validity. The general basis for this assessment tool is a 1993 Goldhammer and Brinckerhoff article which discusses the type of information that students with learning disabilities must know and utilize if they expect to master the high school-to-college transition. These self-advocacy skills include: knowing the specific name of one's disability, understanding and explaining one's disability in everyday language, expressing one's academic
needs and requesting the accommodations that serve to overcome them, making independent decisions, knowing legal rights and how to obtain them, and taking responsibility for one's actions.

*Item validity.* According to Gay and Airasian (2000), a suggested procedure for establishing content validity when developing a new tool is to establish item validity, which "is concerned with whether the test items are relevant to measurement of the intended content area" (p.163). To establish this, each query in the self-advocacy instrument (as well as the final question on the personal data-gathering form) was linked to one of the five areas identified in the Goldhammer and Brinckerhoff (1993) article on Self-Advocacy (Appendix F). Later, to further establish item validity, professionals from across the nation, who were working in the field of disabilities at the college level, reviewed the Tucker Self-Advocacy Tool (Appendix I). Respondents indicated whether they believed all questions pertained to the concept of self-advocacy and adequately reflected college level self-advocacy skills. The 12 disability service providers who evaluated the Tucker Self-Advocacy Tool deemed all questions appropriate, with suitable representation of the gamete of self-advocacy skills.

*Sampling validity.* To establish sampling validity, it is important to ascertain that all content on the topic is covered and that no particular content receives too much weight (Gay & Airasian, 2000). Since this researcher's questionnaire design included several similar questions with the
purpose of differentiating subjects’ true self-advocacy practices and preferences, to provide accurate data for the researcher, sampling validity was a crucial concern. However, none of the disability service providers suggested that any of the questions should be removed because of repetitious content, nor did anyone suggest that particular content was lacking coverage, or sufficient coverage.

Research Design

Sample Selection

*Limited selection.* Because only 27% of the students with learning disabilities who graduate from high school currently attend college, the selection pool was limited. The age restriction of this study, which required subjects to be at least 18, further limited the number of available subjects.

*Total population, convenience sample.* To safeguard the concern that the number of participants may not reflect the general LD population or the percentage of introverts/extraverts found in the general population, this researcher chose convenience sampling rather than random sampling. Krejcie and Morgan (1970) indicate that use of the total population of an existing group is appropriate to reduce the possibility of skewed statistics and to obtain a more representative (similar) group as might be found in the global population. Even so, sample size justification and power calculations were carried out using Power Analysis and Sample Size (PASS, 2000) to
determine that the objectives of the study could be met with a .05 alpha level of significance.

**Student Considerations**

*Qualified as learning disabled.* Students with learning disabilities who met the initial criteria (age, full-time status, and first-time freshmen) were judged qualified participants using standards for acceptable documentation published by the Association on Higher Education and Disabilities (AHEAD) and Educational Testing Services (ETS) (Appendix B). These standards require current documentation which uses well-established, standardized assessments such as the Wechsler Intelligence Scale (WISC-R) or the Wechsler Adult Intelligence Scale (WAIS), and stipulate that all testing be completed by a non-related, appropriately licensed counselor, psychologist, neurologist, or appropriate medical doctor.

*Age requirement.* The Buckley Amendment, also known as the Family Educational Rights and Privacy Act (FERPA), requires parental consent for student participation in studies such as this, if they are minors. Because the FERPA requirement could have impeded the data-gathering process, subjects were not qualified for this study unless they were 18 years or older.

**Statistical Software**

*SPSS.* This research used the Statistical Package for the Social Sciences (SPSS) software to determine whether the dropout rate was the same for introverts and extraverts; to determine if the average self-advocacy
score was the same for those who remained in school and those who dropped out; and to answer this researcher’s dissertation question: Is there a relationship between personality type and self-advocacy that influences the attrition rates of college freshmen with learning disabilities? The SPSS Graduate Pack edition, Version 13 (SPSS 13.0) was used to complete these analyses with the level of significance at the $p < .05$ levels.

PASS 2002. This research used PASS 2002 software (PASS 2002) to carry out the sample size and power calculations using the Fisher's Exact Test to determine whether the aggregate sample size was adequate to meet the objectives of the research.

Procedures

Introduction

The Internal Review Board of both the VA-based University and the PA-based College granted permission to complete the research described in the preceding paragraphs. The study spanned one academic year plus two months, from August 2003 through October 2004 and was carried out under the auspices of the Disability Services (DS) Office of each site. The Directors of DS at both sites granted permission for faculty advisors to solicit potential subjects. (This researcher is the Director of the Disabilities Center at the PA-based College.) At the VA-based institution, this researcher arranged to meet with the advisors to go over the information and materials (e.g. waiver form) with which they needed to be familiar in order to be persuasive
solicitors of their advisees.

Subject solicitation. During the first semester of enrollment, in August of 2003, all students with learning disabilities who were 18 years or older and listed on the current DS Office rosters of the university or the college were solicited as volunteers by personal invitation of the respective professional staff. Potential subjects under the age of 18 were not invited to participate because of FERPA regulations regarding minors that could have impeded the data-gathering time frame.

Scripted format for solicitation. When the DS Office personnel recruited participants, they referred to a scripted checklist format to insure that all of the above topics were addressed (Appendix J). This checklist also included a paragraph that explained aspects of the study that were not to be disclosed by the solicitor, so that resulting data would not be compromised by subjects’ anticipation of the researcher’s desired responses to questions on the two assessment tools. The invitation to participate included a general explanation and brief overview of the purpose of the study, introductory remarks about the researcher, and an opportunity for the solicited student to ask questions. The solicitor also presented projected dates for future meetings and an explanation of subjects’ rights and responsibilities. To maintain prospective participants’ confidentiality, the solicitation occurred during individual office appointments held during the fall semester when students were pre-registering for the spring semester.
Waiver. During the solicitation meeting, students who agreed to participate signed a Waiver Agreement (Appendices K, L) indicating that the research study had been explained to them, that they had opportunity to ask questions, and that they understood their role as volunteer subjects who would receive no financial compensation. The subjects’ signatures also indicated a waiver of their right to sue the university and/or college, this researcher, or others involved in facilitating the study. With this waiver was a Release of Information form (Appendices M, N) which asked participants to provide a home address if they were interested in receiving a summary report of the major findings of the research. When the subjects signed this Release of Information form, they also authorized this researcher to discuss their cases with the appropriate Disability Service personnel to verify their qualification (i.e. proper documentation) for participation in the study.

Provision of LD accommodations for participating subjects. Also included as a part of the waiver in the solicitation material was a checklist of possible accommodations that were provided to potential subjects during each of the information-gathering sessions (Appendix K, L). The solicitor presented this checklist to potential subjects as an overt means of assuring appropriate accommodations, efficient use of their personal time, and a stress-free information-gathering environment. This checklist also served as a mechanism for the researcher to determine which accommodations would actually be needed during the assessment times.
However, one accommodation from that checklist, the oral reading of questions, was provided for all students at both data-gathering sessions. There were two reasons for following this procedure. First, the provision of a reader for the entire group assured that no subjects who were poor readers were inadvertently perceived or identified as such by other participants in the study. Second, since oral iteration provides aural recognition of words that may not be easy to decode or visually recognize, following this protocol allowed students to choose responses that accurately reflected their practices and preferences.

Confidentiality coding. The VA-based institution’s Disability Services personnel presented the signed Waiver Agreement and Release of Information forms to the researcher at the end of the solicitation/pre-registration period. This researcher compiled an aggregate list of subjects’ names and assigned each a confidential identification number. The researcher kept both the composite list of names and the assigned code numbers in a locked file in an off-campus office. The remainder of the research-gathering process utilized the confidentiality numbers and all reports generated from the data contained only the code numbers associated with the particular information being presented, including information entered into the SPSS computer files.

Meeting time. Once the participants volunteered, class schedules for these students were retrieved through their respective schools’ registration
database so that a specific date and time for the first meeting could be
determined. Subjects received a personal letter, which thanked them for
participating and informed them of the specific date, time, and location of the
initial meeting (Appendices O, P). These details arrived by posted mail one
week prior to each meeting (Appendix O, P), by follow-up email (Appendix Q)
two days before, and by phone call (Appendix R) the day before each of the
two scheduled meeting times. This spring meeting followed the same
protocol (Appendix S, T).

Remuneration. As an incentive to remain committed to the study,
subjects were reminded that they would receive a free copy of their MBTI-G
assessment results and an interpretation of the results after the second
assessment, the Tucker Self-Advocacy Tool, was completed. In addition, this
researcher provided free refreshments at the conclusion of each meeting, in
appreciation for their volunteered time.

First meeting. The meeting for each site was arranged at a time that
did not require the students to miss class, with the meeting site in a familiar
classroom location where corridor noise was negligible. Before students
arrived for the initial meeting, which occurred approximately eight weeks
into the first semester, all materials needed to complete the MBTI-G
assessment were placed on the students' desks. The researcher took
attendance, assigned confidentiality numbers and explained their purpose,
and made general announcements. During the announcements, to foster
participation at the second meeting (when the Tucker Self-Advocacy Tool was administered), subjects were reminded that those who completed the MBTI-G would receive a personal copy of the Myers Briggs Report and an interpretation of its scores after the second meeting. After answering questions, this researcher introduced the research assistant who administered the Tucker Self-Advocacy Tool.

Administration of the MBTI-G. Because of the nature of learning disabilities, this researcher used several modifications for the ease of all participants. First, the eight-page MBTI assessment booklet was Xeroxed for each subject so that they could record responses on the Xeroxed pages, directly under the question just read, rather than having to transfer the response onto separate answer sheets. This protocol reduced the possibility of response errors that could have occurred when subjects attempted to fill in answers in the proper locations on a form that had no visual resemblance to the original MBTI tool. Second, this feature was implemented to reduce the amount of time needed for subjects to record their answers, to reduce marking errors for those students with visual tracking and other reading-related disabilities, and to decrease stress. It should be noted that an original copy of the MBTI-G booklet and the accompanying answer sheet was procured for each participant; therefore, this procedure did not violate copyright laws, as the duplicates were shredded on completion of the data-
gathering and all copyrighted materials needed for the assessment had been purchased for each subject.

*Modifications to the MBTI-G.* To elicit proper consideration of all response options, especially for items that contained archaic vocabulary, the research assistant pronounced potentially troublesome words along with their pre-scripted definitions, which were taken from Roget’s Thesaurus (Appendix U). This procedure was followed for several words/phrases, whether the subjects requested definitions or not, so that administrations in both the PA and VA locations were identical. Words deemed obsolete were those for which college students had requested definitions during administrations of the MBTI by this researcher over the past 11 years. Though following this protocol is not preferred according to the Myers-Briggs manual, accurate personality categorization depended on choices that reflected the responder's true inclinations based on each choice listed. Since many learning disabilities are language-based, there was a distinct possibility that the subjects may not have visually recognized or may not have known the meaning of some less frequently used vocabulary, making it impossible for the subjects to choose answers which accurately reflected their preferences. So, in this study, the researcher used an alternate means of response, a protocol recommended by Yell and Shiner (1997) for presentation of material orally, along with scripted definitions. They posit that this procedure does not manipulate subjects’ choice of answer over other options;
rather, it furnishes an opportunity for them to provide a true indication of their preferences. Concomitantly, it assured this researcher more accurate delineations of each subject’s personality type.

The protocol discussed in the preceding paragraphs maintained a non-threatening, less stressful environment for anxious participants who, because of a learning disability, may have lacked reading skills, language facility, and vocabulary knowledge while it also facilitated their ability to remain engaged as they completed the assessment.

Reducing researcher’s influence over subjects’ answers. Finally, to eliminate the possibility of the researcher’s influence over participants’ answers through voice inflection and body language, this researcher was not directly involved in the actual administration of the MBTI assessment or the Tucker Self-Advocacy Tool. The research assistant tape-recorded the questions as they were read at the VA-based institution’s sessions and that tape recording was played when conducting the data-gathering sessions at the PA-based college site.

Tabulating MBTI-G responses. The researcher transferred individuals’ answers from their Xeroxed pages onto a Myers Briggs response form; to guard against human error, the research assistant confirmed the accuracy of transference for each subject’s form before the researcher tallied those responses. To further guard against human error, the researcher tallied each subject’s response form twice, with an intervening day between
scorings. Subjects were then categorized as introvert or extrovert based on
the results of their individual MBTI-G preference scores and the
Extraversion-Introversion preference data was entered into the Statistical
Package for the Social Sciences (SPSS) program.

Second meeting. The second meeting occurred approximately two
weeks before the end of first semester, under the same procedures that were
followed on the day of the MBTI assessment. Therefore, this researcher
arranged meetings for each site at times when classes did not meet, and in a
familiar classroom location where corridor noise was negligible. All
materials needed for completion of the S-A questionnaire were placed on the
desks before the subjects arrived. The researcher re-introduced herself, took
attendance, reminded students to use their assigned confidentiality number,
made general announcements, answered questions, and had the research
assistant administer the Tucker S-A Tool. Because this questionnaire was
written at a 6th grade level, students read and answered the questions
independently. It is important to note that the subjects were not told the
topic of the questionnaire, and no title appeared at the top of the form.
Students were informed only that the questionnaire asks them to record
their personal preferences and practices. This protocol minimized students’
anticipation of what they believed may have been the researcher’s desired
responses. As with the MBTI-G, subjects recorded their answers directly on
the instrument.
Tallying the Tucker Self-Advocacy Tool scores. As discussed earlier in this chapter, the researcher tallied the S-A scores according to the chart (Appendix F) which links certain questions to others on the questionnaire and to the initial data-gathering form filled out during the first meeting. For example, a question from the Self-Advocacy assessment is linked to the general data-gathering form that students completed at the first meeting, which asked students to identify their particular learning disability. If participants indicated on the Self-Advocacy Tool that they could identify their learning disability to others, but on the initial data-gathering form did not identify or clearly describe it, the related question on the Tucker Self-Advocacy Tool was scored as non self-advocating. In addition, this researcher tallied responses marked *not sure*, *no opinion*, and any items left blank as non-self-advocacy answers. As with the scoring of the MBTI-G, as a safeguard against tabulation errors, the researcher completed a second tally of the self-advocacy assessment with an intervening day between scorings. Scores were then entered into SPSS for later analysis in conjunction with the E-I results of the MBTI-G scales.

Collection of attrition data. At the end of the freshmen academic year, this researcher retrieved the subjects' grade point averages (GPA) from the registrars of the two institutions to determine whether the students met their respective institution's academic standard for eligibility to return for the next school term. The researcher also ascertained whether subjects had pre-
registered for the fall 2004 semester. It is important to note that all subjects who participated in the study during the first semester of the fall 2003 school year were included in this end-of-year data-gathering, whether or not they actually returned for the second semester (spring 2004), because attrition (the dependent variable) was defined in this study as leaving college anytime before completion of the first semester of their sophomore year.

Four weeks after the start of the sophomore year (fall 2004) this researcher conducted the final data-gathering to determine whether any student: 1. Who pre-registered for the fall 2004 semester did not actually return; 2. Who did not pre-register actually did return; 3. Returned for the sophomore year but left within the first weeks of the semester (fall 2004).

The researcher recorded this data in the SPSS files for later analysis in conjunction with subjects' MBTI and S-A scores.

Data Analysis Procedures

Objective

The objective of this research was to determine whether personality type and degree of self-advocacy are predictive of end-of-year attrition rates for college freshmen with learning disabilities. To ascertain if a relationship existed, the following statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) Graduate Pack for Windows (SPSS 13.0, SPSS Inc., Chicago, IL) and Power Analysis and Sample Size (PASS 2002) programs.
This researcher described the study sample by providing measures of central tendency (mean and median) and dispersion (standard deviation and range) for continuous/ordinal scaled variables in addition to frequency and percent for categorical scaled variables. All of the analyses were two-sided (two-tailed) with a .05 alpha level.

*Measures*

The definitions for the independent and dependent variables are repeated here for the convenience of the reader, in conjunction with the measures and theoretical range of possible values that were used:

*Attrition*

Attrition (dependent variable) is loss of membership/enrollment because of academic dismissal (e.g. low grade point average; non conformance to institutional standards) or voluntary withdrawal (dropout). In this study, attrition is defined as leaving college voluntarily or involuntarily before completion of the first semester sophomore classes. This researcher measured attrition on a nominal scale (dichotomous), four weeks after the fall 2004 began (the beginning of the sophomore year). For example, 0 = the student remained enrolled versus 1 = the student left school.

*Personality Type*

In this study, introversion (independent variable) is defined as having an “attitude that orients attention and energy to the inner world of ideas” rather than the “outer world of people” (Myers, 1987, p. 224). Extraversion is
defined as having an “attitude that orients attention and energy to the “outer world of people” rather than the “the inner world of ideas” (Myers, 1987, p. 224). Personality includes the dichotomous scales of introversion and extraversion on the Myers Briggs Personality Indicator- form G. These were measured on a nominal scale. For example, 0 = Introvert versus 1 = Extrovert.

**Self-Advocacy**

Self-Advocacy (independent variable) is defined as one who speaks on his own behalf. In this study, the researcher used Goldhammer and Brinckerhoff’s definition (1993) of self-advocacy. This definition states, “the ability to recognize and meet the needs specific to one’s disability without compromising the dignity of oneself or others”(p. 1) and includes: 1. Knowing the name and essential details of one’s disability; 2. Being able to explain one’s disability in everyday terms to those who need to know (e.g. professors and service providers); 3. Being able to articulate how the disability manifests itself in one’s personal (academic) strengths and weaknesses; 4. Knowing which accommodations are appropriate for the particular disability (ies) one has and how to request these as reasonable services; 5. Knowing what legal recourse is available and how to obtain assistance when one’s academic needs are not being met. This multifaceted definition expects utilization of these skills, not just having head knowledge of them.
The self-advocacy score was measured on a continuous scale. For example, each score is a number between 0 and 20. Smaller numbers indicated weak self-advocacy skills while larger numbers indicated stronger self-advocacy skills.

Research hypotheses

Three statistical hypotheses were tested in this study. All hypotheses were tested at the $p < 0.05$ alpha level. For the convenience of the reader, the three hypotheses are restated here in conjunction with the procedures that were used to test the hypotheses:

*Hypothesis 1.* The percentage of students that drop out is the same for introverts and extroverts. A comparison of the percentage of dropouts between the introvert and extrovert groups was made using a Fisher’s Exact Test.

*Hypothesis 2.* The average self-advocacy score is the same for those who stay in school and those who drop out. A comparison of the average self-advocacy score between the group that dropped out and the group that did not drop out was made using a two-sample t-test.

*Hypothesis 3.* After adjusting for the effects of personality type, self-advocacy score is not predictive of attrition. Multivariate logistic regression was used to determine if the subjects’ self-advocacy scores predicted attrition for this group, after first adjusting for personality type.
Throughout all of the statistical analyses, the researcher was sensitive to the assumptions for the statistical procedure being used (e.g. normal distributions). Where necessary, either non-parametric techniques or transformation of the variables to achieve normal distributions was used.

For hypothesis 1, a sample size of 20 (6 introverts and 14 extroverts) achieves 80% power to detect a difference of 61% between the null hypothesis that both groups have a drop-out rate of 62% and the alternative hypothesis that the extrovert group has a drop-out rate of 1% using a two-sided Fisher's Exact test with a significance level of .05. If the alternative hypothesis is in the opposite direction, the extroverts have the higher dropout rate, then a sample size of 20 (6 introverts and 14 extroverts) achieves 80% power to detect a difference of 65% between the null hypothesis that both groups have a drop-out rate of 65% and the alternative hypothesis that the introvert group has a drop-out rate of 1% using a two-sided Fisher's Exact test with a significance level of .05.

For hypothesis 2, the theoretical range of the Self-Advocacy score is 0-20. Assuming a normal distribution, 99.7% of the data fall within plus or minus three (3) standard deviations of the mean. Thus, a conservative estimate of the standard deviation is the range divided by 6, which is $20/6 = 3.33$.

A sample size of 20 (3 drop-outs and 17 non-drop-outs) achieves 80% power to detect a difference of 6.1 between the null hypothesis that both
groups have an average Self-Advocacy score of 10 versus the alternative hypothesis that one of the groups has a Self-Advocacy score of 16.1, with estimated group standard deviations of 3.3 and 3.3 and with a significance level (alpha) of .05 using a two-sided two-sample t-test.

For hypothesis 3, a sample size of 20 achieves 80% power at the .05 level of significance to detect an odds ratio of 0.24 attributed to a 1-standard deviation increase in Self-Advocacy score. For example, assuming the standard deviation of the Self-Advocacy score is 3.3, then, if the odds of dropping out given a Self-Advocacy score of 13.3 are 76% less than the odds of dropping out given a Self-Advocacy score of 10, then this study had an 80% chance of detecting this at the .05 level of significance. This calculation assumed that there is a .05 correlation between personality type and Self-Advocacy score.

Conclusion

This chapter explained the process for the solicitation of subjects and how they were qualified for this study and presented the rationale behind how the sampling selection was carried out. Then, a description of the instruments used was given, the proposed research design was discussed, and the procedures used to carry out the study were described. The Fisher's Exact Test, a two-sample t-test, and binomial multivariate logistic regression provided the descriptive statistics necessary to answer the question: Is there a relationship between introversion and non self-advocacy that concomitantly
influences the attrition rates for college freshmen who have learning disabilities? An analysis of the results of these procedures is discussed in Chapter 4.
4. Results

As discussed in Chapter 1, the purpose of this correlational study was to determine whether freshmen students with learning disabilities are more prone to discontinue post-secondary education if they are both introverts and non self-advocators. This researcher analyzed data from volunteer subjects enrolled as freshmen with learning disabilities at the VA-based University and the PA-based College during the Fall 2003 and Spring 2004 semesters. This chapter provides categorical data and descriptive statistics pertinent to the study and presents the results of the three null hypotheses discussed in Chapter 3. The three hypotheses are individually stated along with narrative text, tables, and figures that supported the findings for the particular hypothesis. Then, a statement of acceptance or rejection is given for the hypothesis under consideration. Finally, based on the results of the data related to the hypotheses, a concluding statement answers the research question: Are introversion and non self-advocacy concomitant predictors of end-of-year attrition rates for freshmen with learning disabilities?

Subjects

Age

The individuals (n=20) qualified for participation in this research if they provided documentation of their learning disability, were at least 18 years of age, and were enrolled as a first-time, full-time students at either of the two post-secondary educational sites utilized in this study. Once
qualified, subjects remained in the study if they completed both the Myers Briggs Type Indicator, Form G (MBTI – Form G) and the Tucker Self-Advocacy Tool assessments. Narrative information, frequency tables, bar and pie charts, descriptive statistics, and a histogram assisted in describing the subjects and are provided next.

First, only students with learning disabilities who were already 18 years of age were solicited to participate, which alleviated the need for parental permission otherwise required under the Federal Education Rights and Privacy Act (FERPA). Beyond that consideration, there was no age limit boundary; nevertheless, no one over 20 years of age volunteered as a subject for this research. Since the majority of the subjects were 18-year olds (55%), it can be assumed that most of these students attended their freshmen year of college directly after finishing high school. In addition, since subjects were required to be first time, full-time freshmen, it is possible that older students were less likely to meet that stipulation. Figure 1 graphically depicts the age distribution for these subjects.

**Gender**

In addition, the sample (n=20) for this research revealed a small male majority (55%). According to the U.S. Government Census of 2000, 18-20 year old males in the general population hold a slight majority over their female counterparts; the general population of students with learning disabilities also reflects this majority representation. Figure 2 is a bar chart
that illustrates the gender distribution of subjects in this particular study.
Figure 1. Subjects’ Age at Onset of Research
Figure 2. Subjects' Gender
Credit Load

Although it was not a condition of this research, many of the students in this study carried a limited first semester credit load. In addition, one student carried less than 12 credits in his first semester; his learning disability documentation allowed him to be considered full-time because the nature of his disability required the equivalent time and effort expected with a full-time load in order to complete coursework in a timely manner. Table 1 shows that students who carried no more than 13 credits during their first semester represented 65 percent of the sample (n = 20).

It is important to note that while 17 of the 20 subjects (85%) carried 12-13 credits in the first semester, only 7 of the 20 (35%) did so in the second semester. In addition, one student dropped out of school between the first and second semester as revealed under the “no classes taken” category in Table 2.

Declared Major

All subjects (n=20) in this study were enrolled in four-year degree programs, with 14 majors declared; three subjects had not declared a major by the time this study was completed. Details are included in the chart found in Table 3.
Table 1

*Subjects’ Credit Load: First Semester*

<table>
<thead>
<tr>
<th>Credit Load</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 12 credits</td>
<td>12</td>
<td>60.0</td>
<td>60.0</td>
<td>60.0</td>
</tr>
<tr>
<td>12 - 13 credits</td>
<td>6</td>
<td>30.0</td>
<td>30.0</td>
<td>90.0</td>
</tr>
<tr>
<td>above 13 credits</td>
<td>2</td>
<td>10.0</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 2
*Subjects’ Credit Load: Second Semester*

<table>
<thead>
<tr>
<th>Valid Credit Load</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 12 credits</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>12-13 credits</td>
<td>7</td>
<td>35.0</td>
<td>35.0</td>
<td>40.0</td>
</tr>
<tr>
<td>above 13</td>
<td>12</td>
<td>60.0</td>
<td>60.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 3  
Subjects’ Declared Major

<table>
<thead>
<tr>
<th>Major</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family and Consumer Science</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Sports Management</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Communications</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Business management</td>
<td>2</td>
<td>10.0</td>
<td>10.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>2</td>
<td>10.0</td>
<td>10.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Youth Ministry</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Missions</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>45.0</td>
</tr>
<tr>
<td>Computer Science</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Music Education</td>
<td>2</td>
<td>10.0</td>
<td>10.0</td>
<td>60.0</td>
</tr>
<tr>
<td>Accounting</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>65.0</td>
</tr>
<tr>
<td>Pre-Law</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>75.0</td>
</tr>
<tr>
<td>General ministries</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>80.0</td>
</tr>
<tr>
<td>Graphic Design</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td>85.0</td>
</tr>
<tr>
<td>Undeclared</td>
<td>3</td>
<td>15.0</td>
<td>15.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Independent Variables

*Self-Advocacy*

One independent variable in this research was self-advocacy. To assess the degree of self-advocacy that each subject practiced, each student completed the Tucker Self-Advocacy Tool. The statistical results of the self-advocacy assessment in Table 4 show little difference in the average score (10.3) compared to the median score (10.5), with neither introverts nor extraverts consistently scoring near the higher or lower range of self-advocacy. In fact, these statistics reflected a wide range of scores, (from 4 to 17 out of a possible 20), as indicated by the minimum and maximum statistics provided in this table. Figure 3 graphically depicts the distribution of these self-advocacy scores in histogram format. It is important to note that this range of assessment scores utilized a continuous scale in the statistical procedures completed for this research. It is also important to note that this S-A tool was developed for the purpose of this investigation and has not been through a standardization process. Because of the lack of normative data on this instrument, all results based on this instrument must be viewed with great caution.
Table 4
*Self-Advocacy Mean, Median, Standard Deviation, and Range Scores*

<table>
<thead>
<tr>
<th>S-A Statistics</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Valid</th>
<th>Missing</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0</td>
<td>10.3000</td>
<td>10.500</td>
<td>3.14726</td>
<td>4.00</td>
<td>17.00</td>
</tr>
</tbody>
</table>

Self-Advocacy
Figure 3. Subjects' Mean, Median, Standard Deviation, Range Scores
**Introversion**

The second independent variable in this research is introversion. Therefore, all subjects completed the Myers Briggs Type Indicator - Form G assessment to ascertain students’ proclivity towards introversion or extraversion. The cross-tabulation figures of Table 5 indicate that there were 6 introverts identified in this sample (n = 20). That number represented 30% of the subjects in this study, which corresponds to the 25-33% range observed in the general population of the United States, according to Myers and Briggs.

Unlike the use of continuous scores for the self-advocacy data, the MBTI – Form G score data was dichotomous. Though it is possible to convert the MBTI results to continuous scores, Myers and Briggs echo Jung’s contention that although individuals may occasionally behave in ways that are opposite to their general bent, nevertheless, they will consistently favor one pole (introversion or extraversion) over the other. For that reason, this researcher used dichotomous scores to classify the subjects as either introverted or extraverted.
Table 5

*Returning/Non Returning Subjects’ Personality: Introvert/Extravert*

<table>
<thead>
<tr>
<th>MBTI Personality Type: Introversion vs Extraversion</th>
<th>Comp3 Returned for Sophomore Year</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introvert</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>% within MBTI Personality Type: Introversion vs Extraversion</td>
<td></td>
<td>33.3%</td>
<td>66.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Extravert</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>1</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>% within MBTI Personality Type: Introversion vs Extraversion</td>
<td></td>
<td>7.1%</td>
<td>92.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>% within MBTI Personality Type: Introversion vs Extraversion</td>
<td></td>
<td>15.0%</td>
<td>85.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Hypotheses

With the independent variables (self-advocacy, introversion) determined, the three null hypotheses discussed in Chapter 3 were tested. For the convenience of the reader, each hypothesis is reiterated before reporting the results related to it. All hypotheses were tested at the $p < .05$ alpha levels.

*Hypothesis 1*

The percentage of students that drop out is the same for introverts and extraverts.

Cross-tabulation and Fisher’s Exact Test were used to compare the attrition rates between the two groups (introvert and extravert). Figure 4 is an error bar chart that shows the percentage of students who returned for their sophomore year, separately for the two personality groups (introvert, extravert). The graph shows a higher attrition/lower retention rate for the introvert group.

However, Table 5 (previous page) and Table 6 show that there was not a statistically significant difference in attrition rates between the two groups. The number of students (%) that did not return for the sophomore year was 2 (33.3%) versus 1 (7.1%) for the introvert and extravert groups respectively ($p=2.0$). Likewise, the Fisher’s Exact Test (2 sided) result was not statistically significant, with an outcome of $p = .202$. As a result of this data, there was a failure to reject null hypothesis 1.
Figure 4. Personality - Percentages of Returning Subjects
**Hypothesis 2**

The average self-advocacy score is the same for those who stay in school and those who drop out.

This researcher made a comparison of the average self-advocacy score between the group that dropped out and the group that did not drop out using a two-sample, Independent Samples t-test. Figure 5 is an error bar chart that shows the average self-advocacy score with a 95% confidence interval, separately for introverts and extraverts, for those who did and did not return for the sophomore year. The graph indicates that there was little difference in self-advocacy scores between the two groups. Tables 7 shows a difference of only 0.5 (rounded) between the two groups, which was not statistically significant in the average self-advocacy (S-A) scores between the two groups. The average (SD) rounded S-A score was 10.7 (2.5) versus 10.2 (3.3) for those who did not and did return respectively. Table 8 provides information regarding equality of the two groups’ means, for those who did not and did return respectively, \( t = 0.2, \text{df} = 18, \text{and} \ p = 0.83 \). Based on these results, there was a failure to reject null hypothesis 2.
Figure 5. Self-Advocacy: Percentages of Returning Subjects
Table 7
S-A Mean, Median, Standard Deviation, and Range Scores

<table>
<thead>
<tr>
<th>Self-Advocacy Score</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>10.6667</td>
<td>10.2353</td>
</tr>
<tr>
<td>Lower Bound</td>
<td>4.4151</td>
<td>8.5346</td>
</tr>
<tr>
<td>Upper Bound</td>
<td>16.9183</td>
<td>11.9360</td>
</tr>
<tr>
<td>Median</td>
<td>11.0000</td>
<td>10.0000</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>2.51661</td>
<td>3.30774</td>
</tr>
<tr>
<td>Minimum</td>
<td>8.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>13.00</td>
<td>17.00</td>
</tr>
</tbody>
</table>
Table 8
*Independent Samples t-Test*

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Advocacy Score</td>
<td>.213</td>
<td>18</td>
<td>.833</td>
</tr>
</tbody>
</table>
**Hypothesis 3**

After adjusting for the effects of personality (introversion), self-advocacy score is not predictive of attrition.

Binomial multivariate logistic regression was used to test the effect of self-advocacy score on attrition after adjusting for personality type. Table 9 shows, after statistically removing the effect of personality on attrition rate, that the self-advocacy score was not a statistically significant predictor of attrition ($p = 0.80$). As a result, there was a failure to reject the third null hypothesis.
Table 9
*Adjustment for Personality*

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable(s)</th>
<th>B</th>
<th>S.E</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95.0% EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>mbt(1)</td>
<td>1.88</td>
<td>1.35</td>
<td>1.9</td>
<td>1</td>
<td>.16</td>
<td>0.58</td>
<td>.45</td>
</tr>
<tr>
<td></td>
<td>SaScor</td>
<td></td>
<td>.24</td>
<td>.06</td>
<td>1</td>
<td>.80</td>
<td>.94</td>
<td>.58</td>
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<tr>
<td></td>
<td>Consta</td>
<td>1.33</td>
<td>2.69</td>
<td>.24</td>
<td>1</td>
<td>.62</td>
<td>3.80</td>
<td></td>
</tr>
</tbody>
</table>

*a* Variable(s) entered on step 1:
Conclusion

Failure to reject the three null hypotheses in this study appears to indicate there is not a significant relationship between the independent variables (self-advocacy and introversion) and the dependent variable (attrition) beyond that which may occur by chance. Therefore, the answer to the research question, "Does personality type and degree of self-advocacy predict end-of-year attrition rates for college freshmen with learning disabilities?" appears to be no. Nevertheless, it is important to note that there was a considerably smaller percentage of the introversion group that returned (67%) for the sophomore year when compared with the extroversion group return (93%) rate. Though this percentage was not statistically significant, it warrants additional study, a possibility discussed more fully in Chapter 5.
5. Discussion

As a convenience to the reader, this final chapter of the dissertation begins with a restatement of the research problem as presented in Chapter I. Then, a review of the statistical procedures presented in Chapter III is provided along with a summary of the findings presented in Chapter IV. The two final foci of this chapter are a discussion of the statistical results and suggestions for future studies.

Statement of the Problem

Compared to their cohorts, more learning disabled students drop out of college than their non-disabled peers (Brinckerhoff et al., 2002; Henderson, 1995; U.S. Department of Education (NCES), 2002b; Skinner, 1998). In addition, Skinner (1998), Lock et al., (2001), and others indicate that non-employment of self-advocacy skills may be an element of higher attrition rates for these students. Since self-advocacy requires social interaction, this raises the question of whether personality plays a role in one’s decision to put self-advocacy skills into practice. That is, if students with learning disabilities have introverted personalities that prefer to reflect inwardly and not focus on the “outer world” of people around them (Myers, 1987, p 224), might this proclivity serve to dissuade these students from using the social skills needed to self-advocate? With this in mind, it seemed prudent to investigate whether there is a correlation between introversion and self-advocacy that negatively influences continued matriculation for college
students with learning disabilities. Specifically, then, the intent of this study was to answer the question: Do introversion and non self-advocacy concomitantly predict end-of-year attrition rates for college freshmen with learning disabilities?

Review of the Methodology

As explained in Chapter III, this quantitative investigation was designed to determine whether a relationship exists between introversion and self-advocacy that is predictive of end-of-year attrition rates for college freshmen with learning disabilities. To determine whether there was a correlation, attrition (the dependent variable) was measured on a nominal, dichotomous scale with subjects considered group members based on whether they maintained status as matriculated students or dropped out by the end of their freshmen year. Introversion, an independent variable, also measured on a dichotomous scale, allowed classification of subjects as either introverts or extraverts. In contrast, self-advocacy, the other independent variable in this study, was measured on a continuous scale and therefore had no definitive cut-off score for determining whether subjects were self-advocators or not. Instead, lower scores represent less self-advocating behavior while higher scores indicate behavior that was more self-advocating.

The Statistical Package for the Social Sciences software program (SPSS 13.0, 2003) and Power Analysis and Sample Size 2000 (PASS, 2002) software tested the three hypotheses presented in Chapter 3. The study
sample description used Frequency and percent for categorical variables and measures of central tendency (mean and median) and dispersion (standard deviation and range) for continuous/ordinal scaled variables. Statistical analysis was two-sided (two-tailed) with a .05 alpha level.

The statistical procedures used for each hypothesis were:

- **Hypothesis 1**: Fisher's Exact Test compared the percentage of dropouts of college freshmen with learning disabilities, according to their status as introvert or extravert.

- **Hypothesis 2**: a two-sample independent t-test compared the average self-advocacy scores between the group of college freshmen with learning disabilities that dropped out and the group of college freshmen with learning disabilities that did not drop out.

- **Hypothesis 3**: after first adjusting for personality, binomial multivariate logistic regression was used to determine whether there was a correlation with self-advocacy to predict attrition for college freshmen with learning disabilities.

Throughout the analyses, assumptions for the statistical procedures used (e.g. normal distributions) were noted and where necessary, either non-parametric techniques or transformation of variables was used to achieve normal distributions.
This study utilized convenience (non random) sampling; subjects were freshmen students with documented learning disabilities attending 4-year degree-granting undergraduate programs at two faith-based institutions, one in Virginia, and the other in Pennsylvania. Students were initially qualified for this research if they provided professional documentation of a learning disability, were at least 18 years old, (eliminating the need for parental permission required under FERPA, for those under 18 years of age) and had matriculated as full-time students in the fall of 2003. Of the 24 students deemed eligible from these schools, an aggregate of 20 volunteers qualified as bona fide subjects after completing both the Myers-Briggs Personality Inventory - Form G and the Tucker Self-Advocacy Tool (questionnaire).

Two approaches addressed the small sample size (n = 20):

1. Krejcie and Morgan (1970) confirm that the aggregate number obtained for this research is an appropriate sample size (n) for populations (N) with finite sizes.

2. Sample size justification and power calculations were carried out using Power Analysis and Sample Size (PASS, 2002). The power and effect size for hypotheses 1-3 allowed this investigator to determine that the sample size was adequate to meet the objectives of the study with a .05 alpha level of significance.

Chapter 3 contains a full description of the methodology, including a statement of the null for each hypothesis.
Summary of the Results

Frequency tables for this study reveal important data about the
constituency of the subjects: 95% (19) of the aggregate sample (n = 20) was
between the ages of 18-19 and 55% (11) of the group was male. Though not a
requirement for this research, 65% of the subjects carried a limited load
during their first semester while only 40% did so in their second semester.
There were 6 (30%) introverts in the sample; of those, 66.6 % (4) were male.
Majors were diverse, reflecting 14 fields, but did not include delineation
concerning three students who had not declared majors by the completion of
the data gathering.

Descriptive statistics and a histogram provided valuable information
about the variables in this study, revealing that the mean (SD) self-advocacy
score was 10.3 (3.1) out of a possible 20 points with a range of scores from 4 to
17. A comparison of non returning students revealed an average 10.67 (2.5)
self-advocacy score that was remarkably similar to the average self-advocacy
score 10.23 (3.3) of returning students. The difference in the means of the
non-returning and returning self-advocacy scores was only 0.43%; however,
though non-returning students had a higher self-advocacy mean score than
returnees, the range of self-advocacy scores (from 4-17) and resulting
percentages (20-85%) for the returnees was greater than the range of self-
advocacy scores (8-13) and resulting percentages (40-65%) for the non-
returnees.
Also important to the discussion that follows later in this chapter is the fact that this study failed to reject each of the three null hypotheses, all conducted at a 95% confidence level. First, information gleaned from the cross-tabulation revealed that there was a difference of 26% between the attrition rates for introverts and extraverts. The number (%) of students who were introverts and did not return for their sophomore year was 2 (33.3%) out of a possible 6, versus 1 extraverted student (7.1%) out of a possible 14 ($p = .20$) who did not return. Because Fisher’s Exact Test indicated no statistical significance ($p = .202$), there was a failure to reject the first null hypothesis.

In addition, the Two-Sample Independent t-Test used to compare the self-advocacy (S-A) scores between those who did and did not return for their sophomore year indicated no statistically significant difference in the average S-A scores between the groups. In fact, the average scores (SD) were quite similar: 10.7 (2.5) for those who did not return versus 10.2 (3.3) for those who did return, with $t = 0.21$; df = 18; $p = 0.83$. Again, there was a failure to reject the null hypothesis.

Finally, after statistically adjusting for the effects of personality, the effects of the degree of self-advocacy behavior was not a statistically significant predictor of attrition for college freshmen with learning disabilities ($p = 0.80$). Therefore, there was a failure to reject the final null hypothesis in this study.
Discussion of the Results

Based on the findings of this study, introversion and non self-advocacy do not appear to have a concomitant negative influence on the attrition rates of college freshmen who have learning disabilities. In fact, the principal finding of this research is that the two independent variables (introversion and non self-advocacy) do not explain enough variance in the dependent variable (attrition) to have practical application as predictors of end-of-year attrition rates, despite the 26% difference in dropout/dismissal rate between introverts and extraverts. This was an unexpected outcome in view of the writings of Vogel (1997), Brinckerhoff et al., (2002), Skinner (1998), Lock & Dayton (2001), Janiga & Costenbader (2002), and Pascarella & Terenzini (1991), and others, which clearly aver the necessity of practicing self-advocacy skills by college students with learning disabilities. In addition, according to Myers (1983), introverts prefer a non-interactive social lifestyle; therefore, these students with disabilities may have difficulty utilizing self-advocacy behavior since it requires a level of social interaction. For that reason, it appeared that perhaps introversion and non self-advocacy may have been related variables that could concomitantly influence attrition rates for this special population of college freshmen. However, as mentioned earlier, data from this research does not bear that out. Possible reasons for these unanticipated findings include the research design, the use of an
exceptional population, and the limits of the self-advocacy assessment instrument as discussed in the following paragraphs.

Unanticipated Findings

Research Design

This research was not an experimental study and, therefore, did not include a non-learning disabled control group that could provide comparison statistics regarding whether students without learning disabilities differ significantly from, or are similar to, the statistical findings for their peers with learning disabilities.

Exceptional Population

The hypotheses in this research mandated a research design that stipulated that all subjects be full-time freshmen. The design allowed comparison with information from Tinto’s longitudinal study, which posits that the highest incidence of college attrition occurs between the freshmen and sophomore year, a fact confirmed by government statistics. However, Tinto’s studies do not specifically address college students with learning disabilities (though his more recent writings do address at-risk minority students) so that his research may not have generalizability to the exceptional population (learning disabilities) of this researcher’s investigation.

In addition, because the design of this study used volunteers, it is possible that some subjects who did not choose to participate may have been
reticent on the basis of an introverted personality type; their non-participation may have had an influence on the results of the study, if, for example, more introverts than extraverts chose to be non-participants.

_Sufficiency of the Self-Advocacy Instrument_

Professional, peer-reviewed literature espouses the importance of students with disabilities employing self-advocacy practices to ensure academic success in the college setting. Similar advice also appears routinely in college success course textbooks along with a delineation of self-advocacy skills that freshmen should practice. Information is directed towards both disabled and non-disabled collegians, but when addressing the needs of students with learning disabilities, both peer-reviewed literature and college texts stress the necessity of having knowledge of:

- the specific name of the disability(ies),
- one’s academic strengths and weaknesses associated with the disability,
- how the disability personally affects them as students,
- appropriate academic accommodations for their specific disabilities, and
- what legal assistance is available when appropriate services are unwittingly withheld or purposefully denied.

These components became the basis for the Tucker Self-Advocacy Tool, which this researcher used to assess the self-advocacy knowledge and
practices of her subjects. Disability service providers across the nation reviewed that tool; their concurrence about the content reflected in the assessment was unequivocal. However, for the purposes of this study, in which social interaction was a key aspect of the non self-advocacy and introversion investigation, perhaps some of the self-advocacy assessment questions should have been considered more important than others. In its present format, the attitudinal aspects (i.e. not wanting peers or faculty to know of one’s disability) of the Tucker Self-Advocacy Tool share equal weight with the questions that reflect more socially-interactive aspects (i.e. making appointments to see a professor; asking for tutorial assistance). Assigning more weight to questions that require ongoing social engagement may have yielded information that aligns with current assumptions in self-advocacy literature.

On the other hand, perhaps self-advocacy is not as important a factor in college retention for students with learning disabilities (as it may be for those with other types of disabilities) as the current professional writings suggest. In view of the fact that the Self-Advocacy movement is relatively recent (i.e. early 1990’s), much of the preliminary literature about self-advocacy focused on rectifying inadequate provisions for individuals other than those with learning disabilities (i.e. physical or cognitive). Therefore, it may be reasonable to assume that those working in the LD field have adopted a position about the importance of self-advocacy without a firm foundation of
statistical support. Nevertheless, a fair portion of current literature assumes that self-advocacy, especially as a subset of self-determination, is a necessary component of college success for those with learning disabilities. Hence, another issue of consideration, given the findings of this study, is that perhaps students with learning disabilities do not embrace self-advocacy behaviors with the same determination that students with other types of disabilities do.

Other aspects of this study do not correspond with attrition literature regarding college-age students. For example, Tinto (1987; 1993; 1998; 2001; 2001) and Astin (1984; 1993) indicate that undergraduate engagement in college life influences the decision to remain or drop out. At the same time, Vogel (1997), Gardener & Jewler (2005), Janiga & Costenbader (2002), and others who have written about transition-to-college issues, stress the importance of using self-advocacy to connect with faculty, staff, and other students, so there appears to be a link between Tinto’s interaction and self-advocacy behavior. Yet, this study did not find self-advocacy to be a significant factor in the attrition rates of college students with learning disabilities. Therefore, the self-advocacy question resurfaces: is it as important a link to college retention for the LD student as is currently projected?

Another aspect of Tinto’s integration into school life, as it relates to this study, warrants discussion. Personnel at the two faith-based campuses
in this researcher's investigation monitor all at-risk students through specialized freshmen orientation classes and enrollment in requisite (remedial) coursework if that is necessary. Staffs at both schools are expected to reflect a servant's heart in relating to all students' needs, and in the case of students with disabilities, the schools' policies and procedures include consistent (at least weekly), ongoing interaction with assigned advisors who also serve as their disability service providers and as their freshmen orientation course instructors. Consequently, a great deal of structure and accountability is built into these students' lives. That is not to say that large public universities do not offer similar programs which may also be effective; rather, the point here is that consideration must be given to the possibility that the intensity of oversight is more easily attained on the small private campuses represented in this study as compared to sizeable public universities. Needless to say, these two institutions may have influenced retention by such oversight, effectively encouraging students toward membership in a Tinto-like community, even though the subject(s) may not have been self-directed and therefore, not truly self-advocators. That is a plausible explanation for the generally low self-advocacy scores (10.66 out of 20) and low overall attrition figures (15%) in the present study. If so, these facts have indirectly supported Tinto's findings that community connectedness matters, but these same facts do not undergird self-advocacy assumptions because one cannot establish with certainty that the self-
advocacy behavior of students in this study was self-motivated or that the self-advocacy scores would be lower without the oversight of college personnel. Rather than this researcher's unexpected findings, the data for this study may have otherwise provided expected results if there had not been such oversight. For instance, additional subjects may have dropped out or been dismissed; however, it is not possible to know if that is the case, or if the additional variable (introversion) would also have influenced their leaving.

The relationship of personality to college attrition has some interesting but contrasting facets that affect how one views the results of this researcher's investigation. For instance, Myers & Briggs (1985) describe introverts as those who show a general proclivity towards solitude and the inner world of thoughts, which precludes significant, consistent time spent in interaction with others. Therefore, when applying Tinto's attrition model to college freshmen who choose to avoid ongoing social interaction with their peers and with faculty and staff should be found to drop out more frequently because of failure to connect to the college community. Tinto posits that those who do integrate into their school positively influence the retention rate, so when introverted students do not attach, that should be reflected in higher attrition rates. Unfortunately, however, Tinto's data does not appear to consider personality as a factor in the development of community membership.
When discussing introversion and its relationship to attrition, a defugalty arises with the realization that the same Myers & Briggs (1985) literature mentioned above also states that introverts are more prone to be successful (remain enrolled) in college, where a non-interactive lecture format is the vehicle for disseminating course content and where independent reading and studying is the norm. Myers & Briggs (1962; 1983) explain that this less interactive learning format is agreeable to the introverted personality and therefore posit that fewer introverts than extroverts leave college for this reason, but of course, their discussion of introversion does not include 21st century self-advocacy issues.

The results of this present study indicate that more introverts than extraverts dropped out, but this does not concur with the Myers & Briggs findings. One conceivable explanation is that within the last 10-15 years, more students with LD have been routinely attending 4-year institutions while the Myers & Briggs statistics pre-date this LD attendance phenomenon by several decades. For this reason, the contemporary introverts with learning disabilities in this study may not fit the older, Myers-Briggs model. While there may have been some individuals with LD represented in their early data, participation would have been negligible because learning disabilities (at the college level) were relatively unknown and those who struggled academically in high school would not generally have enrolled in post secondary educational pursuits. With that in mind, this researcher's
speculation regarding the role of introversion as a predictor of attrition for college students with learning disabilities may still be a viable one.

**Future Studies**

Since the overall results of this research were unexpected, several research options may be appropriate in order to corroborate, challenge, and/or expand upon the present findings. Options could include replication of the present study with a larger sample size, implementation of a longitudinal study implementing the current design, or an investigation of this study's variables as singular predictors of attrition for students with learning disabilities. Other options might include standardization of the Tucker Self-Advocacy Tool or replication of past attrition research studies with the inclusion of students who have learning disabilities. Finally, redesigns of the current study could enlarge the age base and/or college year of the studied population, consider the nature of the disability as another independent variable, investigate the transition-to-college component of self-advocacy, or investigate the influence that course load, types of courses taken, and declared major may have on grade point averages and the end-of-year attrition rates for students with learning disabilities. A discussion of these research options follows.
Research Options

Sample Size

The inability of the two independent variables (introversion and non-self-advocacy) in this study to predict group membership (attrition) was unexpected. However, because this current research utilized a small sample size (n = 20), the modest numbers may have compromised the significance of the results by decreasing the possibility of reaching statistical significance. Therefore, replication of the study with a larger sample size may prudently investigate whether results obtained with a larger aggregate are consistent with current literature or concur with the findings of this study.

Sample size/Longitudinal Studies

A second reason for increasing the sample size is the fact that a much smaller percent (66%) of the introverts in this researcher's study returned for their sophomore year, compared to the extraverts (93%) who returned for a second year of schooling. Although not of statistical significance, the 26% difference is notable, nonetheless. Obtaining a larger aggregate, or utilizing a longitudinal study, (increasing the sample size over time) may provide a better understanding of the attrition rate of college freshmen with learning disabilities who have an introverted personality.

Single Independent Variables

Since there does not appear to be research findings that indicate a correlation between self-advocacy and attrition, a set of future studies might
include investigating whether a statistically significant relationship can be established between the single independent variable (self-advocacy) and the dependent variable (attrition), not only in freshmen with learning disabilities, but also in peers without learning disabilities. This would substantiate whether self-advocacy is an important factor in attrition rates, and whether that variable is a predictor for all freshmen students or specifically for those with learning disabilities. Related research with a larger sample size may define a low-end self-advocacy score (or a low-end range of scores) that statistically qualifies it as an accurate predictor of attrition.

Similarly, establishing whether a relationship exists between the single independent variable (introversion) and the dependent variable (attrition), in students with and without learning disabilities may also produce valuable information. The first alternative could establish whether present-day college freshmen who are introverts are indeed more prone to remain in school as the earlier Myers & Briggs (1987) data suggests, or, as this researcher’s study tenuously alludes, whether there is a different attrition rate for subjects with and without learning disabilities. An alternate study could investigate whether there is a particular Myers-Briggs introversion type (for example, ISTJ), which is more definitive in predicting attrition rates for college freshmen with learning disabilities, as compared to using only the introversion/extraversion dichotomies. A third alternative
could investigate whether introversion scores above a particular level are accurate predictors of attrition for students with learning disabilities.

**Redesigns**

Another potential study could establish whether selective items from the total realm of self-advocacy behaviors discussed in current literature collectively characterize the most important aspects of self-advocacy. Standardizing the Tucker Self-Advocacy Tool could accomplish this by identifying the importance of each item and assigning weighted values, and by eliminating items that do not have statistical significance in the academic success (i.e. continued enrollment) of subjects with and without learning disabilities. The redesign of the assessment tool would also allow reinvestigation of this researcher’s study to ascertain whether self-advocacy and introversion may indeed be concomitant predictors of attrition for this special population of college students.

**Replication of Prior Research**

Myers-Briggs literature suggests that introverts attending college are more successful (i.e. remain in school) than extraverts because the method of information delivery (primarily lectures, with little student-teacher interaction), along with independent reading and studying, is more suited to introverts’ personality preferences. However, this researcher’s study assumed that introversion may not have the same (positive) association of continued enrollment for students with learning disabilities that the Myers &
Briggs data indicates. The percentage of introverted students in this study who dropped out (33.3%) was considerably higher (though not significant) than the 7% dropout rate for those classified as extraverts, which does not concur with the Myers-Briggs statistics. This may point to a need for a larger sample size, but may also indicate a need for replication that differentiates introverted LD students from the general college freshmen introverted population.

Many attrition studies were completed before self-advocacy became an important theme in the disabilities field and before learning disabilities were a major concern at the college level. Therefore, it may be both reasonable and profitable to replicate prior studies that investigated students’ commitment to their choice of major, life goals, and self-motivation, since these may indirectly relate to the social aspects of personality and to self-advocacy behavior. Statistical data from studies such as these could confirm or deny particular influences on college attrition rates, and may provide invaluable information if LD and non-LD students were categorized separately in these studies.

Although the present investigation limited subject participation to first time college freshmen, with 100% of the subjects being 18 to 20 years of age at the time the study began, it might be beneficial to replicate the study with college students of all ages who have learning disabilities. A study of this type would allow wider comparison, both of age groupings and of academic
standing (freshmen, sophomore, junior, senior) and provide information regarding potential relationships between self-advocacy and introversion that influences attrition for these students. In other words, it may be important to look to the near future as students with disabilities continue to enter the college arena in greater numbers and attempt to ascertain whether self-advocacy and introversion may be influencers of the attrition rates for these students once they pass the infamous freshmen threshold.

**Specified Learning Disabilities**

This study investigated college attrition rates for freshmen with learning disabilities, without regard for the specific type of disability. Replication with delineation by disability type could investigate whether college freshmen with language-based disability have higher attrition rates than do peers with other types of learning disabilities. One focus of such a study could be to establish whether students who are introverted and have language-based disabilities are doubly jeopardized in their efforts to self-advocate because of the nature of the disability itself.

**Transition to College**

The most recently revised federal IDEA legislation (not fully implemented until July 2005), continues to mandate transition planning for students with disabilities who are pursuing post high school education. Consequently, as students with disabilities continue to attend college in greater numbers, it may be important to ascertain whether the most recent
high school graduates with learning disabilities have a higher success rate for
remaining in college past the freshmen year when compared to students with
learning disabilities of past years who also had training. Government
statistics published in late summer of 2005 could provide substantial data to
make these comparisons. In addition, since IDEA (and its several
reauthorizations) does not outline the specific self-advocacy skills that high
schoolers with disabilities must be taught for successful transition to college,
a qualitative study that investigates: 1. What self-advocacy skills are
presently taught in high schools and why those particular skills are deemed
the most important ones to teach; 2. Which self-advocacy skills the subjects
indicate have been the most effective for them in the college setting; 3.
Whether a student’s willingness to self-advocate diminishes if college
personnel do not assume the high school counselor’s role in overseeing that
self-advocacy behavior is practiced, and 4. What post-secondary institutions
are doing to assist high school disability providers and guidance counselors in
the identification of appropriate college-level self-advocacy skills.

Additional Variables

Finally, an investigation which includes courses taken, declared major,
and credit load, along with the introversion and self-advocacy variables of the
present study, could exam whether a relationship can be shown to exist with
attrition rates for subjects who are learning disabled. One question that
could be investigated is whether students who have not declared a major by
the end of their freshmen year are more prone to drop out of college by the end of their freshmen year than students with learning disabilities who have a declared major. This investigation could include data that would also allow for a comparison of peers without learning disabilities who had/had not declared majors by the end of their freshmen year as well as whether there was a difference in end-of-year retention for subjects who not only had a declared major but also were actually enrolled in at least one course required in that major.

A second aspect could investigate the influence of particular courses and credit loads on grade point averages (GPA's) during their freshmen year for subjects with learning disabilities. Several aspects could be observed for their influence on end-of-year retention/attrition rates: 1. Do students with disabilities who take limited loads earn higher GPA's than their peers with disabilities who do not take limited load (12-13 cr.)? 2. Do more subjects with learning disabilities who carry a limited load remain in school past the freshmen year than peers with learning disabilities who do not carry a limited load? 3. Do students with learning disabilities who are required to take remedial courses earn similar GPA's as their peers with learning disabilities who are not required to take remedial courses? 4. Do as many students with learning disabilities who are required to complete remedial coursework remain enrolled after the freshmen year, compared with cohorts who have learning disabilities but are not required to take remedial courses?
5. Do students with disabilities earn artificially higher GPA's in their freshmen year because required remedial work temporarily displaces some of the more labor-intensive liberal arts courses generally taken in the first year, (and/or do subjects with learning disabilities tend to enroll in less demanding courses such as public speaking), with the end result that these students remain in school beyond the freshmen year? A longitudinal study could investigate whether these same subjects remain after their sophomore year, and whether the second year results bear a closer relationship to Tinto’s first year student.
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Appendix A

Learning Disability Definitions


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

2. Rehabilitation Services Administration (RSA), 1985

A specific learning disability is a disorder in one or more of the central nervous system processes involved in perceiving, understanding, and/or using concepts through verbal (spoken or written) language or nonverbal means. This disorder manifests itself with a deficit in one or more of the following areas: attention, reasoning, processing, memory, communication, reading, writing, spelling, calculation, coordination, social competence, and emotional maturity.
3. The Learning Disabilities Association of America (LDA), 1986

Specific Learning Disabilities is a chronic condition of presumed neurological origin which selectively interferes with the development, integration, and/or demonstration of verbal and/or nonverbal abilities. Specific Learning Disabilities exist as a distinct handicapping condition and varies in its manifestations and in degree of severity. Throughout life, the condition can affect self esteem, education, vocation, socialization, and/or daily living activities.

Note: The Association for Children with Learning Disabilities (ACLD) is now the Learning Disabilities Association of America (LDA).
4. The Interagency Committee on Learning Disabilities (ICLD), 1987

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

5. The National Joint Committee on Learning Disabilities (NJCLD), 1988

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems in self-regulatory behaviors, social perception, and social interaction may exist with
learning disabilities but do not by themselves constitute a learning
disability. Although learning disabilities may occur concomitantly with
other handicapping conditions (for example, sensory impairment,
mental retardation, serious emotional disturbance) or with extrinsic
influences (such as cultural differences, insufficient or inappropriate
instruction), they are not the result of those conditions or influences.
Appendix B

Policy Statement for Documentation of a Learning Disability in Adolescents and Adults, June 1999 (Revised)

Office of Disability Policy
Educational Testing Service
Princeton, NJ 08541

Contents

Documentation Requirements

1. A Qualified Professional Must Conduct the Evaluation
2. Testing Must Be Current
3. Documentation Necessary to Substantiate the Learning Disability Must be Comprehensive
   A. Diagnostic Interview
   B. Assessment
   C. Documentation Must Include a Specific Diagnosis
   D. Actual Test Scores from Standardized Instruments Must be Provided
   E. Each Accommodation Recommended by the Evaluator Must Include a Rationale
4. An Interpretative Summary Must be Provided
5. Confidentiality
Appendix C

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By __________________________
Shirley E. Tucker

Date July 8, 2005
There are no "right" and "wrong" answers to these questions. Your answers will help show how you like to look at things and how you like to go about deciding things. Knowing your own preferences and learning about other people's can help you understand where your special strengths are, what kinds of work you might enjoy, and how people with different preferences can relate to each other and be valuable to society.

Part I: Which Answer Comes Closer to Telling How You Usually Feel or Act?

4. Do you prefer to
   (A) arrange dates, parties, etc., well in advance, or
   (B) be free to do whatever looks like fun when the time comes?

21. Do you usually
   (A) value sentiment more than logic, or
   (B) value logic more than sentiment?

Part II: Which Word in Each Pair Appeals to You More?
   Think about what the words mean, not how they look or sound.

39. (A) systematic
    (B) casual

64. (A) quick
    (B) careful

Part III: Which Answer Comes Closer to Telling How You Usually Feel or Act?

79. Are you
    (A) easy to get to know, or
    (B) hard to get to know?

84. When you start a big project that is due in a week, do you
    (A) take time to list the separate things to be done and the order of doing them, or
    (B) plunge in?
Appendix D

Tucker Self-Advocacy Tool – VA-based University

The University

Student ID # _____

Directions:
Please circle the letter for each question which best indicates how you personally think, feel, or act. There are no right or wrong answers; please just indicate your personal choices.

☐ Read each statement.
☐ Write your responses directly on these pages.

1. I do not care if my college friends know that I have a learning disability.
   a. agree  b. disagree  c. have no opinion

2. I do not want my professors to know that I have a learning disability.
   a. agree  b. disagree  c. have no opinion

3. I would rather have my advisor in the Office of Disabilities Academic Services (ODAS) contact my professors about academic accommodations I need (e.g. distraction free testing room, additional testing time, a reader for exams).
   a. agree  b. disagree

4. Without it being suggested to me, I have explained to professors how my learning differences affect my ability to complete exams and homework.
   a. once  b. 2 -3 times  c. 4 or more times  d. no need to  e. should, but have not

5. Rather than ask my professors for academic assistance if I need help in a course, I just work harder.
   a. agree  b. disagree

6. A professor should be allowed to lower course requirements so that learning disabled students can succeed in the class.
   a. agree  b. disagree  c. not sure if I agree or not

7. I can clearly explain my learning disability to professors using everyday language.
   a. agree  b. disagree  c. not sure if I can or not

8. If a professor asks, I can identify my learning strengths and how to use them to my benefit.
   a. agree  b. disagree  c. not sure if I can or not

9. If a professor asks, I can identify my learning weaknesses, and what help I need in order to overcome them.
   a. agree  b. disagree  c. not sure if I can or not
10. I should be given the same accommodations in college that I had in high school.
   a. agree  
   b. disagree 
   c. not sure if I agree or not 

11. I have the legal right to have whatever accommodations I think might help me succeed academically.
   a. agree  
   b. disagree 
   c. not sure if I agree or not 

12. I feel that asking a professor for academic accommodations is a sign of weakness.
   a. agree  
   b. disagree 
   c. not sure if I agree or not 

13. If I encounter an academic challenge, I ask my parents for help and that usually solves the problem.
   a. agree  
   b. disagree 
   c. sometimes it does, sometimes it doesn’t 

14. I have the right to choose whether or not I want to identify myself as a learning disabled student.
   a. agree 
   b. disagree 
   c. not sure if I agree or not 

15. I have the right to decide whether or not to use the accommodations (such as distraction free testing room, additional time, a reader for exams) that I am permitted to have.
   a. agree  
   b. disagree 
   c. not sure if I agree or not 

16. If I take an exam in class and earn a poor grade, I have the legal right to retake the exam in the Tutoring/Testing Center to earn a better grade.
   a. agree  
   b. disagree 
   c. not sure if I agree or not 

17. I can explain why certain academic subjects are easier for me.
   a. agree  
   b. disagree 
   c. not sure if I can or not 

18. I can explain why some academic subjects are harder for me.
   a. agree  
   b. disagree 
   c. not sure if I can or not 

19. My college grades and information about my learning disability cannot be given to anyone unless I give written consent to release the information.
   a. agree  
   b. disagree 
   c. not sure if this is true or not 

20. I have seen professor(s), without it being suggested to me, for academic help this semester.
    _____ yes, once         _____ yes, 2-3 times         _____ yes, 4 or more times
    _____ no, there was no need  _____ no, but I probably should have
Appendix E
Tucker Self-Advocacy Tool – PA-based College

The College

Directions:
Please circle the letter for each question which best indicates how you personally think, feel, or act. There are no right or wrong answers; please just indicate your personal choices.

☐ Read each statement.
☐ Write your responses directly on these pages.

1. I do not care if my college friends know that I have a learning disability.
   a. agree    b. disagree    c. have no opinion

2. I do not want my professors to know that I have a learning disability.
   a. agree    b. disagree    c. have no opinion

3. I would rather have my advisor in the RAP Center contact my professors about academic accommodations I need (e.g., distraction free testing room, additional testing time, a reader for exams).
   a. agree    b. disagree

4. Without it being suggested to me, I have explained to professors how my learning differences affect my ability to complete exams and homework.
   a. once    b. 2-3 times    c. 4 or more times    d. no need to    e. should, but have not

5. Rather than ask my professors for academic assistance if I need help in a course, I just work harder.
   a. agree    b. disagree

6. A professor should be allowed to lower course requirements so that learning disabled students can succeed in the class.
   a. agree    b. disagree    c. not sure if I agree or not

7. I can clearly explain my learning disability to professors using everyday language.
   a. agree    b. disagree    c. not sure if I can or not

8. If a professor asks, I can identify my learning strengths and how to use them to my benefit.
   a. agree    b. disagree    c. not sure if I can or not

9. If a professor asks, I can identify my learning weaknesses, and what help I need in order to overcome them.
   b. agree    b. disagree    c. not sure if I can or not

Student ID # _____
10. I should be given the same accommodations in college that I had in high school.
   a. agree   b. disagree   c. not sure if I agree or not

11. I have the legal right to have whatever accommodations I think might help me succeed academically.
   a. agree   b. disagree   c. not sure if I agree or not

12. I feel that asking a professor for academic accommodations is a sign of weakness.
   a. agree   b. disagree   c. not sure if I agree or not

13. If I encounter an academic challenge, I ask my parents for help and that usually solves the problem.
   a. agree   b. disagree   c. sometimes it does, sometimes it doesn’t

14. I have the right to choose whether or not I want to identify myself as a learning disabled student.
   a. agree   b. disagree   c. not sure if I agree or not

15. I have the right to decide whether or not to use the accommodations (such as distraction free testing room, additional time, a reader for exams) that I am permitted to have.
   a. agree   b. disagree   c. not sure if I agree or not

16. If I take an exam in class and earn a poor grade, I have the legal right to retake the exam in the RAP Center to earn a better grade.
   a agree   b. disagree   c. not sure if I agree or not

17. I can explain why certain academic subjects are easier for me.
   a. agree   b. disagree   c. not sure if I can or not

18. I can explain why some academic subjects are harder for me.
   a. agree   b. disagree   c. not sure if I can or not

19. My college grades and information about my learning disability cannot be given to anyone unless I give written consent to release the information.
   a. agree   b. disagree   c. not sure if this is true or not

20. I have seen professor(s), without it being suggested to me, for academic help this semester.
    _____ yes, once    _____ yes, 2-3 times    _____ yes, 4 or more times
    _____ no, there was no need _____ no, but I probably should have
Appendix F

Goldhammer and Brinckerhoff Article linking Self-Advocacy Tool questions to the General Data-Gathering Form

<table>
<thead>
<tr>
<th>Goldhammer/Brinckerhoff Article: Knowledge which affects ability to self-advocate</th>
<th>Tucker Self-Advocacy Tool: Questions linked to Goldhammer/Brinckerhoff</th>
<th>General Data Gathering Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows name of disability and can explain how it affects learning</td>
<td>4a, b, c, d; 7a; 8a; 9a; 17a; 18a</td>
<td>students who named a specific disability on the form were asked to provide a written explanation of how it affects their learning</td>
</tr>
<tr>
<td>Has legal understanding</td>
<td>6b; 10b; 11b; 14a; 15a; 16b; 19a</td>
<td></td>
</tr>
<tr>
<td>Who knows about my LD</td>
<td>1a; 2b; 14a; 19a</td>
<td>2a, c, d, f</td>
</tr>
<tr>
<td>Non-self-advocating attitude</td>
<td>3b; 12b</td>
<td>2b, e</td>
</tr>
</tbody>
</table>
Appendix G

University General Data-Gathering Form

I.D. # _______ Gender: male  female  Age: ______ Major: ________________

I am a first time university freshman student:  Yes  No

Number of credits I am taking this semester ___ less than 12  ____ 12-13  ____ above 13

1. I use academic assistance through the Bruckner Learning Center/Testing-Tutoring Center
   ___ at least once a week  ____ 1-2 times a month
   ___ not at all, but maybe I should  ____ not at all; there is no need

2. Have you ever been alarmed at a college grade you received on an assignment or exam? (If no, skip to question #3.) If yes, what did you do about it? (Check all that apply.)
   ___ met with the professor(s) to go over my answers
   ___ asked the my Bruckner Learning Center advisor to talk to my professor(s)
   ___ used a tutor to help me learn the course material
   ___ asked my professor(s) for an accommodation that I could have been using but had not.
   ___ studied harder for the next exam/assignment, without seeing the professor
   ___ studied harder, after seeing the professor or tutor for assistance

3. What accommodations are you presently using? (Check all that apply.) (If none, skip to #4.)
   ___ have exams read aloud to me
   ___ have someone record my exam answers
   ___ shave someone write out my essays as I dictate them
   ___ have someone take class notes
   ___ use tape recorder to tape class lectures
   ___ use Books on Tape
   ___ use distraction-free test room
   ___ use extended time for test taking
   ___ other: ________________________________

4. What is your disability? ________________________________
Appendix H
College General Data-Gathering Form

I.D. # _________ Gender: male female Age: ____ Major: _______________________

I am a first time college freshman student: Yes No

Number of credits I am taking this semester ___ less than 12 ___12-13 ___ above 13

1. I use academic assistance through the RAP Center
   ___ at least once a week
   ___ 1-2 times a month
   ___ not at all, but maybe I should
   ___ not at all; there is no need

2. Have you ever been alarmed at a college grade you received on an assignment or exam? (If no, skip to question #3.) If yes, what did you do about it? (Check all that apply.)
   ___ met with the professor(s) to go over my answers
   ___ asked the my Bruckner Learning Center advisor to talk to my professor(s)
   ___ used a tutor to help me learn the course material
   ___ asked my professor(s) for an accommodation that I could have been using but had not.
   ___ studied harder for the next exam/assignment, without seeing the professor
   ___ studied harder, after seeing the professor or tutor for assistance

3. What accommodations are you presently using? (Check all that apply.) (If none, skip to #4.)
   ___ have exams read aloud to me
   ___ have someone record my exam answers
   ___ shave someone write out my essays as I dictate them
   ___ have someone take class notes
   ___ use tape recorder to tape class lectures
   ___ use Books on Tape
   ___ use distraction-free test room
   ___ use extended time for test taking
   ___ other: _________________________

4. What is your disability? _________________________
Appendix I

College DS Providers: Reviewers of the Tucker Self-Advocacy Tool

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Appendix J

Scripted Solicitation Checklist

**Advisors:**
Please refer to the information on this sheet when soliciting students for the study.

**To preserve the integrity of the study**
- Please do not tell the students the exact name of the study
  
  ...so that they cannot anticipate what they think I would want them to answer.
- Please use “questionnaire” or “research tool” rather than “assessment” or “test”.

**Items to mention to the students:**

The questionnaire asks for personal preferences, school life experiences
  a. No “right” or “wrong” answers
  b. No studying necessary

2. Confidentiality: no Bruckner Learning Center personnel will know your answers
  a. Participants will be assigned a code number and will not use names
  b. Master list of names/code numbers kept in researchers locked file.
  c. The researcher is not a member of the faculty or staff of the University and no files will be kept on its campus.

3. Time: Only 2½ hours of total time (including both semesters)

4. First meeting:
  a. Friday, November _____, during chapel hour
  b. No lost class time
  c. Refreshments
  d. Reader and/or recorder if requested

5. Second Meeting:
  a. Friday, April _____, during meeting with Bruckner advisor
  b. 10-15 minutes
  c. Refreshments
  d. Reader and/or recorder if requested

6. Honor: to be asked, as a freshman, to participate in a research study

7. Summary: a summary of the major findings of the study will be provided for any participant who requests it.

8. Reminders: Students are busy people; reminders about dates/times will be given:
  a. a snail mail letter will be sent one week before the scheduled meeting date.
  b. an e-mail will be sent 2 days before the scheduled meeting date.
  c. a phone call will be made the day before the scheduled meeting date
Appendix K

The University Waiver Agreement

_____ The study has been explained to me and I have had opportunity to ask questions.

_____ I voluntarily consent to participate.

_____ I understand that I may request a reader and/or recorder if I desire. I have checked the appropriate option(s) below:

_____ I would like the questionnaires read to me.

_____ I would like assistance recording my answers on the scantron form

_____ I will not use these services.

_____ I understand that the questionnaires will be completed in a group setting.

_____ I agree not to hold Liberty University, its employees, or the researcher responsible for the outcomes of the study.

_____ I understand that I will be reminded of the meeting times and dates by college mail, e-mail, and by phone.

_____ I understand that I may request a summary of the findings of the study by supplying my mailing address at the bottom of this form.

Signature of student participant: ____________________________________________

Printed name of student participant: __________________________________________

Date: __________________________

College Box # _______ phone# (__) _______ - _________

College e-mail address ____________________________

I would like a summary of the findings of the research sent to me:

Mailing address: _____________________________________________________________

Street  City  State  Zip
Appendix L

The College Waiver Agreement

____ The study has been explained to me and I have had opportunity to ask questions.

____ I voluntarily consent to participate.

____ I understand that I may request a reader and/or recorder if I desire. I have checked the appropriate option(s) below:

____ I would like the questionnaires read to me.

____ I would like assistance recording my answers on the scantron form

____ I will not use these services.

____ I understand that the questionnaires will be completed in a group setting.

____ I agree not to hold Lancaster Bible College, its employees, or the researcher responsible for the outcomes of the study.

____ I understand that I will be reminded of the meeting times and dates by college mail, e-mail, and by phone.

____ I understand that I may request a summary of the findings of the study by supplying my mailing address at the bottom of this form.

Signature of student participant: ________________________________

Printed name of student participant: ________________________________

Date: ______________

College Box # ______ phone# ( ) _______ - ________

College e-mail address ________________________________

I would like a summary of the findings of the research sent to me at my home address:

Mailing address: __________________________________________

Street City State Zip
Appendix M

The University Release of Information Form

Release of Information Form – The University

Name ___________________________ ID # __________

Semester ________ Year ________

I give permission for faculty members of the Bruckner Learning Center to discuss my case for a research study with:

Shirley Tucker, Liberty University doctoral student-researcher

______________________________
Student Signature

______________________________
Date
Appendix N

The College Release of Information Form

Release of Information Form - The College

Name _______________________________  ID # ____________

Semester ________  Year _________

I give permission for the Director of the Reaching Academic Potential Center to use my case for a research study with:

Shirley Tucker, Liberty University doctoral student-researcher

________________________________________  _________________________
Student Signature                      Date
Appendix O

Posted Letter Re: First University Meeting

October 31, 2003

Dear XXXX:

Mr. XXX has informed me that you have agreed to participate in the upcoming research being conducted on the Liberty University campus. As the principal investigator for this study, I want to thank you for serving the college community in this way. The valuable input you offer will provide a better understanding of students who desire to be successful in the college setting.

The information about the meeting is listed below. It has been scheduled for a time when there are not many afternoon classes. However, if you should have a conflict with the meeting time, please let Mr. XXX know right away, so that I can arrange to meet you at another time that day.

- Tuesday, November 11th.
- 3:00 - 4:15 PM
- Room: 128, T.E. Building

I look forward to meeting you next week. In the mean time, if you have any questions, please feel free to talk with Mr. XXX, Mrs. XXX, or Mrs. XXX. Refreshments will be served at this meeting, so if you are ravenously hungry after classes that day, plan to indulge in some before-dinner snacking!

Thank you again for your willingness to give of your time for this important research,

Shirley E. Tucker, Doctoral Candidate
Liberty University Graduate School
Appendix P

Posted Letter Re: First College Meeting

December 1, 2003

Dear XXXX:

Did you have a good Thanksgiving Break? I hope it was restful for you and that you are ready to conquer the last week of classes before taking your final exams.

Thanks again, XXXX, for being willing to participate in my doctoral research study. This note is a quick reminder that we are scheduled to meet tomorrow, Dec. 2nd, from 3:45-5:15 PM. Please come promptly to the RAP Center and then we will go to a quieter room to fill out the questionnaires.

Just a few reminders:

☐ When you arrive you will be assigned a number to use on the questionnaire so that the information you share remains confidential. Your name will not appear on any document.

☐ The questionnaires ask for your preferences — there are no right or wrong answers, just personal choices!
  ☐ Questionnaire #1 takes about 45 minutes; it will be read to you.
  ☐ Questionnaire #2 takes about 10 minutes; you will complete it on your own.

☐ You will receive a personal copy of the results of Questionnaire #1 before you leave for Christmas break. (Because you are a participant in the study, the results are being provided to you free.)


Shirley E. Tucker

Shirley E. Tucker, RAP Director
Liberty University Doctoral Candidate
Appendix Q

E-mail Reminder of First Meeting

11/9/03

Hi (participant’s name),

Thank you for volunteering to participate in my doctoral research project. This email is a quick reminder that we will have a meeting this Tuesday, Nov. 11, at 3:00 P.M. in Room 138 of the Teacher Education Building. Refreshments will be served at the end of the meeting.

I look forward to meeting you then,
Miss Shirley Tucker
Liberty University Doctoral Student
Appendix  R

Phone Message Reminder Re: First Meeting

11/11/03

Good morning (participant),

This is Miss Tucker calling...I am the person in whose doctoral research study you are participating....

This is the promised reminder of today's (Tuesday) meeting. We will meet in the Teacher Education Building, room 138, at 3:00 P.M.

Don't forget, there will be refreshments served! See you at 3:00!
Appendix S

Spring Meeting

April 8, 2004

Dear XXX,

I will be on the Liberty campus next Thursday and Friday to complete additional research for my dissertation. While I am there, I will need you to fill out the second copy of the 5-minute questionnaire you completed last fall. This will give you opportunity to accurately indicate how you feel about your first year in college, not just your first semester.

So I don’t take too much of your personal time during these busy last weeks of classes, I have set up drop-in hours, instead of asking you to come to a formal group meeting time. You can drop by any time during the hours listed below, fill in the form, pick up a free giant-size candy bar of your choice, and be on your way!

**Place:** Tutoring Center  
**Room:** TE 128 A (Private room at the back of the Tutoring Center)  
**Times:**  
Thursday, April 15th – 1:00-4:00 PM  
Friday, April 16th – 9:00-12 noon (excluding chapel hour)  
and 1:00-4:00 PM

I want to thank you again for participating in this research. Your contributions will give academic personnel a better understanding of the issues that freshmen with learning differences face while studying at the college level. I appreciate the time you have already invested, and am truly grateful for your involvement in this final stage of the study.

I look forward to seeing you again in a few short days,

Shirley E. Tucker  
Miss Shirley E. Tucker, Doctoral Candidate  
Liberty University Graduate School

P.S. I will call and email you closer to the time, as a friendly reminder. You can tell me what day and time you plan to come when I call, or, hit “reply” to the email, to let me know that way. See you soon!
Appendix T

Spring Email to Liberty University Participants

Email Spring '04

Good morning!

If you have checked your snail mail recently, you are expecting this reminder notice. If not, and you are wondering why you are receiving this e-mail, please read on...

Your last responsibility as a participant in the research study is to fill out a duplicate copy of the 5-minute questionnaire you completed for me last fall. I will be in the Testing/Tutoring Center this Thursday and Friday, where you may stop by at your convenience to complete the questionnaire. The attachment to this e-mail is a copy of the snail mail text that gives the details you will need and information about a free snack gift.

Also, I have the results of the longer questionnaire you completed for me last semester. I'll have it waiting for you when you come.

I look forward to seeing you soon,

Miss Shirley E. Tucker, Doctoral Student
Liberty University Graduate School
Appendix U

Synonym List for MBTI Administration

Part I
9. Ingenious – inventive, creative
10. conventional – conformist, predictable
18. conspicuous – obvious, noticeable
19. both feet on the ground –
21. sentiment – feeling, emotion

Part II
32: Touching – moving, sad
33: Concept – idea, not concrete substance
34: Analyze – examine, evaluate
35: Spontaneous – spur of the moment, unplanned
38: Foresight – forethought, planning
42: Theory – hypothesis, guess,
43: Determined – unwavering, strong-minded, firm
44: Figurative – not literal, symbolic, allegorical
46: Imaginative – creative, original
48: Make – build, construct, compose
50: Sensible – reasonable
51: Tolerate - put up with
52: Production - construct
57: Leisurly – unhurried, relaxed
58: Abstract - conceptual
60: Wary - untrusting
63: Spire – steeple

Part III
72: enthusiastic
73: unsympathetic, unreasonable
81: embarrassing
96: concentrate; “do yourself justice”
100: superstitious
104: resolutions
107: “are such emotional ‘ups and downs’ as you may feel”...
109: “in your home life, when you come to the end of some undertaking, are you...”
120: length and: “go up like a rocket and come down like a stick”
121: wholeheartedly
123: group undertaking; inefficiency