College success rates of students with Attention Deficit Hyperactivity Disorder
by Vicki Burford Niemantsverdriet

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University
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Abstract:
The problem of this study was to determine if there was a difference in the college success rate of students with Attention Deficit Hyperactivity Disorder (ADHD) who were consistent users of student support services and those students with ADHD who were inconsistent users, with college success rate measured by grade point average. The sample consisted of students, clinically diagnosed with ADHD, who had contacted one of three student support service centers on two different campuses in Montana: (a) student disabilities center, (b) student health center, and/or (c) student counseling center. A mixed methodology was employed. Quantitative data was analyzed about the grade point averages (GPA) of 44 students. That analysis yielded the conclusion that the mean GPA of students who used accommodations consistently did not differ significantly from the mean GPA of students who used those accommodations inconsistently. Qualitative data was gathered from 30 student interviews exploring how they perceived student services as contributing to their success in college. The primary findings of the qualitative data for this sample were that (a) most students had negative school experiences prior to college, (b) the transition to college was made more difficult by the stigma attached to the diagnosis, (c) usually students did not make a contact with a student service center unless they were in crisis. Furthermore students perceived student services as having a role in developing new organizational and study skills, deciding about and obtaining medication, and maximizing their own internal resources. Students contacted the student service center they thought would most help them with the crisis they were experiencing at the time and did not necessarily initiate the contact because they had ADHD. Most saw student services as contributing to the organization of their internal selves, but they integrated those skills and feelings into their daily lives without the continual assistance from a student service center. The most prevalent finding of both the quantitative and qualitative analyses was that almost all of these students used medication and needed a convenient and affordable way in which to be followed medically.
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ATTENTION DEFICIT HYPERACTIVITY DISORDER

by

Vicki Burford Niemantsverdriet

A thesis submitted in partial fulfillment
of the requirements for the degree
of
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Bozeman, Montana

July 1998
APPROVAL

of a thesis submitted by

Vicki Burford Niemantsverdriet

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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This paper is dedicated to my mother who was a quilter and taught me that you piece together your life with the materials you’ve got.
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ABSTRACT

The problem of this study was to determine if there was a difference in the college success rate of students with Attention Deficit Hyperactivity Disorder (ADHD) who were consistent users of student support services and those students with ADHD who were inconsistent users, with college success rate measured by grade point average. The sample consisted of students, clinically diagnosed with ADHD, who had contacted one of three student support service centers on two different campuses in Montana: (a) student disabilities center, (b) student health center, and/or (c) student counseling center. A mixed methodology was employed. Quantitative data was analyzed about the grade point averages (GPA) of 44 students. That analysis yielded the conclusion that the mean GPA of students who used accommodations consistently did not differ significantly from the mean GPA of students who used those accommodations inconsistently. Qualitative data was gathered from 30 student interviews exploring how they perceived student services as contributing to their success in college. The primary findings of the qualitative data for this sample were that (a) most students had negative school experiences prior to college, (b) the transition to college was made more difficult by the stigma attached to the diagnosis, (c) usually students did not make a contact with a student service center unless they were in crisis. Furthermore students perceived student services as having a role in developing new organizational and study skills, deciding about and obtaining medication, and maximizing their own internal resources. Students contacted the student service center they thought would most help them with the crisis they were experiencing at the time and did not necessarily initiate the contact because they had ADHD. Most saw student services as contributing to the organization of their internal selves, but they integrated those skills and feelings into their daily lives without the continual assistance from a student service center. The most prevalent finding of both the quantitative and qualitative analyses was that almost all of these students used medication and needed a convenient and affordable way in which to be followed medically.
CHAPTER 1

INTRODUCTION

At the turn of the twentieth century, it was discovered that there were a number of children who exhibited certain persistent attributes that did not change as they developed and matured. These children exhibited difficulty persisting with tasks that required sustained mental effort, poor organizational skills, poor impulse control, and were sometimes extremely active. They were labeled as having a defect in their moral character (Barkley, 1996). Nearly a century later, we now know that some of those children were probably suffering from a neurological disorder called Attention Deficit Hyperactivity Disorder (ADHD). Only in the past decade has research begun to show that ADHD can continue into adulthood. As the research unfolded, it had rippling effects for adults who pursued a postsecondary education. College and university campuses across the United States have begun to offer a wide range of student services designed to assist those who have this neurological disorder known today to be ADHD.

The services on U.S. campuses for students with ADHD have been created primarily in response to two important statutes as interpreted by the U.S. Department of Education, the Office of Civil Rights, and the courts. The first statute was actually in the form of a memorandum to clarify the status of the diagnosis of ADHD. The Rehabilitation Act of 1973, also known more commonly as the Individuals with Disabilities Education Act (IDEA), was the original statute prohibiting discrimination of persons with disabilities in schools and universities (U.S. Department of Education, 1973). The clarification statement of IDEA as it related to ADHD was issued in 1991 and mandated recognition of ADHD as a condition which could impair one’s learning. This statute granted individuals with ADHD eligibility for educational accommodations
under Section 504 (U.S. Department of Education, 1991). A second statute that propelled university campuses into offering services for students with ADHD was the Americans with Disabilities Act passed in 1990. This act protected the legal rights of postsecondary students at both public and private institutions. Primarily as a result of these two statutes, the number of students with ADHD who are enrolling and returning to college has continued to rise (Richard, 1995).

Historically the diagnosis of ADHD has been researched in two arenas: the medical field and the field of education. Because of recent research by neurologists, psychiatrists and clinical psychologists, ADHD is almost universally accepted as having a biological basis (Barabasz & Barabasz, 1996). ADHD interferes dramatically with an individual being able to learn in a traditional classroom setting. Consequently, the literature regarding educational accommodations has grown exponentially in the past six years since ADHD was recognized as a disabling condition under the IDEA act of 1991 (Goldhammer, 1995). The combination of medical and educational research has led to an interesting collaborative effort on college campuses (Quinn, 1994). Of course the medical treatment remains with a physician, but it is generally accepted that this treatment occurs in concert with other services administered by a student disabilities service (Quinn, 1995). The protocols for this service delivery, mandated by the Americans with Disabilities Act in 1990 for college students with ADHD, are still being developed (Nadeau, 1995).

In summary, ADHD is now recognized as a neurological disorder that can impair a student’s learning. In 1990, ADHD was included in the Americans with Disabilities Act as a disability that needed to be accommodated under federal law. In 1991, ADHD became recognized as a disability under Section 504 of IDEA ensuring the rights of disabled students in public and private institutions. ADHD is a medical disorder, the
symptoms of which are no more evident anywhere than they are in a traditional learning classroom. Research in both the medical and the educational fields have contributed to the growing knowledge of the best practices in teaching college students who have the disorder.

Statement of the Problem

The problem of this study was to determine if there was a difference in the college success rate of students with Attention Deficit Hyperactivity Disorder (ADHD) who were consistent users of student support services and those students with ADHD who were inconsistent users of student support services, with college success rate measured by grade point average.

This investigation also considered such attribute variables as gender, age, class standing, semester credit load, declared major, whether the student had a co-morbid condition, e.g., a learning disability, and whether the student took medication to diminish symptoms of his ADHD. This study was conducted with all students enrolled at Montana State University-Bozeman and Montana State University-Billings during all or some portion of the academic year 1996-97 who had self-disclosed their diagnosis of ADHD to the university. Each student must have had contact with at least one of three services on the campus: the student disabilities center, the student health center, or the counseling center. This study was investigative in nature and was an ex post facto study of those students with ADHD enrolled during the 1996-97 academic year at these two universities.
Need for the Study

This study is intended to contribute to the research literature in the following ways: (a) by providing an investigation of what types of services college students with ADHD are utilizing, (b) by providing information about what types of student support services are associated with a high success rate for this population, and (c) by providing information to student service offices to assist them in their role of aiding the college student with learning problems.

The recognition of ADHD in adults is a relatively recent occurrence (APA, 1980). Most psychiatrists believed that ADHD diminished and eventually disappeared in adolescence (Wender, 1987). It wasn’t until the mid-80’s that it became obvious in longitudinal studies that ADHD was not just a childhood disorder (Klein & Mannuzza, 1991). The longitudinal studies demonstrated the fact that some children who had been diagnosed with ADHD were still manifesting symptoms well into young adulthood and beyond. While the focus of interventions for children with ADHD was on improving their achievement in school, it soon became evident that adults with ADHD manifested problems which interfered with their work and continuing educational endeavors (Faigel, 1995).

Much controversy surrounds the diagnosis of ADHD, primarily regarding three issues. First, there is no definitive medical test for establishing the diagnosis of ADHD (see definition of terms). No technological study or laboratory procedure can demonstrate that one does, in fact, have the disorder. The diagnosis is based solely on a number of clinical criteria related to the age of onset, and the duration and intensity of symptoms. While a plethora of medical research has shown evidence of a neurological
and genetic basis to ADHD, there are those who remain skeptical that the disorder exists (Latham, 1995). Second, much controversy surrounds the widespread use of stimulant medication to treat the disorder (Barkley, 1996). Stimulant treatment can be a highly successful intervention for those persons who do, in fact, have the disorder (Quinn, 1995). Many have argued that the medication is too freely dispensed and is being widely abused (Maryland House of Delegates, 1997). Third, controversy surrounds the increased frequency with which the diagnosis is being made (Barabasz & Barabasz, 1996). Prevalence of the disorder generally ranges around 5% for the general population (Barkley, 1990) and in the range of 50% among clinical referrals (Szatmari, Offord & Boyle, 1989). Some argue that through over-use, the diagnosis has become an excuse for irresponsible and impulsive behavior exhibited by young people (Hartmann, 1993).

All three controversies are played out in the ADHD college population. College students have a higher rate of alcohol and drug abuse than the general population (Duncan, 1993). Couple this with the fact that among adults diagnosed with ADHD, 34% to 50% have histories of alcoholism and/or drug abuse or dependence (Shekim, Asarnow, Hess, Zaucha & Wheeler, 1990), and the practice of prescribing stimulant medications for college students with ADHD becomes controversial. Because there is no definitive test for ADHD, the argument is that college students can present otherwise unverifiable symptoms to a physician or licensed mental health professional in order to be diagnosed with ADHD. The diagnosis can then be an entree for them to obtain stimulant medications, and be granted special accommodation in their college classes or a host of other services (APA, 1997). While abuse of this type isn’t documented in the literature, student disabilities services offices across the country are adopting protocols in an attempt to prevent it from occurring (Quinn, 1995).
Student disability services, student health services, and student counseling centers are in the role of providing services which promote a student's ability to meet his educational goals, and serving as a synergist for academic policies and procedures which affect students who have ADHD (Sandeen, 1996). Sandeen (1996) also contends that student services offices must balance this advocacy role with their primary goal of supporting the academic mission of the institution.

**Definition of Terms**

**Attention Deficit Hyperactivity Disorder.** ADHD is defined by the American Psychiatric Association’s *Diagnostic Statistical Manual of Mental Disorders, 4th Edition* (APA, 1994). Only physicians and appropriate mental health professionals can make the diagnosis. It is not an educational diagnosis, i.e., a teacher is not licensed to diagnose the disorder. It is important in this study that the reader know that a student who receives services on either campus has been diagnosed according to DSM-IV criteria. APA's diagnostic criteria are as follows:

A. Either (1) or (2):

1. six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

   **Inattention**

   (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

   (b) often has difficulty sustaining attention in tasks or play activities

   (c) often does not seem to listen when spoken to directly

   (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

   (e) often has difficulty organizing tasks and activities

   (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

   (g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books or tools)

   (h) often easily distracted by extraneous stimuli

   (i) often forgetful in daily activities
(2) six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

**Hyperactivity**
(a) often fidgets with hands or feet or squirms in seat
(b) often leaves seat in classroom or in other situations in which remaining seated is expected
(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) often has difficulty playing or engaging in leisure activities quietly
(e) is often “on the go” or often acts as if “driven by a motor”
(f) often talks excessively

**Impulsivity**
(g) often blurts out answers before questions have been completed
(h) often has difficulty awaiting turn
(i) often interrupts or intrudes on others (e.g. butts into conversations or games)

B. Some hyperactivity-impulsivity or inattentive symptoms that caused impairment were present before age 7 years.
C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).
D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder). This diagnosis may be of the combined type (both inattention and hyperactivity); of the predominantly inattentive type; or of the predominantly hyperactive-impulsive type; or may also be coded as being “In Partial Remission.” Partial remission means that the individual currently has symptoms but no longer meets full criteria. This note is often added to the diagnosis of ADHD in adults who don’t manifest at least six symptoms of inattention, hyperactivity, or impulsivity.

**Co-morbidity.** This refers to a student with ADHD who also has another psychiatric diagnosis, based on DSM-IV criteria. The additional psychiatric diagnosis would be documented in the student’s file, or would be reported by the student.

**Consistent user of services.** This is a student who avails himself/herself to services
offered by the university’s student disabilities center (SDC) in an on-going and regular fashion. A consistent user is someone who:

1. is seen on an on-going basis at one of the institution’s SDC for one semester or more. These visits would be (a) formal visits for an appointed time and purpose, (b) informal chats, “stopping by,” (c) using the center’s space or equipment to do homework or study on an on-going basis, or (d) to be able to talk informally with a staff person or other students who visit the center.

AND/OR

2. receives an on-going service delivered on a regular basis for the duration of a semester or more because they have been certified by the university’s student disabilities center as having a disability, e.g., they are receiving on-going services for note-taking, test-accommodations, or a distraction-free test-taking environment;

One rater on each campus in the study would determine from the above criteria whether the student would be categorized as a consistent user of services. In addition, in the follow-up interviews, a student will be asked to describe what type of service he/she has used, the frequency of that use, and the context of his/her use (i.e. informal, formal, brief, sustained, etc.)

Disorder. This refers to a cluster of symptoms which occur over time in a consistent pattern.

Full time student. A student who is enrolled at the university and is registered for 12 or more semester credit hours.

Inconsistent user of services. A student who makes contact with the student disabilities center (SDC) in order to address issues of their ADHD but has little or no contact after the initial inquiry would be considered an inconsistent utilizer of services. This student had:

1. one initial contact, OR
2. inquired about the service but would not have made use of it, OR
3. inquired about the service but did not follow through on providing the service center with necessary documentation as evidence that they have been diagnosed with the disorder, OR
4. not visited the center in a formal or informal manner in order to see staff or other students with ADHD.

One rater on each campus in the study determined from the above criteria if a student was categorized as an inconsistent use of service. In addition, in the follow-up interviews, students were asked to describe what type of service they used, the frequency of that use, and the context of their use (i.e. informal, formal, brief, sustained, etc.).

Learning Disability. This refers to an educational diagnosis made after an individual has
completed a battery of tests to measure whether there is a significant difference between their ability to learn as measured by a test of intelligence quotient and their achievement in school or college as measured by appropriate instruments generally accepted in the field of education.

**Nontraditional student.** This refers to a college student who is 25 years old or older.

**Part-time student.** A student who is registered for less than 12 semester credit hours.

**Private services.** Services, such as tutoring, counseling, clinic visits, or medical care which are arranged by the student independently of the university and for which the student himself/herself is responsible for payment.

**Schedule II Drug.** A medication prescribed by a physician which requires the patient to be seen physically by the physician. In addition, the prescription for these drugs must be in written form and cannot be called in to a pharmacy to be filled. Also the prescription is not refillable. Ritalin and Dexedrine which are commonly used to treat patients with ADHD are both Schedule II drugs.

**Semester Credit Load.** The number of credit hours that a student carries during a term.

**Stop out.** A student who was enrolled in any university or institution of higher learning, but was not continuously enrolled for two or more consecutive academic terms.

**Student Resource Center.** In the literature, this service is often referred to as student disabilities services.

**Traditional student.** This refers to a college student who is less than 25 years of age.
Questions to be Answered

(1) What types of accommodations are used most frequently by students with ADHD?

(2) Is there a significant difference between the mean GPA of students who utilize accommodations consistently and the mean GPA of students who utilize accommodations inconsistently?

(3) Are there differences in the service utilization rates when categorized by age (traditional or nontraditional), gender, and class standing (F, S, J, Sr)?

(4) Do the rate of service use and the student’s use of medication interact on college GPA?

(5) What proportion of variability in college GPA can be explained by semester credit load, use of medication, and rate of service utilization?

(6) How do students perceive the student services they receive as contributing to their college success?

(7) What are the reasons students who self-report they have ADHD do not seek campus services?

Literature Review

The disorder we refer to today as Attention Deficit Hyperactivity Disorder (ADHD) first appeared in the literature in 1902 and was described as a defect in one’s moral character (Barkley, 1996). Barkley (1996) chronicled the research over the past century by describing the evolution of nomenclature for the disorder. His account reflected the conception held for nearly four decades that the behavior was a result of a
physical insult to the brain, e.g., post-encephalitic, or brain injury. From the 1950's through the 1970's, children who manifested impulsivity and hyperactivity were considered to have some minimal brain damage or dysfunction. It was during the 1960's that the term hyperactivity came to be associated with this particular cluster of symptoms. In 1980 a manual used to define and categorize the criteria for mental disorders (American Psychiatric Association, 1980) included for the first time the diagnosis of Attention Deficit Disorder. Since then two more editions of the manual have been published and each reflected several terminology and criteria changes (American Psychiatric Association, 1987; American Psychiatric Association, 1994). As currently defined by APA, the disorder is the measure of the intensity, persistence, and patterning of three particular characteristics: (1) inattention (2) hyperactivity, and (3) impulsivity (Wender, 1987; see also APA, 1994).

Historically ADHD has been considered to be a childhood disorder (Javorsky, 1994). Much of the literature has focused on the management of ADHD in children because it was thought for so long that it was a disorder confined to children. Particular attention has been placed on the management of the child with ADHD in the classroom (Zentall, 1993). There is a virtual plethora of recent articles and books written about the educational challenges of children with ADHD in elementary and secondary educational settings (Barkley, 1990). Longitudinal studies have now provided evidence that ADHD can persist into adolescence and adulthood (Klein, 1991).

In addition to the literature base about ADHD in the field of education, there is a parallel literature base in the field of medicine, specifically in neurology and psychiatry.
There have been numerous studies uncovering the genetic basis for ADHD, as well as discussing the use of medication in treating the disorder (Barkley, 1990). Barkley also stated that in the past 90 years, ADHD has been the focus of over 2,000 research studies (1990). A recent symposium on ADHD at the American Psychiatric Association’s annual conference (San Diego, 1997) focused on the recognition of ADHD as a condition which can persist into adulthood and how treatment considerations might be different for adults than for children. At this symposium Dr. Dennis Charney (1997) stated that there is relatively little research on ADHD in adolescence and adults and yet, given the rapidly expanding knowledge of brain systems involved in learning, memory, and attention, the field of medicine is on the threshold of important new discoveries in diagnosing and treating adults with ADHD.

Castellanos (1997) summarized some of the research about the neurological etiology of ADHD. It appears that there may be an excess of dopamine in the brain of persons with ADHD. Dopamine is a neurotransmitter, or brain messenger. High levels of dopamine metabolites are associated with hyperactivity. This excess causes a dysfunction of the “brain’s braking system” (p. 34). The brain’s braking system refers to the executive functions of the brain that help individuals delay their responses to a situation long enough to stop and think about what they are about to do. These functions also help with the abilities to prioritize, organize, and strategize.

The advances in research in both the medical and educational fields have played a major role in another development in relation to ADHD. A major impetus for research of ADHD in college populations came in 1991 when the U.S. Department of Education
recognized ADHD as a handicapping condition under Section 504 of the Rehabilitation Act of 1973 (U.S. Department of Education, 1991). This act protected the rights of students with handicaps to appropriate and reasonable accommodations at the elementary, secondary, and postsecondary levels. As more kindergarten-through-twelfth-grade students with ADHD received educational and medical treatment, more of them matriculated to college (Javorsky & Gussin, 1994). As the research began to unfold and evidence of the disorder was found in adolescents and adults, the literature began to focus on appropriate interventions at the postsecondary level (Richard, 1995).

The interventions are customized for each person, but several are regarded as customary protocol for treating adults with ADHD: (a) medication management for those who use medication, (b) psychoeducation, (c) environmental engineering, and (d) various types of therapy (Ratey, Hallowell, & Miller, 1997). Medication management is conducted by a physician who monitors the patient’s functioning and possible side effects of the medication. Psychoeducation refers to educating the person with ADHD about the disorder via therapeutic sessions, books, articles, and other media. A national organization, Children and Adults with Attention Deficit Disorder (CHADD), has local chapters and publishes a quarterly magazine for persons with ADHD to keep them informed of new research about ADHD. CHADD is extremely instrumental in providing psychoeducation of persons with ADHD. Ratey et al (1997) referred to environmental engineering as those things that help the individual structure and organize their environment, e.g. daily planners, lists, tape recorders, structured work/study areas, and built-in routines. Therapy for persons with ADHD, according to Ratey et al, can
sometimes take a different bent than the usual insight-oriented, open-ended therapeutic hour used in conventional psychotherapy. Just as their lives need more structure, the therapy for persons with ADHD is often more structured. Often times in treating adults with ADHD, the therapist is more directive, asking practical questions, and acting almost as a coach. Ratey et al (1997) describe coaching as “providing external guidance, reminding them of consequences of impulsive behaviors and other self-defeating patterns” (p. 586). Eventually someone else may act as their coach, or the persons may learn to coach themselves. Saravia-Cornelius (1994) also talked about this in her thesis where students developed ways to cope with their impulsivity and inattentiveness, e.g. not doing anything before finishing their school work, and rewarding themselves for goal accomplishment. The last type of therapy that Ratey et al discussed was long-term therapy to help the persons rebuild their character and “remedy their maladaptive coping styles and self-defeating behaviors” (1997, p. 586).

It has been in the past decade that research has begun to show the long-term effects of ADHD as they relate to educational levels. The prevalence of ADHD among the college population has not been reliably determined, though most authors cited Barkley’s work (1993) which concluded that the college population prevalence was slightly less than that of the general population i.e., 1% to 3% as compared to 3% to 5%. Mannuzza (1993) and Weiss et al (1986) both concurred that adults with ADHD achieved less formal education than did control groups. Mannuzza (1993) found that twelve percent of those adults with ADHD had obtained a bachelor’s degree or higher versus almost half of the control group (p< .0001). In the past 5 to 8 years, a literature base has
begun to emerge addressing students with ADHD who attend college, although most authors agree that there is a general paucity of research regarding the college population with ADHD (Sharma, 1997; Bramer, 1994; St. James, 1995). Sharma (1997) contends that educators have had little basis for addressing the needs of students with ADHD in higher education and that andragogical assumptions have had to be drawn from pedagogical literature.

Some research has focused on the transition process from high school to higher education and ways to prepare oneself for the demands of postsecondary settings (Quinn, 1994; Brinckerhoff, 1996; Halperin, Yovanoff, Doren & Benz, 1995). Other authors have focused on the role of self-advocacy for college students with ADHD (Bramer, 1996). For the most part, colleges have accommodated students with ADHD by extending or adapting the programs that were offered to students with learning disabilities (Richard, 1995; Javorsky & Gussin, 1994). It is estimated that about 25% of students with a primary diagnosis of ADHD also have a learning disability (Semrud-Clikeman et al, 1991; Barkley, 1996). Many of the learning problems of students with ADHD mimic the problems of those students with a learning disability, i.e., failure to organize, lack of persistence, coordination problems, and failure to achieve in spite of average or above average intelligence (Wender, 1987). Barkley (1996) particularly emphasizes that ADHD is a problem with persistence. Because the learning problems of students with ADHD are similar to those of students with a learning disability, many of the services offered to them on college campuses are similar: tutors, readers, additional academic advising, reduced course loads, computer labs, and study skills classes (Keim, McWhirter
& Bernstein, 1996). While these same authors (1996) looked primarily at the academic success of college students with a learning disability, they recapitulate the need for further study of the relationship between the types of services offered to students with learning difficulties and the actual success of these students in college.

Another issue addressed in recent literature about college students with ADHD emphasized unrecognized or previously undiagnosed ADHD (Heiligenstein & Keeling, 1995). These authors contend that students who had previously compensated for educational difficulties with the support and structure offered by their families often found themselves unable to meet the organizational demands of college. These students turn to student support services asking for help in making their way through the academic maze. Most authors agree that diagnosing and treating ADHD in college students can be accomplished best with a combination of tools: a comprehensive interview with an appropriate professional, questionnaires, formal academic testing, and corroborative information verifying an educational history which reflects the condition, even if it has not been formally diagnosed previously (Quinn, 1995; Heiligenstein & Keeling, 1995; Nadeau, 1995; Faigel, 1995; Ward, Wender & Reimherr, 1993).

In relation to this, an article was published while this current study was underway. In January, 1998, Heiligenstein, Conyers, Berns, and Smith published their study of 468 students assessed for symptoms of ADHD. According to the present DSM-IV criteria, a person must exhibit 6 out of 9 inattention symptoms, and 6 out of 9 hyperactive-impulsive symptoms in order to be diagnosed with ADHD (See Definition of Terms). These authors suggested cutoff scores of 4 rather than 6 symptoms in each category in
order to make the diagnosis in college students. In other words, they found that the degree of ADHD symptoms within college students was relatively modest, and they suggested lowering the thresholds for classifying ADHD in college students. This reaffirms the work done by Dr. Barkley who contended that DSM-IV criteria was developed for children and failed to recognize that the condition continued into adulthood (1996).

Other recent literature that has emerged about college students with ADHD deals with the psychosocial stressors of the condition. Dooling-Litfin (1996) examined the emotional distress in college students with ADHD. The results of that study showed that emotional distress, especially hostility, obsessive-compulsive, and anxiety scales were significantly related to the presence of ADHD symptoms. Sharma (1997) identified the differences in personality types and learning styles of college students with ADHD in an effort to examine those two entities in relation to learning strategies.

In a study of coping strategies in college students with ADHD, one author examined how the prevalence of ADHD symptomatology affected students’ use of college support services (Saravia-Cornelius, 1994). Saravia-Cornelius found that the high ADHD prevalence group used the counseling center more often than did the low prevalence group, and the low prevalence group used the career center more. Saravia-Cornelius had 71 subjects in her study, however, only five had been clinically diagnosed with the disorder. She suggested that future studies be conducted with students who had been formally diagnosed with ADHD.
Another author found in her qualitative study that most college students with ADHD did not seek out support services or did not know they existed (Bramer, 1994). She used case analyses of the college experience of seven adults. None of her subjects were in college at the time that she interviewed them and she felt her data was limited by the time lapse between the subject’s college experience and the time of data collection. She suggested using more subjects, using subjects who were diagnosed by more than one clinician, and using subjects who attended same or similar types of institutions.

Kathleen Nadeau in her book (1994) about survival skills for college students with ADHD or a learning disability gave this advice: (a) choose your college carefully, paying attention to math, foreign language, and senior thesis/project requirements; (b) use available accommodations and strategies, such as extended test taking time, priority registration, note-takers, and making sure professors know who you are; (c) get academic counseling and career guidance from someone who is familiar with ADHD; (d) seek out medical consultation, counseling, and tutoring; and (e) learn to help yourself by developing skills for studying, organizing, managing your time, and self-advocacy.

In summary, there is evidence that ADHD is a chronic condition no longer restricted to childhood. In addition, more students with learning problems are making their way to college as they have received earlier interventions both in the education and medical arenas. The symptoms of ADHD closely approximate the learning problems experienced by students with a learning disability, and in fact, 25% of students with ADHD have a co-morbid condition of a learning disability. On most campuses, the services offered to college students with ADHD are of a similar nature to those services
offered to students with a learning disability. College students with ADHD who seek help are usually offered a customized array of services which could include medication management; accommodations such as time-and-a-half for taking exams and priority registration; academic and career counseling; tutoring; therapy; and skill development for studying, time management, and self-advocacy.
CHAPTER 2

METHODOLOGY

Theoretical Framework

The profession of student services has an interdisciplinary framework for its theory base. Student services in higher education draws its knowledge generally from anthropology, sociology, psychology, business management, and education (Komives, Dudley, & Asso., 1996). In this particular study of college students with ADHD, research from the field of medicine will also be used. There are three primary theories that form the basis for this study:

(a) the research on ADHD in adults and especially the writings of R. Barkley;
(b) college student development theory as pioneered by A.W. Chickering, and advanced by P.M. King; and
(c) the concepts developed by L. Baird as a result of the research on higher education student populations done by Pascarella & Terenzini (1991) and Astin (1993).

Barkley (1996) discusses the diagnosis of ADHD as being focused on the wrong parameters. Rather than seeing inattention as the primary symptom, Barkley views the disorder as a problem with self-regulation, impaired cross-temporal organization of behavior, impaired direction of behavior towards the future, and diminished social effectiveness and adaptation. Impairment of these functions translates into learning problems due to lack of organization, lack of working memory, and lack of persistence for students with ADHD who matriculate.
In 1993 Chickering and Reisser described seven vectors of development through which a college student moves. They are as follows: (a) developing competence; (b) managing emotions; (c) moving through autonomy toward interdependence; (d) developing mature interpersonal relationships; (e) establishing identity; (f) developing purpose; and (g) developing integrity (taken from Evans, 1996). This current study of college students with ADHD lies primarily in the first vector, developing competence intellectually, and the third vector, moving through autonomy toward interdependence. The researcher is grounded in the humanist orientation to higher education in which learning focuses on the integration of physical, cognitive, affective, and spiritual dimensions of the learner. One’s inner and outer worlds become connected in this process of integration. King and Magolda illustrate this process in their article about a developmental perspective on learning (1996). They suggest that:

People not only organize but reorganize what and how they know. . . . How individuals construct knowledge and use their knowledge is closely tied to their sense of self. . . . The process by which individuals attempt to make meaning of their experiences improves in a developmentally related fashion over time. . . . Educators who endorse these (above) principles will use a broad definition of learning that encompasses both cognitive and personal development and that is sensitive to the developmental issues underlying the process of education (pp.165-167).

A third theory base, drawn from research on student outcomes, is described by Leonard Baird (1996). He integrates the work done by Pascarella & Terenzini (1991), Astin (1993), King (1994), and Boyer (1987) to propose some new agendas for the profession of student services. Baird describes four reconceptualizations of the traditional view of how college students grow and learn, and the subsequent consequences for the practice of student services. Baird’s reconceptualizations are as follows: a) student populations are viewed as diverse; b) institutions of higher education are viewed as
dynamic and having a multitude of environments; c) student outcomes are viewed as being individualized; and d) the understanding of students and the culture of an institution is reached through both quantitative and qualitative research. It is the intent of this research to provide the field of student services with information which will identify service utilization patterns and provide some measure of the association between services and degree of success by students with ADHD.

Population and Sampling Procedure

The population for this study was comprised of all full-time students who have ADHD and were enrolled as undergraduates at Montana State University-Bozeman and Montana State University-Billings during the 1996-97 academic year. The sample was comprised of those students with ADHD who self-disclosed to either the student disabilities center, the student health service, or the student counseling center that they have the disorder.

This study controlled for six contaminating or extraneous variables. These variables included: (a) students who self-disclosed that they have ADHD but had no documentation of the disorder, (b) co-morbidity of other psychiatric disorders, (c) the fact that more males are diagnosed with ADHD than are females, (d) local history, (e) differences in GPA in different disciplines/colleges, and (f) number of earned credit hours.

The first potentially confounding variable in this study were those students who reported themselves to have ADHD when they had not been diagnosed by an appropriate professional (APA, 1997). Some authors have developed self-check lists
which are designed to help adults decide if they may have the symptoms of ADHD (Weiss, 1992; Barkley, 1991; Copeland, 1989). These checklists are to be used as a screening tool, much like a blood pressure check might alert one to the need for further medical evaluation. Only those students who have had contact with one of the three student service centers (student disability services, counseling center, or student health center) were included because those centers either have professionals who are qualified to make the diagnosis or have verification from a qualified professional as evidence of the student’s ADHD. Furthermore, special accommodations, such as extended test-taking time and note-taking, can be granted only if a student has a certification card issued by the student disabilities center. This card can be used by a student to negotiate the appropriate accommodations for a particular course. Saravia-Cornelius had 71 subjects in her study of college students, but only five of them had been clinically diagnosed as having ADHD. Her recommendations for further study included using a sample of adults who had been formally diagnosed with the disorder. That suggestion was integrated into the current study. Thus, to control for the extraneous variable that students may be “self-diagnosed,” this study collected data only on those students who had been diagnosed as having ADHD by a licensed and qualified professional.

A second potentially contaminating variable was the co-morbidity of other psychiatric disorders, such as depression or anxiety. It is estimated that up to 30% of people with ADHD may have an anxiety disorder or depression as well (Barkley, 1996; Biederman, Newcorn, & Sprich, 1991; Pliszka, 1992). While anxiety disorders are generally regarded as a separate disorder, there may be some correlation between
depression and ADHD (Barkley, 1996). Barkley and others believe that a trail of misjudgments and poor school performance can lead to depression in some adults. To control for psychiatric disorders which were concomitant with ADHD, this study asked students to self-report whether they were receiving treatment for a co-morbid psychiatric condition. It follows that a student who has a major depression seeks out different services than a student who has trouble learning because of ADHD. Ferreting out which condition was more disabling for those students who had a co-morbid diagnosis was a clinical judgment in many cases. The best control this study had for this variable was to note the co-morbidity without any determination of which condition was more disabling. In the follow up interview, students with co-morbidity were asked in which domain they perceived their greatest challenges.

Another extraneous variable was the fact that males outnumber females by 3:1 in the general ADHD population and anywhere from 6:1 to 9:1 in a clinical population (Barkley, 1996). To control for this difference in prevalence, gender was built into the research as an independent variable.

An additional potentially contaminating variable was that of local history on one of the campuses in the study. In the 1996-97 academic year, the student health service on one campus employed a psychiatrist who saw students for ADHD and prescribed medication. That psychiatrist was employed for only the first semester of the 1996-97 academic year and left the campus mid-year. The possibility existed that more students were identified as having ADHD and prescribed medication when a psychiatrist was available on campus. In addition, that psychiatrist did not always require students to
produce corroborative evidence of the disorder from their childhood, a necessary criteria for the diagnosis according to the DSM-IV. To control for this variable of local history, an examination of the raw numbers of students who were newly diagnosed with ADHD during the 1996-97 academic year was made. Another way to control for this local history was to include another university, Montana State University-Billings, in the study which did not employ a psychiatrist.

The researcher also considered using a different academic year in which to retrospectively examine the same data, however, because the methodology called for both quantitative and qualitative data, it was decided that the more recent the college experience of the students, the more accurate the qualitative data would be. Bramer (1994) wrote a thesis using case analyses of the college experiences of seven adults diagnosed with ADHD. None of her subjects were in college at the time that she interviewed them and she felt her data was limited by the time lapse between the subject’s college experience and the time of data collection. She suggested using more subjects, using subjects who were diagnosed by more than one clinician, and using subjects who attended same or similar types of institutions. Bramer’s suggestions were integrated into the current study.

The contaminating variable of the differences in average GPAs among disciplines/colleges is one that was taken into account. The researcher obtained the students’ majors from the aggregate information provided by the student service centers and during the follow up interview. In an examination of those lists, any clusters of disciplines/colleges that emerged were noted.
The last confounding variable that was controlled for was that of credit load. Both campuses are on the semester system. A full time undergraduate student is one who carries 12 or more credits in a semester. A part-time student is one that carries less than 12 credits in a semester. This variable was controlled for by including it as an independent variable. The decision was made to use earned credit hours, rather than attempted credit hours because a student’s GPA is based on earned credit hours.

**Questions and Null Hypotheses**

1. What types of services do students who have ADHD utilize?
2. The mean GPA of students who are consistent utilizers of services does not differ significantly from the mean GPA of those students who are inconsistent utilizers.
3. There are no differences in service utilization rates when categorized by age (traditional or nontraditional), gender, and class standing (F,S,J,Sr).
4. The rate of service utilization and the student’s use of medication do not interact on college GPA.
5. What proportion of the variability in college GPA can be explained by rate of service utilization, use of medication, and semester credit load?
6. How do students perceive the student services they receive as contributing to their college success?
7. What are the reasons students who self-report they have ADHD do not seek campus services?
Explanation of Investigative Categories

The investigation of the success of ADHD students enrolled during the 1996-97 academic year at two Montana State University campuses was conducted on a number of independent variables. These included: a) age: non-traditional student coded as 1 and traditional student coded as 0; b) gender: males coded as 1 and females coded as 0; c) class standing: coded as 0 for lower division for freshmen and sophomores, and coded as 1 for upper division for juniors and seniors; d) rate of service utilization: consistent coded as 1, and inconsistent coded as 0; e) the presence or absence of a co-morbid condition: presence coded as 1, and absence coded as 0; f) whether or not the student takes medication for his ADHD: takes medication coded as 1, and takes no medication coded as 0, and g) course credit load: full-time student coded as 1, and part-time student coded as 0.

Methods of Data Collection

The data for this investigation was collected using three methods: (a) aggregate information from three student service centers (student disabilities center, student counseling center, and student health center); (b) individual record reviews conducted by the three student service centers; and (c) student interviews. Data was collected in the form of aggregate numbers from the student disabilities center, the student counseling center, and the student health service at both campuses for the academic year 1996-97. This method supplied such data as the number of students with ADHD who used the service that year, identification of the most frequently used services, and the mean GPA
of students with ADHD. The aggregate numbers were broken down by gender, age, and class standing.

Individual record reviews were conducted by the student resource center which provided information on the rate of utilization by an individual, the student’s GPA, whether he/she was a full-time or part-time student, whether or not he/she had a co-morbid condition, whether or not he/she took medication, and whether he/she was a consistent or inconsistent user of services.

The last method of data collection was a structured interview. Qualitative interviewing can take many forms. For purposes of this study, the general interview guide approach was utilized (Patton, 1990, p. 280-290). The interview guide is a list of questions or issues that is explored with the student. This guide insured that basically the same information was obtained from a number of people covering the same material. In the interview guide model, the interviewer remained free to ask additional questions spontaneously, and to use a conversational style, however, the focus of the interview was predetermined. The interview for this study took place only after the student agreed for the service center to release his or her name to the researcher. Each service center was asked to distribute a letter to the students they serve who have ADHD. The letter explained the purpose of the investigative research and requested that the student allow his or her name to be released to the researcher for a follow-up interview. Whenever possible, the follow-up interview was conducted in person, using the interview format (See Appendix B, Questionnaire A). Because some of the interviewees had graduated, transferred, or dropped out, some interviews had to be conducted by phone. This was done only if it was not possible to conduct the interview in person. There is some support in the literature to gather data under whatever circumstances present themselves (Patton, 1990, p. 333-335). The interview allowed the researcher to
triangulate the data by verifying information already collected on the student, e.g. GPA, use of other services, and rate of service utilization (See Appendix A, Consent Form C). The interview also served to gather data that wasn’t recorded in the student disabilities center’s records. This included the students’ perceptions of their use of student services, their understanding of what contributes towards their college success, and also why some students with ADHD chose not to use services.

**Description of sample**

Those students included in the study had a clinical diagnosis of ADHD and had sought the help of at least one of three campus service centers: the student disabilities office, the student health service, or the student counseling center. This study was investigative in nature and exemplified an ex post facto study of undergraduate students with ADHD enrolled at Montana State University-Bozeman and Montana State University-Billings during the 1996-1997 academic year.

Although the two campuses are part of the same university system, they have some divergent characteristics. The following table illustrates the comparison:
Table 1. Comparison of MSU-Bozeman and MSU-Billings General Population

<table>
<thead>
<tr>
<th></th>
<th>MSU-Bozeman</th>
<th>MSU-Billings</th>
</tr>
</thead>
<tbody>
<tr>
<td>'96-'97 undergraduate enrollment</td>
<td>10,177</td>
<td>3,192</td>
</tr>
<tr>
<td>Percent male</td>
<td>55.9</td>
<td>35.5</td>
</tr>
<tr>
<td>Percent female</td>
<td>44.1</td>
<td>64.5</td>
</tr>
<tr>
<td>Percent that live on campus</td>
<td>37.3</td>
<td>11.3</td>
</tr>
<tr>
<td>Percent that live off campus</td>
<td>62.7</td>
<td>88.7</td>
</tr>
<tr>
<td>Average GPA of undergrads for '96-'97</td>
<td>2.74</td>
<td>2.87</td>
</tr>
<tr>
<td>Percent of undergrads who are part-time</td>
<td>12.8</td>
<td>27.4</td>
</tr>
<tr>
<td>Percent of undergrads who are full-time</td>
<td>87.2</td>
<td>72.6</td>
</tr>
<tr>
<td>Average age of undergrad students in the '96-97 year</td>
<td>22.4</td>
<td>26.1</td>
</tr>
</tbody>
</table>

In the previous table, the different milieu of each campus is easily seen. MSU-Bozeman is in a town of 30,000 and is the major employer in the Gallatin Valley, a place known for its mountain recreational opportunities. MSU-Billings on the other hand is in the largest city in Montana with a population of 100,000. Billings is also home to a technology college and one private four-year accredited college. MSU-Bozeman has an enrollment of undergraduates over three times larger than MSU-Billings. MSU-Billings is regarded as more of a commuter school with over eighty-eight percent of its students living off campus. MSU-Bozeman requires entering freshmen to reside on campus.

For purposes of this study, the students were grouped differently depending on whether full, verifiable records were available about them. The students who were
requested to take part in the study were contacted by the following service centers: (a) 44 students who qualified for disability accommodations from the student disabilities center, (b) an additional 33 students who contacted the student disabilities center but did not receive accommodations, (c) 30 students from the student health services, and (d) 3 students from the student counseling centers. The total number of students who were contacted was 110. Of those, data for the 44 who qualified for disability accommodations through the student disabilities center was analyzed quantitatively from the data provided by that center. Of the 110 students contacted, 38 from all three of the centers agreed to be interviewed, but only 30 actual interviews were conducted (See Appendix B, Questionnaire A). Some interviews could not be conducted because the researcher was unable to arrange for an interview due to phones being disconnected, students not having phones, or messages not being returned. Those students who could not be reached by phone were contacted by mail, giving them the option to call the researcher or to fill out an enclosed questionnaire with a stamped, addressed envelope to the researcher (See Appendix B, Questionnaire B). Students who agreed to an interview were offered one raffle ticket in a drawing for dinner for two.

The initial mailing included all 110 students (See Appendix A, Consent Form A). A second mailing was conducted with all students who did not respond to the first one. The counseling centers chose to first make a personal contact with students (by phone or in person), rather than send a letter to the student and risk violating the confidential nature of the fact that the student had visited the counseling center (See Appendix A, Consent Form B).
The interviews were then conducted with students who had self-disclosed that they had ADHD, but who may or may not have received services from one or more of the campus service centers (student disability center, student health service, and/or student counseling center). Some students utilized more than one campus service center. There was no control for the overlap in the service centers because the names of students who were being contacted for the study were not released among the campus service centers.

The purpose of the interview was to gather information about how and why students did or did not utilize services. Seventeen of the interviews were conducted in person in a private room on one of the campuses. Four students asked the researcher to come to their homes to conduct the interview and four others requested meeting at a public place such as a restaurant or the student union. Five of the interviews were conducted by phone because the student lived in another state or asked to do the interview over the phone.

Setting up interviews was difficult. Due to the nature of the disorder, some students had difficulty remembering the interview time and did not show up. Those interviews were rescheduled, sometimes more than once. The researcher made reminder calls to each interviewee the night before the interview was to take place. The researcher often left several messages on answering machines or with spouses/roommates/fraternity/sorority mates before talking personally with the student to arrange for an interview. The researcher was careful to leave a message that would not violate the confidential nature of the study. All interviews were tape-recorded except for those conducted in a public place or over the phone. In those interviews that could not be
recorded, the researcher took notes during the interview, clarifying quotations, and expanding on the notes immediately after the interview.

The statistical analysis was conducted only on the forty-four students who qualified for disability accommodations. The researcher made this decision for several reasons: (a) the information on all variables to be analyzed quantitatively were available only on those 44 students, (b) the researcher did not have to rely on self-report of GPAs from these students, (c) these students had documentation of having ADHD and the researcher did not have to rely on self-report of having ADHD, (d) the accommodations used by these forty-four students were documented in the student disabilities offices, and (e) the criterion for categorizing a student as a consistent/inconsistent utilizer of services could be uniformly applied to each of the forty-four students as determined by one rater on each campus. Confidentiality restrictions limited the information available to the researcher from the student health services and the student counseling centers. Only the student's name, address, and phone number was released from these centers. Neither the student health services nor the student counseling centers keep a student's transcript as a part of the student's record.

All 110 students were requested to participate in an interview because the qualitative analysis required information to be gathered about students who had made a contact with one of the student service centers, but who may or may not have received any services. The qualitative analysis included students who had not received services because the study also wanted to ascertain why students with ADHD had decided not to use the service.
Defining a Student's Rate of Service Utilization

Individual students were categorized as a consistent or inconsistent utilizer of services. A consistent utilizer of services was a student who availed himself of services offered by the university's resource center, student health center or counseling center in an on-going and regular fashion. A consistent utilizer was someone who:

(1) was seen on an on-going basis at the institution's student disabilities center for one semester or more. These visits were (a) formal visits for an appointed time and purpose, (b) informal chats, “stopping by,” (c) using the center's space or equipment to do homework or study on an on-going basis, or (d) to be able to talk informally with a staff person or other students who visit the center; AND/OR

(2) received an on-going service delivered on a regular basis for the duration of a semester or more because they had been certified by the university's student disabilities center as having a disability, e.g., they were receiving on-going services for note-taking, test-accommodations, or a distraction-free test-taking environment.

One rater on each campus in the study determined from the above criteria whether the student was categorized as a consistent user of services. In addition, in the follow-up interview, a student was asked to describe what type of service he/she used, the frequency of that use, and the context of his/her use (i.e. informal, formal, brief, sustained, etc.). This allowed the researcher to triangulate the student's perception of his/her rate of use with the service center's categorization of the student's rate of use. If the student's perception and the service center's reports differed as to whether the student was a
consistent or inconsistent utilizer of services, the researcher was obligated to count that student as a consumer of services that could not be categorized.

An inconsistent or sporadic utilizer of accommodations was a student who made contact with a student services office in order to address issues of his ADHD but had little or no contact after the initial inquiry. This student: (a) had one initial contact inquiring about the service but did not follow through on providing the service center with necessary documentation as evidence they had been diagnosed with the disorder; OR (b) had not contacted or visited the center in a formal or informal manner in order to see staff or other students with ADHD. One rater on each campus in the study determined from the above criteria if a student was categorized as an inconsistent use of service. In addition, in the follow-up interviews, each student was asked to describe what type of service he/she has used, the frequency of that use, and the context of his/her use (i.e. informal, formal, brief, sustained, etc.).

The reliability of categorizing a student as a consistent or inconsistent utilizer of accommodations was further bolstered by the fact that the raters in the student disabilities centers also provided the researcher with the data about the number of accommodations that students used, as well as the number of contacts. The researcher categorized the students as consistent/inconsistent independently of the rater, and then consulted with the rater to determine the categories. Only one change was made in this independent rating and that was in relation to two students who had little contact with the student disabilities
center during the 1996-97 academic year, but had used the services of the center heavily in the previous two years.

**Researcher Credibility**

In qualitative inquiry, the researcher is an instrument and thus the reader should know the researcher’s qualifications and background in order to establish credibility (Patton, 1990, p 472-477). The researcher/interviewer is a licensed clinical therapist who has done therapy with children, adolescents, and adults for over 20 years. In addition, some of those years were spent working at clinics in St. Paul, and Minneapolis, MN, as part of an interdisciplinary team that assessed children and adolescents for ADHD. This study was funded totally by the researcher.

**Reliability**

Over 90% of colleges and universities use the five-letter grading system to rate their students (Milton, Pollio, & Eison, 1986). These same authors challenge the reliability of cumulative GPA as a measure of college success, however, they do not propose any other more reliable method of measure.

The reliability of the diagnosis of ADHD can also be challenged if one regards reliability as a measure of stability over time. The diagnosis of ADHD has undergone changes in both nosology and nomenclature over time. The current criteria as stated in the DSM-IV (APA,1994) are the best criteria available to the field of medicine in making the diagnosis.
Validity

Validity is a measure of whether the research does in fact gather data about the construct that is purported to be examined. The validity of this study is increased by including students who have the diagnosis of ADHD based on DSM-IV criteria.

One internal threat to the validity of the data was that of rater reliability. In the aggregate numbers released by the student disabilities service center, a rater determined if a student was a consistent or inconsistent utilizer of services. Only one rater was used at each university, and each was carefully instructed by the researcher. As a way to decrease this threat to validity, criteria was clearly delineated as to how students were to be categorized either as a consistent or inconsistent utilizer. In addition, certain accommodations, e.g. test accommodations, may have been used regularly but were not always reported to the student resource center once the student had received his/her certification card. As a way to decrease this threat to validity, the student disabilities service center was asked to report the specific type of service the student requested, and not just the fact that he/she requested one or more services. In the follow up interview, students were asked questions about the types of service they used, both as a check on the accuracy of the record from the student resource center, and also as a check to ensure that the student was properly identified as a consistent or inconsistent utilizer of services. The rater on each campus did not report any difficulty in categorizing students as consistent or inconsistent utilizers, thus lending credence to the fact that the criteria for categorization was clearly spelled out.

This research design also has authority validity in that the design of the study was based on interviews with seven experts in the discipline of student services. Prior to
designing the study, the researcher interviewed the directors of the student disabilities services centers, the counseling centers, and the student health centers on both campuses involved in the study. In addition, the researcher had consultation from a nationally recognized and widely published expert in the field of college students with ADHD, Dr. Mary Richard, Director of Student Disabilities Services at the University of Iowa in Iowa City.

The structured interview format has face validity. This refers to the process in which the interview questions were formulated. The researcher ran a pilot of the interview format on a third campus, and recorded the interviews conducted with college students. In the current study, the researcher recorded the interviews with students and transposed them to text in order to substantiate the content for analysis.

Relying on volunteers who agree to be interviewed is always susceptible to threats to validity, and this is especially the case with ADHD students, where organization and lack of follow-through are inherent to the disorder. The method of data collection in this study was designed so that the researcher made the contact with the student after the student agreed to have his/her name released from the service center. The responsibility for making the initial call and setting up the interview was left with the researcher, rather than the student.

In summary, the method of data collection in this study was bound by the ethics of confidentiality, the restriction of a criterion-based sample, and lack of control over certain extraneous variables. The design of the study had built-in controls over threats to the reliability and validity of the study by sampling only those students who have self-disclosed to an established student service center, by providing adequate rater training, by delineating clear criteria for rating, and by recording personal interviews to verify and clarify information already gathered about the student.
Analytical Techniques and Research Design

The study employed a multimodal approach. This type of mixed method design has gained credibility in recent years. Patton (1990) wrote extensively on this issue. He states that "purity of method is less important than dedication to relevant and useful information" (Patton, 1990, p.193). There are certainly strong proponents of the belief that one cannot be both an inductive and deductive reasoner at the same time (Guba & Lincoln, 1987). Patton (1990) put it this way:

One cannot be testing predetermined hypotheses and still remain open to whatever emerges from open-ended phenomenological observation. Yet in practice, human reasoning is sufficiently complex and flexible that it is possible to research predetermined questions and test hypotheses about certain aspects of a program while being quite open and naturalistic in pursuing other aspects of a program. In principle, this is not greatly different from a questionnaire that includes both fixed alternative and open-ended questions (p. 194).

Gay cautions that one person can not be sufficiently competent in both approaches (1996, p. 232). He goes on to say, however, that if qualitative data is supplemental data, most researchers agree that the two kinds of data can be used together quite effectively. Furthermore he contends that a combination of data types is appropriate when testimonials or quotes are used in conjunction with descriptive statistics. In the current literature examining the issue of mixing methods, other authors feel there is merit in mixing methods (Dereshiwsky, 1992, 1993; Piontek, 1992; Brown, 1992; LaFleur, 1990; Allen & Silver, 1997; Steckler, 1992; Baker et al, 1990; Wallen, 1989; Howe, 1988; Durst & Schaeffer, 1987). Gay (1996) reports that the multimethod approach, as currently utilized, typically involves the use of qualitative data to gain insights into the
meaning of quantitative findings, or is used to corroborate results. It is this approach that is being employed in this study of college students with ADHD.

Data in this study was analyzed by three different techniques i.e., statistical analysis, descriptive statistics, and qualitative interview analysis. The first statistical procedure used was the t-test, which is a test to determine whether there is a significant difference between the means of two independent samples at a selected probability level (p< .05). This test was used to determine if there was a significant difference between the mean GPAs of students who utilize services consistently and those who utilize services inconsistently. A second statistical procedure, chi-square, was appropriate to use when the data was nominal and in the form of frequency counts, e.g., age, gender, and class standing. Chi square compares proportions actually observed with the expected proportions and tests for significant differences. Another statistical procedure, the one-factor anova, was employed to test for significant differences among the mean GPAs of students grouped by credit load (part-time or full-time) and rate of service utilization (consistent or inconsistent). Descriptive statistics were used to report the types of accommodations that students with ADHD use. Finally, a follow up interview was utilized for the purposes of clarification. This provided additional, clarifying information about the student after the rater had conducted the record review. This interview was used as an amplification probe, or a way to provide information on different aspects or dimensions of a question (Guba & Lincoln, 1987). It added data on such dimensions as whether student services or the student’s own compensatory skills played a more important role in the student’s success; how students regarded medication; how they felt ADHD was regarded by their peers and professors; and why some students chose not to use student support services. Combining quantitative and qualitative methods provided
the basis for being able to collect valid and reliable data both from the service centers' records and from the words of the students directly.

**Delimitations**

This study was delimited by time (academic year, 1996-97), geography (Montana State University-Bozeman and Montana State University-Billings) and population. The population was delimited by two criteria: those students who had been diagnosed with ADHD using DSM-IV criteria and who had self-disclosed this fact to the university.

**Limitations**

This study was limited by relying on a high percentage of the identified students to sign a release of information, allowing more specific information to be gathered about them. The study was further limited by a small sample size since it is estimated that between 1-3% of the general student population has ADHD.
This study utilized both quantitative and qualitative methodology. The results are presented in the order in which the hypotheses and questions were initially proposed for the study.

The problem of this study was to determine if there is a difference in the college success rate of students with Attention Deficit Hyperactivity Disorder (ADHD) who are consistent users of student support services and those students with ADHD who are inconsistent users of student support services, with college success rate measured by grade point average.

A total of seven hypotheses and questions were formulated to study the major problem. The first five hypotheses and questions were studied using quantitative research methodology. This data was available on forty-four students who had a documented diagnosis of ADHD and who qualified for academic accommodations on the campuses of Montana State University in Billings and in Bozeman. The demographic characteristics of these 44 students are listed in the table below.
Table 2. Table of Student Demographics of Quantitative Analysis

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>29</td>
<td>44</td>
</tr>
<tr>
<td>Class Standing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Division Fresh &amp; Soph</td>
<td>29</td>
<td>44</td>
</tr>
<tr>
<td>Upper Division Junior &amp; Senior</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Non-traditional</td>
<td>10</td>
<td>44</td>
</tr>
<tr>
<td>Use of Medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>No or Unknown</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Rate of Service Utilization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consistent</td>
<td>25</td>
<td>44</td>
</tr>
<tr>
<td>Inconsistent</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Presence of Co-morbidity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23</td>
<td>44</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

The quantitative data analysis employed standard statistical procedures of descriptive analyses, t-tests, chi-square, and one-way anova. They were tested at the .05 level of significance.

The last two questions of this study employed qualitative research methods and this data came from 30 students who had a diagnosis of ADHD and who may or may not have qualified for academic accommodations at the university. While not all 30 students
in this portion of the study officially qualified for disabilities accommodations, they all had made at least one contact with the student disabilities center, the student health center, and/or the student counseling center. They all had received the clinical diagnosis of ADHD from a licensed professional.

The following table shows the demographic characteristics of these 30 students. Twelve of the students about whom information was used to do the statistical analysis agreed to be interviewed and thus they are also included in the qualitative analysis.

Table 3. Table of Student Demographics of Qualitative Data Analysis

<table>
<thead>
<tr>
<th></th>
<th>Number of Students</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Non-traditional</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Class Standing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Division</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Upper Division</td>
<td>14</td>
<td>30</td>
</tr>
<tr>
<td>Age when diagnosed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior to age 18</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Age 18 or older</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

The qualitative data analysis method employed was that of inductive analysis, or identifying the patterns that emerge from the data (Patton, 1990, 390-400). Using cross-case analysis, patterns were diagrammed using the qualitative data analysis technique of the unfolding matrix (Padilla, 1996).
Hypothesis/Question One

The first question raised was in relation to the types of accommodations students with ADHD utilized. Students used many services on campus, however, the focus of this study was the student disabilities center, the students health center, the student counseling center. It is important to make the distinction between services and accommodations. In this study, student services are those services that assist the student to accomplish his/her goal of obtaining a degree. Services included those offered by the three service centers at the heart of this study: the student disabilities center, the student health services, and the student counseling center. It also included tutoring, the math lab, study skills classes, time management seminars, and advising. Accommodations, on the other hand, refers to those aids which are afforded students who qualify as having a disability under the IDEA and ADA acts mentioned earlier in this paper. Accommodations include extended test taking time, priority registration, provision of a quiet place to take an exam, texts on tape, and availability of note-takers. Various services can be offered by a number of different centers on campus, but official accommodations can be authorized only by the student disabilities center.

The accommodations these students used included priority registration, alternative testing site, time and a half allowed for tests, note-taking, taped texts, and use of a computer. The following table describes with what frequency students used particular accommodations, ranked in descending order.
Table 4. Table of Accommodations Used by Students with ADHD

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Number of Students</th>
<th>Percentage of qualified students who used the accommodation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority registration (Available to 30)</td>
<td>20</td>
<td>67%</td>
</tr>
<tr>
<td>Use of quiet room for tests (Available to 44)</td>
<td>26</td>
<td>59%</td>
</tr>
<tr>
<td>Extended time for testing (Available to 44)</td>
<td>25</td>
<td>57%</td>
</tr>
<tr>
<td>Use of computer in disabilities office (Available to 14)</td>
<td>4</td>
<td>29%</td>
</tr>
<tr>
<td>Note-taking assistance, including tape recorders (Available to 44)</td>
<td>10</td>
<td>23%</td>
</tr>
<tr>
<td>Taped texts (Available to 44)</td>
<td>6</td>
<td>14%</td>
</tr>
</tbody>
</table>

The data was also sorted into categories to examine whether certain combinations of accommodations impacted the mean GPA. This breakdown yielded 15 different combinations of accommodations that students used. It was not possible to analyze the data by certain combinations of accommodations because in 9 of those cells only one or two students used that particular combination.

In the analysis of what kinds of accommodations students used most frequently, those students who had priority registration available to them were most likely to take advantage of that. After priority registration, use of a quiet room to take a test was the next most requested accommodation, and being able to take time and a half for tests ranked as a close third. The use of a computer in the disabilities office, note-taking
assistance, and use of taped texts followed in that order as accommodations that were requested by these students.

**Hypothesis/Question Two**

The mean grade point average of students who are consistent utilizers of services does not differ significantly from the mean grade point average of those students who are inconsistent utilizers.

Table 5. Table of the Mean Grade Point Averages for Consistent and Inconsistent Utilizers

<table>
<thead>
<tr>
<th>Rate</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td>2.786</td>
</tr>
<tr>
<td>Inconsistent</td>
<td>2.648</td>
</tr>
<tr>
<td>Overall</td>
<td>2.716</td>
</tr>
</tbody>
</table>

A t-test was used to determine if the difference between the mean of the consistent utilizers of service differed significantly from the mean of the inconsistent utilizers.

Table 6. Results of Two Sample T-test for Consistent Users vs. Inconsistent Users

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>St Dev</th>
<th>SE Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td>45</td>
<td>2.786</td>
<td>0.815</td>
<td>0.12</td>
</tr>
<tr>
<td>Inconsistent</td>
<td>30</td>
<td>2.648</td>
<td>0.570</td>
<td>0.10</td>
</tr>
</tbody>
</table>

DF=72 * T=.86 p=.39
The degrees of freedom do not equal the number of students because GPAs for both semesters of the 1996-97 academic year were collected. Some students enrolled in either one or the other, but not both semesters. The total number of GPAs tallied was 75.

The mean grade point average of students who were consistent utilizers of services did not differ significantly from the mean grade point average of those students who were inconsistent utilizers and therefore this hypothesis was retained. The results of this test revealed that students who took advantage of accommodations did not have significantly higher GPAs from those students who did not use the accommodations. When the students' use of accommodations is examined as a single variable that impacts their GPAs, there is no significant difference between the group of students who use accommodations consistently and those who use accommodations inconsistently.

Hypothesis/Question Three

The third hypothesis was that service utilization rates were independent of gender, class standing, and age. When the sample was broken down by rate of service utilization and age, only two students fell into the cell “Non-traditional and Inconsistent.” A chi-square test for independence was not possible because one cell contained \( n<5 \). The two remaining nulls were: 1) the rate of service utilization was not related to gender, and 2) the rate of service utilization was not related to class standing. The chi-square test of independence analysis was used for both nulls.
Table 7. Table for the Chi Square Test of Independence Analysis for Rate of Accommodation Use and Gender

<table>
<thead>
<tr>
<th>Rate of Service Use</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Observed</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Inconsistent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Observed</td>
<td>12</td>
<td>7</td>
</tr>
</tbody>
</table>

DF=1  Chi Square=0.113  p-value=0.737

The data in the table above revealed at the .05 level of significance that the variable of rate of accommodation utilization was independent of gender. The student's rate of utilization of student services was independent of their gender, and therefore this null hypothesis was retained. In other words, the rate at which students used accommodations authorized by the student disabilities center was not related to gender.

The class standing variable was collapsed from four categories to two categories. Freshmen or sophomores were classified as lower division students. Juniors and seniors were classified as upper division students.
Table 8. Table for Chi Square Test of Independence Analysis for Rate of Accommodation Use and Class Standing

<table>
<thead>
<tr>
<th>Rate of Service Use</th>
<th>Lower Division</th>
<th>Upper Division</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consistent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Observed</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td><strong>Inconsistent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Observed</td>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>

DF=1  
Chi Square=0.900  
p-value=0.343

The data in the table above revealed at the .05 level of significance that the variable of rate of service utilization was independent of class standing. The student’s rate of utilization of student services was independent of their class standing, and therefore this null hypothesis was retained. In other words, whether a student was a consistent or inconsistent utilizer of accommodations was not related to their class standing.
Hypothesis/Question Four

The hypothesis that was proposed was that the rate of accommodation utilization and the student’s use of medication do not interact on college GPA, using a two-way anova. There were only four students out of the 44 in the study who did not use medication. Breaking down further the data analysis yielded two students who used medication and were consistent utilizers, and two students who used medication and were inconsistent utilizers. In addition, that information was unknown for three other students. These numbers were too small to continue with the analysis. Instead another hypothesis was tested: In the group of students who used medication, the mean GPA of students who used accommodations consistently did not differ significantly from the mean GPA of students who used accommodations inconsistently. The t-test was used to analyze this data.

Table 9. Table of the T-test of Students Who Use Medication and are Either Consistent Utilizers or Inconsistent Utilizers of Accommodations

<table>
<thead>
<tr>
<th>Rate</th>
<th>N</th>
<th>Mean</th>
<th>St Dev</th>
<th>SE Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td>37</td>
<td>2.796</td>
<td>0.816</td>
<td>0.13</td>
</tr>
<tr>
<td>Inconsistent</td>
<td>27</td>
<td>2.623</td>
<td>0.596</td>
<td>0.11</td>
</tr>
</tbody>
</table>

D.F.=61     T=0.98     p-value=.33
The above table shows the mean GPAs of those students who used medication. The mean GPA of students who used services consistently did not differ significantly from the mean GPA of students who used services inconsistently. Therefore, this null hypothesis is retained. In other words, given that students were already taking medication to diminish the symptoms of ADHD, there was no significant difference in the mean GPA of students who utilized accommodations in a consistent manner from the mean GPA of students who utilized accommodations in an inconsistent manner. This finding dovetails the finding of the second hypothesis where no significant difference emerged between the mean GPAs of all students who qualified for accommodations, not just those on medication.

Hypothesis/Question Five

The fifth question proposed was what proportion of the variability in college GPA can be explained by rate of service utilization, use of medication, and semester credit load? Again only four students did not take medication and for three additional students, that information was unknown. Therefore this analysis was not possible because some of the cells would have contained n<5.

Using the information that was available, another hypothesis was tested: The mean GPAs of students did not differ significantly when they were grouped by their semester credit load and their rate of service utilization.
Table 10. Table of Mean GPAs of Students Grouped by Semester Credit Load and Rate of Accommodation Utilization

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>St Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT Consistent</td>
<td>32</td>
<td>2.8072</td>
<td>0.7771</td>
</tr>
<tr>
<td>PT Consistent</td>
<td>11</td>
<td>2.7003</td>
<td>1.0017</td>
</tr>
<tr>
<td>FT Inconsistent</td>
<td>23</td>
<td>2.7808</td>
<td>0.4597</td>
</tr>
<tr>
<td>PT Inconsistent</td>
<td>9</td>
<td>2.3656</td>
<td>0.7202</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the above table, it is evident that students who were full-time and consistent utilizers of accommodations had the highest mean GPA. Full-time students who were inconsistent utilizers of accommodations had the next highest mean GPA. Part-time students had a lower mean GPA than full-time students. Of the part-time students, the mean GPA of those who used accommodations inconsistently was the lowest of the entire group. To find out if these differences in mean GPAs were significant, a one-way analysis of variance was conducted.

Table 11. Table of One Way Analysis of Variance for Means of GPAs of Students Grouped by Credit Load and Rate of Service Utilization

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>3</td>
<td>1.455</td>
<td>0.485</td>
<td>0.92</td>
<td>0.437</td>
</tr>
<tr>
<td>Within</td>
<td>71</td>
<td>37.555</td>
<td>0.529</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>39.010+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The mean GPAs of students did not differ significantly when they were grouped by their semester credit load and their rate of accommodation utilization. Therefore this null hypothesis was retained. In other words, even though there were some differences among the mean GPAs of the group when categorized by semester credit load and rate of accommodation utilization, the differences were not statistically significant.

Qualitative Analysis

The distinction was made earlier in this paper between services and accommodations. The quantitative analysis included all students who qualified for disability accommodations from the student disabilities center during the academic year 1996-97 (N=44). One hundred and ten students who self-disclosed that they had ADHD to one of the three service centers during that year were requested to participate in an interview. Thirty eight students agreed to be interviewed and 30 actual interviews took place. The qualitative analysis was conducted on these 30 interviews. All 30 students in this group had received the clinical diagnosis of ADHD from a licensed professional, and they had all made contact with least one student service center, i.e., the student disabilities center (SDC), the student health service (SHS), or the student counseling center (SCC).
The Unfolding Matrix

An unfolding matrix was used to analyze, interpret, and present the qualitative data. Cross-case analysis was used to identify significant patterns and develop a framework for communicating the data in an orderly and meaningful way. In this study, the unfolding matrix evolved from the descriptions by these 30 students of their unique college experiences. These descriptions were analyzed and the matrix was constructed from the emerging patterns that were common among their descriptions. The patterns of their perceptions were then applied to answer Question Six: How do students perceive student services as contributing to their success in college, and to Question Seven: If a student chose not to use a student service, what was the reason he/she did not?

The starting point for the unfolding matrix was what the student brought to college with them. It was beyond the scope of this study to analyze even the most widely accepted predictors of college success rates, e.g., high school GPA, ACT/SAT scores, educational level of parents, socioeconomic status, to name a few. All these factors contribute to the make-up and college experience of ADHD students as well. However, a factor emerged that was unique and almost universal to this group. That factor was the negative school experience that most of these students had prior to college. This provided the starting point of the unfolding matrix.
Many of these students had devastatingly negative experiences in their elementary and secondary school years. Students often felt that they were pegged as stupid early in their school career. Not one of the 30 students interviewed said that they had liked school prior to college. In fact, many stated, “I hated school.” Another common complaint was, “I was bored.” Many complained that a particular subject would be hard for them and they felt they weren’t always able to understand or learn in the same way that other students did. One student said, “I was told that I was retarded and I was placed in special classes all of my school years. School was not a pleasant experience. I learned by the “board” of education (meaning she was physically paddled in school).” Many of these students said they knew they were bright but that they just couldn’t learn in the same way as others. Out of frustration, or to keep their dignity, they learned other ways to detract from their deficits. One student said, “I became the class clown.”
Another said, "I was always acting up in class, known as the trouble maker. It was better to be known as a trouble maker than to be known as stupid."

Elementary School Experiences

Six of the students in this group were diagnosed with ADHD in elementary school. Some of them described experiences that left them feeling humiliated and ostracized both by teachers and peers. One student told the following story:

I was diagnosed with ADD when I was 5 years old. But I fell through the cracks all the way through school. I remember when I was in first grade, my teacher called me up to her desk and said she wanted me to do something for her. I was all excited. My teacher wanted ME to do something. I couldn't believe it. She said that she needed me to go to the office to get something for her. I was so proud. The teacher wanted ME to go to the office to get something. She said she needed a piece of rope, about so long, holding out her hands to about a yard's length. I ran to the office to get the rope. Then I ran back and put the rope on the teacher's desk. She took the rope and tied me in my desk because I could never sit still in my seat. It was one of the most humiliating experiences of my life, and it set the tone for how I was treated and how I felt all the way through school.

One student, diagnosed at age five, said, "It's been hell. It (ADHD) affects my whole life." One student described himself as "over-energetic and talkative" in elementary school. The student was diagnosed as having ADHD in fifth grade, but felt that he then was ostracized because he had the diagnosis.

I was taking Ritalin and it helped but I still had my days. If I were having a bad day, my teachers would say to me, "Have you taken your medication today?" Even at that tender age, I knew that wasn't right, that they were - what do you call it? Breaking confidence? - by letting other kids know I took medication. It wasn't long before the other kids picked up on that and they would also ask me, "Have you taken your meds today?"

Another student described her early elementary school experience in this way:
I was only in first grade. I couldn’t read or write so when the teacher asked us to write down our names, the date, and some words on a piece of paper, I copied off the little girl in the desk next to me. My name started with “S” and so did hers. Unfortunately her name was “Stephanie” and mine wasn’t. The teacher made a big deal about the fact that I was copying, in essence, that I was cheating at that tender age. She called my parents and they talked with me about how wrong it was for me to try to cheat. You would have thought that my teacher would have interpreted that incident differently, that there might be something wrong with my skills, rather than my character, and might have looked into it at that point. As it went, they didn’t find out I couldn’t read until years later. I always took my books home and had my older brothers and sisters read my school work to me so no one would find out that I didn’t know how to read.

High School Experiences

Students commonly reported that they were told they “weren’t college material,” by high school counselors and teachers because of their poor showing in high school. Their grades weren’t always bad, but these students often felt little motivation to study and do well. One student said, “It was a given that I had a bad attitude in high school. I fought the system all the way. In fact, I still have bad attitude about school.”

Some chose to come to college because, “it was just expected of me,” or “all my friends were going so I decided I should go.” Several students reported dropping out of high school and being home-schooled or later obtaining their General Education Diploma (GED). One college senior expressed regret about not finishing high school and felt that he was still at a disadvantage because he got a GED instead of a high school diploma as he headed towards graduate school.

One student had an experience that was somewhat exceptional to those described above. Her account of the experience follows:
I quit school when I was a senior. At age 28 I knew I wanted to finish high school. I went to enroll and the principal told me that I had to sign a contract in which I agreed to finish. I sat in classes with 17-year-old high school students. I did get excused from the pep rallies, thank goodness. It was a good experience though. I felt like a teenager again. In fact, the class nominated me for homecoming queen that year. I thought it was a big joke and declined the nomination. But one of my teachers told me that I was part of the class and that they had nominated me and that I should accept the honor. I stayed as a nominee until so many (other girls') moms called in to protest that I ended up declining the nomination. I loved it though. I've always been for the underdog and the girls who were less popular looked up to me. They thought I was way cool!

Just as some students had reported experiences in elementary school in which they designed coping mechanisms to cover their difficulties, e.g., the first grader who "cheated," students in high school reported similar experiences. One student had this to say:

You want to know what I learned in high school? I learned how to drink and how to cheat. I could copy off my friends' homework and I copied tests off the person ahead of me in class. My teacher knew it but I guess he didn't care.

Prior College Experiences

High school wasn't the only academic environment in which some students felt that things had not gone as planned. Students talked about prior education experiences in higher education that had failed. "I blew it and got suspended." "I goofed off and lost my (sports) scholarship." "I wasted a year at (a college in another state)."

Again the theme of devising ways to cope emerged. One student articulated the feeling in this way:
My parents both have advanced degrees. It was very humiliating to not be able to make it. Part of the problem is that I look good. I mean, at first, I can bull_____ my way through things. But then my instructor will watch me in (my lab project) and my cover is blown. They eventually find me out.

Results of Inquiry about Prior School Experiences

Not one of the students in this group described school as being a positive experience for them before coming to college. Negative school experiences prior to going to college certainly had a pejorative effect on the students’ perceptions of themselves as capable students. These students designed various ways to deal with the difficulties they experienced prior to college. Becoming the class clown, cheating, coasting through, and dropping out were some of those strategies. For many of them, these strategies in turn led to further negative experiences. Many of them were left questioning whether they could make it to and through college even though they perceived themselves as bright individuals. The unfolding matrix started with the experiences that they brought with them to college. Negative, or at least unstimulating, school experiences seemed to be almost universal for the group of students interviewed. The next step in the unfolding matrix was to look at the transitions to college.
Research about how students transition to college is a topic that has been given much study in the literature. These students with ADHD grapple with the same issues as the general population of students, e.g., increased autonomy, developing competence, developing mature interpersonal relationships, and establishing identity. However, there emerged some issues that were unique for students with ADHD in this transition process. Three primary issues unfolded as being particular to this group: 1) the point at which the diagnosis was made, 2) the point at which they contacted student services, and 3) the feeling that the diagnosis had a lot of stigmatization associated with it in the college environment. All three of these issues had direct bearing on whether and how students made use of student services.

Point at Which the Diagnosis was Made

Twenty-one out of the 30 students who agreed to be interviewed were diagnosed with ADHD after the age of 18. Because ADHD was a diagnosis that had traditionally been regarded as a "childhood disorder," many of these students knew early in their lives that they learned differently than their classmates. But for a variety of reasons, they were
not given the diagnosis until they reached adulthood. The reasons ranged from “we didn’t know that attention deficit existed when I went through grade school,” to “my parents were told that I had an attention deficit, but they didn’t believe in it and, for sure, they weren’t going to put me on medications at that tender age.”

It was a common experience among the students in this group to receive the diagnosis after someone else in the family had been evaluated for ADHD. Some of the students I interviewed had children who manifested symptoms in elementary school. The parent/student would have their son or daughter evaluated for ADHD. Then they would start to wonder if that was what they had struggled with in school and in fact, continued to struggle with. One student said, “I took my son in to the pediatrician to be evaluated and I was reading some material in the waiting room about ADHD. I thought, ‘Oh my gosh, they’re talking about ME!’”

For many of these students, just getting the diagnosis was beneficial. One student said, “What a relief (to get the diagnosis of ADHD)! To know that I wasn’t abnormal. Now I know what I need to do.” Another student said about getting the diagnosis, “Knowledge is power. When I found out about having this (ADHD), I read everything I could get my hands on so that I could understand myself better.”

Almost all of these students in the course of being evaluated for ADHD underwent Intelligence Quotient testing as a part of the evaluation. For some of them, learning that they had a high IQ changed the way in which they thought of themselves. One student who was diagnosed in junior college captured the feeling of many when he said, “I’m glad I got diagnosed. Otherwise I might think I’m dumb!” Many students said,
"I knew I was smart," but they were reassured in the course of being evaluated for ADHD to know that other people recognized that also. One student who was diagnosed in college said, "I used to think that I was a pile of crap, a nothing, and I wanted to be a something. A lot of the crap was due to the ADHD and I didn’t know that."

In relation to their transition to college, students felt that early diagnosis was a crucial factor in success in school. Many in this group weren’t diagnosed until they reached college and felt they would have had a better school history if they had been able to identify the problem before they got to college. However, the students in this group who were diagnosed prior to college did not feel that they had a particularly successful elementary and secondary school experience anyway.

Critical Point at Which Student Sought Services

All the students who were interviewed had gone to the student disabilities office, the student health service, or the student counseling center at one time or another to ask for some assistance. Not all these students actually received services. Some of them had inquired about accommodations, but they didn’t qualify because they did not produce the necessary documentation required by the student disabilities center. Others got information about other places to get the assistance they needed. During the interview it became apparent that some students still weren’t exactly sure what services might be available to them, if any.

For the most part, students sought services at a crisis point of some kind. These crisis points included events/situations like flunking a test, getting depressed, feeling
physically ill, being faced with the prospect of academic suspension, or being in trouble with the law. These crises triggered feelings which motivated the student to seek help, such as being upset about their poor performance in a test or a course, feeling so worried and/or fatigued that they were immobilized, feeling incapable of handling the school work, or feeling frustrated in a particular class.

Students sought help at the center or centers they thought would most likely help them with the difficulties they were experiencing at the time. Students sometimes weren’t even sure that seeking help was related to having ADHD:

I went to see him (a physician) because I had excessive fatigue. I slept all the time. I was struggling in my classes and my life seemed to be in chaos. I had heard about it (ADHD) but I didn’t know much about it. When I went to the student health service, I didn’t go with any particular purpose in mind, or to ask if I had it. I was just extremely tired and wanted to get my life back.

Other students sought help initially for marital difficulties, panic attacks, test anxiety, depression, and various physical complaints. One student put it this way: “I had—what do you call it? Somatic something? – where I was so stressed out that I got sick. After several visits to the health service, we finally decided there wasn’t anything physically wrong with me.”

It is beyond the scope of this study to discuss the use of alcohol and drugs by this population of students. That is research that has been conducted in other places. However, the researcher would be remiss in not commenting on how frequently students mentioned their use of alcohol and/or drugs. It was not an inquiry that was made of them directly. The use/abuse of alcohol and drugs sometimes led to a crisis that motivated
them to seek services. Some stated they had abused alcohol and in fact, at least one had gone through drug/alcohol treatment at one point in her life. Students were candid about how their use of drugs and alcohol motivated them to seek help. One student who used counseling services volunteered, “I was into the drug scene for a while. Now I’m anti-drug. I realized that it was affecting my life in a negative way.” Another student talked about having lost his license due to tickets he got driving while under the influence. Still another said, “I get easily side-tracked. I got caught in a lifestyle of drinking and partying when I first went to college. I wasn’t psychologically ready to be there, and my attention deficit didn’t help matters either.” Alcohol and drug involvement was a common experience and sometimes created the crisis which motivated students to seek services.

To summarize, as these students transitioned to college, they identified crisis points at which they sought services. The crises ranged from being somewhat minor, e.g., flunking a test, to more major life and health crises, e.g., drug/alcohol problems. The commonality in the students’ reports was that they sought services only when they had reached an obstacle in their college career. Some had received some kind of assistance in high school and were aware of what help was available to them as they entered college but did not access services until they had difficulty clearing a hurdle. One of those hurdles turned out to be attached to the diagnosis. Many of these students felt a huge stigma was connected to having the diagnosis of ADHD. This provided the next commonality that emerged among these students as they transitioned to college.
Stigma Attached to the Diagnosis

Students described repeated experiences that left them feeling embarrassed and humiliated. In addition to the negative experiences prior to college, students found that the same stigma that was attached to the diagnosis earlier in their lives still followed them. In fact students found that the stigma was sometimes even more evident in the college setting. Off-handed and negative remarks about ADHD made during class or in meetings with professors gave these students their cue that the diagnosis was not one that was very well understood or accepted. This resulted in them telling few people about the challenges they faced in their learning style, including people who could have helped them. Some students told their professors about having ADHD when they knew they would need to make use of extra test time or note taking services. Overall the pattern among the students however was to not tell their professors about having ADHD. One student said,

Most of them (professors) don’t care. They have the attitude that they aren’t going to go out of their way. One professor was hideous. He gave us a three-minute quiz everyday and I kept flunking them. I told him I had some learning problems and that I could not perform in that short a time. He refused to alter that expectation. That was the day I headed over to the disabilities center.

Students felt ADHD had become a “trashcan diagnosis,” i.e., the diagnosis was sometimes made too nonchalantly or was overused. Some students felt that they had to defend the diagnosis to the very people they were seeking help from. As an example, one student, diagnosed by a private physician, said of one of the service centers, “I felt they practically needed a letter from my kindergarten teacher. I said, ‘Forget it!’ It’s not
worth the hassle.” Almost every student who was interviewed stated vehemently that they were not trying to use the diagnosis as an excuse but they felt their professors might think that. One student said, “I was reluctant to tell any professors that I have it. I have heard people talk about the pharmaceutical straitjacket (use of medication) for ADHD and I didn’t want people to think I was using it just as an excuse.”

Another said:

Oh, I don’t tell anybody I have it. They’d think I was a fraud. It’s bad enough that I have this, but it’s worse if I tell somebody I have it and they say, “Oh, ple-e-e-ase. I don’t believe in ADD.”

Still another stated:

I don’t tell my professors I have this. I did tell one (that I have ADHD). Her attitude? “Oh God, everybody’s got ADD.”

Other students felt the stigma from their peers, not just their professors. One student said:

The people there (at the service center) told me I would never survive in my field. They said I needed to choose a different career. I know I am disorganized. It haunts me. Other students look at me and say, “How the hell did you get here (to college)?” I have stacks of paper everywhere and have to constantly ask other students, “What’s next?” “When is this due?” I don’t tell ANYBODY I have this (ADHD).”

Most students felt that the stigma attached to the diagnosis made it hard to advocate for themselves. One student said, “It’s like the AIDS of the 80’s. You tell people you have it and they want nothing to do with you.” Another student suggested that there be a paradigm shift from ADHD as a disorder to ADHD as a difference in learning. “That word – disorder – implies that there’s something wrong with you.”
In summary, most of these students felt like they weren't taken seriously if they shared that they had the diagnosis or that they were dismissed as someone trying to make excuses.

Results of Inquiry re: Transition to College

In the unfolding matrix of how college students with ADHD succeed, three factors emerged that are unique to this group: how and when students were diagnosed, at what point they sought assistance, and the feeling that the diagnosis had a lot of stigmatization attached to it. Students in this group who were diagnosed prior to coming to college did not feel the course of their college career was smoother because the diagnosis was made in elementary or secondary school. Most often these students waited to seek services until they hit some kind of crisis point and they didn't think, at least initially, that the crisis was particularly connected to having ADHD. Many of these students were reluctant to talk with professors about having ADHD because they perceived them to have negative attitudes about the diagnosis. Some students reported feeling that they were lectured or judged by faculty and student service personnel as someone who was trying to get an edge he/she didn’t deserve, rather than trying to access a service/accommodation that they needed to succeed.

The next step was to look at how students managed and negotiated the college environment. As these 30 students described their college careers, certain experiences seemed to be held in common. That provided the next array for the unfolding matrix.
Common Experiences of College Students with ADHD

Volumes have been written about how college affects students. The focus in this study was on the common experiences that students with ADHD perceived as contributing to their success in college. Likewise it focused on what experiences they perceived as hindering their success. The topics that emerged from the interviews included:

1) Developing new skills in relation to symptomatology
2) Deciding about medication or no medication
3) Making use of latest technology
4) Accessing services
5) Making use of accommodations
6) Maximizing internal resources
Figure 3. Common Experiences: Developing New Skills in Relation to Symptomatology
Developing New Skills in Relation to Symptomatology

These students talked at length about the new skills they developed after they came to college. As the skills were described, they clustered around four primary issues: (a) self strategies to deal with distractibility, (b) self strategies to deal with organizational skills, (c) self strategies to deal with difficulties in tasks that require sustained mental effort, and (d) strategies to deal with impulsivity.

(a) Self Strategies to Deal with Distractibility. Students with ADHD can have great difficulty in staying focused whether they are in the classroom or studying on their own. Almost all of the students who were interviewed said that they sit “front row, center” in their classes. In order to stay focused on the professor and on the lecture, they had to cut down on the number of distractions. One student said, “This is not a problem of not being able to pay attention. The problem is that we pay attention to everything! We can’t filter things out so we’re aware of every noise, every whisper, every person who walks by the door.” Those who didn’t sit in the front row talked about sitting close enough to the professor to be able to make eye contact. They felt that kept them more focused if they knew the professor could tell if they weren’t paying attention.

Besides proxemics, students used a variety of ways to cope with the distractibility. Some students needed absolute quiet to concentrate. One student actually drives to an empty parking lot to study sometimes. Several students talked about wearing ear plugs or studying in an isolated carrel in the library in order to cut down on distractions. One student said, “I always study in the library. Always in the morning. Always behind the
stacks. Always the third carrel back.” While some students needed absolute quiet, others needed some noise in the background, like music. Students usually identified a place they went to study, whether on campus or in their own homes. While their study area might have looked chaotic, they had a definite place at which to study, and a definite milieu that worked best for them to counter their propensity for distractibility. For the most part, students reported being very consistent in creating whatever environment worked best for them personally.

(b) Self Strategies for Developing Organizational Skills. Organization for most students with ADHD is a huge challenge. All the students who were interviewed talked about the organization system that worked best for them. One student said, “There’s no one right way to study or get yourself organized. Everybody has their own way. For example, I kept forgetting to take my pills so now I put my medication in the bathtub and that way I have to take it before I take my shower.”

Many had daily planners. One student said, “If it’s not written in my daily planner, it doesn’t happen.” Some students who had daily planners didn’t use them. One student said, “I’ve got this planning calendar on my wall, but I never look at it!” Some devised their own system of organization. One student said, “I have sticky notes everywhere – on the phone, on the dashboard of my car. It looks messy but it works for me.” A number of students reported that they made a great effort to organize themselves because they knew that was a problem for them. One student, interviewed in her home, said:
Look at my study room. It’s neat as a pin. I have forced myself to organize my life. Even my pantry is organized neatly by fruits, vegetables, and so on. When I go in to study, if I have a pile of stuff on my desk, I must first deal with that. If I don’t, things will get out of hand for me. I would end up with piles and piles of stuff.

Several of the students mentioned that they organize their school work in “the ADHD way.” By that they meant that they have “a jumble of thoughts, a lot of papers and resources, but no way to sift through it.” These students had developed their own ways to deal with that. One annotated all the readings. Others used coded cards, highlighters, and outlines to make sense of what seemed like an overwhelming amount of information. Others were helped by professors who talked from an outline. One student said,

One professor is the Tasmanian Devil. He talks so fast nobody can keep up with him. He knows that. So he takes notes with us as he talks. That way he knows what we have time to write down and he doesn’t lose us while we’re still trying to write down what he said a few minutes ago.”

In sum, organizational skills were a major concern for this group. These students were able to clearly identify some of the techniques they tried to use to organize themselves. Some were more successful than others, but they all had some organizational method in their heads for getting things accomplished.

c) Self Strategies Developed to Deal with Difficulty in Tasks that Require Sustained Mental Effort.

Of all the difficulties that students described, this is the one that had the most emotion attached to it. Clearly the task of studying took enormous effort on their part.
One student summed it up for many when she said, “We (people with ADHD) are wonderful at adapting. But some of us don’t make it. It shouldn’t have to be so damn hard.” Many students felt they had to devote a lot more effort and time to studying than their peers in order to comprehend the same amount of information. One student said, “It takes me four days to comprehend what my roommate does in a few hours.” Several students reported that they type all their notes after they get home from a lecture as a way to keep up with the material. Students who were interviewed in their homes often had little signs hanging in their study area reminding them to stay on task. One student said, “On particularly bad days, I set a timer for ten minutes. I make myself sit still and read. When the timer goes off, I get up and take a break and then I do it all over again until I get through the assignment.”

In summary, sustained mental effort was difficult. These students felt that they had to work much harder and spend more time in order to comprehend the same material their peers did.

(d) Self Strategies for Dealing with Impulsivity. For some students, impulsivity was a continued challenge. Some students talked about not being able to resist the impulse to leave a class, or to quit in the middle of a test. One student said, “In certain classes, big classes, I sit close to the door. That way, if I can’t tune in, I just leave.” Another told this story, “I was so distracted I couldn’t take it (a test). I sat there for a while because I didn’t want to be the first one to leave, but I handed in a blank test.” Yet
another resists the urge to skip class, but describes the experience this way: “I listen but I
don’t hear. I do attend every class though.”

Many talked about procrastination as being a problem for them. Often times
putting things off was related to the impulse to do something else more appealing besides
studying. Learning how to manage or budget their time was a strategy some of them
employed to overcome that problem. One student who described himself as having a
terrible time with “procrastination and just plain laziness,” described what motivated him
to study. With great exuberance, he said, “Do you know how good it feels to come out of
a test and everybody is talking about how hard it was, and you know you licked it (aced
it)? I mean, you absolutely licked it!”

One student felt the impulsivity had its advantages. One student said, “The
impulsivity (associated with ADHD) isn’t all bad, you know. It means you’re ready to
take risks. It makes you goal-oriented. You take risks and you get there.”

In summary, impulsivity was an issue with which most students struggled. Many
had devised ways to handle impulses by learning to budget their time better or by making
some rules for themselves, e.g., attend each class.

Results of Inquiry re Developing New Skills to Deal with Symptomatology.
Students in this group often designed their own strategies to deal with their difficulties
with distractibility, organization, sustaining mental effort for a long period of time, and
impulsivity. These strategies were very individualized, but they all served the purpose of
helping the student move from feeling overwhelmed and unfocused (disequilibrium) to
feeling more in control, more organized, and more directed (equilibrium). Another universally common experience for these students was that they had to decide at some point whether or not to use medication. This provides the next block in the unfolding matrix.
Figure 4. Common Experiences: Deciding about Medication

- Prior School Experiences
- Transitions for college students with ADHD
- Deciding about Medication
- Developing New Skills in relation to Symptomatology
- Common Experiences of College Students with ADHD
Deciding about Medication vs. No medication

All but two of the 30 students in the qualitative analysis had tried medication at one time to deal with their ADHD. Students were prescribed medications by both private physicians and physicians at the student health center. The most frequently prescribed medications were Ritalin and Dexedrine. A trial of medication was almost universal among these students. Another strong pattern, but not as universal, was that students continued to use medication in college. Students said,

"It (the medication) helps me stay focused."

"I can plan ahead if I take the medication – I'm not so impulsive."

"(Ritalin) makes an amazing difference in my life. Otherwise my life would be total chaos."

"Without the meds, I'm impatient, careless and can't focus. My life would be full of unfinished projects."

"After I got diagnosed and started on medication, people told me I was different, that I didn't mess around so much, that I didn't seem overwhelmed all the time. I stopped making mountains out of molehills."

"Before I started taking Ritalin, I had a 'failure complex.' I just couldn't do it. I had a GPA of 1.04. I started on meds and my GPA has shot up to 3.08. It (the medication) has made a total difference in my life."
Another student described this scenario:

For a time I had to be off my Ritalin because of another medical condition I was being treated for then. I had a test coming up in one of my classes that week but I thought to myself, ‘I can do this without Ritalin.’ I went to the lecture hall and started taking the test. I couldn’t do it. I was too distracted by everything, and there was a loud movie being shown in the next room. I went up to the professor and told him I couldn’t take the test with all this noise. He offered me a quiet place across the hall to take the test. I went there, but it was right next to the men’s bathroom and all I could focus on was the door opening and closing and the toilet flushing. After the test, I had to tell him that I was pretty sure I had flunked it. I told him the whole thing about how I have ADHD and take medication and how I had to be off of it this week. He said he would grade the test and then we could see how I did. When I got the test back, I got 23%. He was good enough to let me take a similar test the following week when I was on my medication. I went from getting 23% to getting 94%!

Another pattern emerged among those students who had been on medication for ADHD in elementary or secondary school. Some of these students had stopped taking the medication at some point before they entered college. One student said, “I really wanted to see if I could do this on my own.” Often times these students would reach one of those crisis points described earlier and would start back on the medication after they transitioned to college.

Some of the students had tried medication but did not continue on it. Many of these students stated that the side effects were the reason they discontinued the medication, especially insomnia, feeling jittery, and the development of tics. One student did not feel the medication made any difference in her ability to concentrate so she discontinued it. Some of these students used other medications that targeted the symptoms of anxiety or depression that were more pronounced than the symptoms of
ADHD. Still others didn’t continue because they thought that other people might judge them as behaving differently. “I didn’t take meds because I didn’t want people to think I was ‘tweeked.’”

A pattern emerged in relation to how students regarded the medication. Students who had a beneficial outcome with the medication did not like the idea of having to rely on medication to function better. One student capped others’ feelings when she said, “I wish there was another way. I don’t like putting drugs into my system.” Still another said, “I don’t like the idea that I have to take a drug. I wish I could do it on my own but I don’t seem to be able to.” And yet another stated, “Will I ever be able to get off the meds? I feel like such a guinea pig with meds.”

Results of Inquiry re Deciding to Use Medication or Not. Almost all of the students in this group tried medication at some point in their lives to counter the symptoms of ADHD which interfered with their learning. Students sometimes discontinued using the medication because the side effects outweighed the benefits of taking it, or because they wanted to see how they did without it. Students who had a successful experience with medication felt they gained the benefits of being able to concentrate, focus, and organize themselves. A strong trend emerged among students who continued to take medication: They did not like having to rely on something to help them function optimally. The next pattern that emerged in the unfolding matrix was that of using technology.
Figure 5. Common Experiences: Making use of Technology
Making Use of Latest Technology

Students were specifically asked in the interview what kind of technological aids they utilized and how they were helpful. The students in this group used some common technological aids to assist them. "I'd be lost without my computer," one student said. Others talked about how a spell check tool on the computer helped them write papers. Several students taped their lectures. Some could just listen to the lecture again on tape to study for exams. Others had to transcribe all the lectures into typewritten notes. A few students also took advantage of having textbooks on tape because they knew they learned better auditorily.

Many of these students wished that they had access to more technological aids. Many of them mentioned electronic memo pads that could be used to record assignments and appointments. One student thought this would be helpful because he forgets to write down assignments and he could just dictate it into the electronic memo pad before he left the class. One student wished for a software program that would help her organize her papers. Other students mentioned wishing they could use a voice recognition software program that would transcribe their spoken words into a word-processor document.

Results of Inquiry re Technological Aids. Students used tape recorders, computers, and recorded texts to help them do their work. For the most part, students knew about new technology that might be useful to them but few had access to it. The next pattern that emerged in the unfolding matrix was that of accessing services.
Figure 6. Common Experiences: Accessing Services

- Developing New Skills in relation to Symptomatology
- Deciding about Medication
- Making use of Technology
- Common Experiences Of College Students with ADHD
- Accessing Services
Accessing Services

When students were asked about how they found out about the student service center they accessed, many didn’t remember exactly how they had learned about the center. Some of them reported that their parents had called to inquire about the services before the student ever started college. No one particular service center (SDC, SHS, or SCC) stood out as the most frequent point of access for this group of students.

As mentioned earlier, these students often didn’t contact a student service center until they hit a crisis point. Many students reported using more than one service center, e.g., the student health service and the counseling center. In addition, students often mentioned making use of TRIO programs. TRIO is a federally funded program designed to increase the retention and graduation rates of students who are low-income, first generation college students, or have a physical or learning disability. Students who have been out of school for a while, single parents, and minority students are especially encouraged to make use of these services. Tutoring, study skills workshops, advocacy guidance, and informal counseling are also some of the services offered through these programs. On the Bozeman campus the office is named Advance By Choice (ABC) and in Billings, it is known as Student Opportunity Services (SOS). Almost all of the students that were interviewed had taken advantage of the services from the TRIO programs at one time or another. Many felt that the TRIO office was a place they could go to get some guidance or support when they were feeling discouraged. Some students also talked about getting that support from the Student Resource Center or from the Student Counseling Center as well, but the TRIO offices were used more informally than
the other two centers, e.g., stopping by without an appointment, networking with other students in the TRIO office to form study groups, etc. Another office that was mentioned as helpful was the General Studies office at MSU-Bozeman and the Advising Center at MSU-Billings where students felt they were given sound advice in choosing classes and negotiating the university system.

Several students reported feeling connected with personnel at the student service office. In fact, some felt that the relationship there was what had helped sustain them during difficult times, both academically and personally. Here is what some of them had to say:

Of the student disabilities office, one student said:

I know when I first went in there (the director) thought there was no way I'd make it, but (the director) helped me learn to learn; how to take a test; how to decide what's important in taking notes. (The director) boosted my ego and gave me drive.

Of the student health services, another student said:

I was a mess before I went to the doctor. I couldn't concentrate and my mind was a jumble of thought. (The doctor) prescribed Ritalin and it worked. It's not the answer, but it helps.

Of the student counseling center, another student commented,

I was not doing well. I was sleeping all the time. I was skipping classes. I have a depression, too. I mean, I was even suicidal at one point. Just getting the diagnosis helped - just knowing what it is. I went from taking three days to study for a test to taking three hours. And my grade point went up, too!

Other students didn't feel as positively about their experiences with the student service centers, or they had not used them after their initial inquiry. For some students,
the attempt to access services was a negative experience. One student said, "I was told that I wasn't college material when I tried to get help." Others reported they were told their GPA was too high and thus they "couldn't possibly have ADHD."

For other students who did access services, there was disappointment and frustration with how little it helped. One student said, "I was told to go to the math lab. Have you SEEN the remedial math lab? It's a huge room with people talking everywhere. I can't do math there." Another student complained that the quiet room for test taking was anything but quiet.

Results of Inquiry re Accessing Services. In general, students accessed services as they hit a crisis point. The crisis, rather than the diagnosis of ADHD, determined which service center they contacted first. Several used more than one service center. Many students had a good experience with the student service center they accessed, some of them feeling that the student service center was a key element at a turning point in their college career and continued to be a factor in their success in college. Still others felt they were dismissed by student service center personnel as not having a serious problem, if, for example, they had a high GPA. Other students didn't feel dismissed but felt disappointed and frustrated over the kind of help that was available. It sounded good in theory, but in practice, it was of little help. The next block of the unfolding matrix that emerged was that of using accommodations.
Figure 7. Common Experiences: Making use of Accommodations

- Prior School Experiences
- Transitions for college students with ADHD
- Developing New Skills in relation to Symptomatology
- Deciding about Medication
- Common Experiences Of College Students with ADHD
- Making use of Technology
- Making use of Accommodations
- Accessing Services
Making Use of Accommodations

As stated in the previous section, accommodation refers to special assistance that students can receive if they qualify under the legal definition of having a disability. It is a known fact by the administrators of the service centers on both campuses that there are far more students who have been given the diagnosis of ADHD than there are students who actually qualify to receive official accommodations. This fact is reflected in the 110 mailings of this study to students who had been diagnosed by a licensed professional, but only 44 of which qualified for accommodations. Of the 30 students interviewed, 12 of them qualified for accommodations. Like other campuses across the country, protocols have been set up in recent years on both campuses in their student disabilities centers to assure that students who report they have the diagnosis show evidence of it according to the criteria outlined in the DSM-IV. For example, students who want accommodations must produce documentation, not only of having been diagnosed, but also that they, in fact, have had the condition since childhood. This requires the student to produce some corroborative evidence of having had difficulties in elementary and/or grade school. This protocol was frustrating to a number of students. “I felt they practically needed a letter from my kindergarten teacher. I said, ‘Forget it. (Getting to use the accommodation) was more work than it was worth.’”

Another student who did qualify for accommodations had this to say:

I’ve gone over there (student disabilities center) before to take a test. The test wasn’t there (at the time I was to take it). When I called the professor, he said, “Why bother sending it over there? Just come to my office and I’ll make sure you have a place to take it that’s quiet.” And he did! I haven’t had to take another test over there since.
In regard to accommodations, the 12 students who qualified for them mentioned use of a quiet room for tests, being able to have extra time on tests, note taking, and priority registration as useful. Of all the accommodations offered by the university, the one that students on the Bozeman campus felt was most useful to them was priority registration. In this process, students with ADHD are allowed to register for classes earlier than others. They felt like this afforded them an opportunity to sign up for classes in which they would be more successful, i.e., smaller classes, professors they knew were well liked by students, and classes in which they knew the professor would be open to other accommodations, like a quiet place for testing.

Some students didn’t have any on-going or continuous contact with people in the student service centers, but they had made sure they could access those services if they needed. One student summarized the words of others when he said, “I don’t receive any accommodations right now, but you know, it’s nice to have that as a safety net if I need it sometime.”

Results of Inquiry re Making Use of Accommodations. For some students who did not qualify for accommodations, the process of trying to produce the right documentation to qualify was very frustrating. For the students who did qualify to use accommodations authorized by the student disabilities center, the most helpful in their perception was priority registration on the Bozeman campus. No one accommodation stood out as more useful than another on the Billings campus. Students used accommodations more on an as-needed basis, depending on the particular classes
they were taking and how open their professors were to providing them with the accommodations of a quiet testing place, providing notes, and extra time on exams. The next block of the unfolding matrix that emerged was that of maximizing internal resources.
Figure 8. Common Experiences: Maximizing Internal Resources

- Accessing Services
- Making use of Accommodations
- Making use of Technology
- Deciding about Medication
- Developing New Skills in relation to Symptomatology
- Maximizing Internal Resources

Prior School Experiences

Transitions for college students with ADHD

Common Experiences of College Students with ADHD
Maximizing Internal Resources

In the cross case analysis of the interviews, it became evident that there were some changes that took place for these students during their college years which were separate from the direct actions and interactions with the campus environment described above. These were internal changes. Internal resources are those positive attributes which students either possess innately or which students develop over time in their maturation and growth process. The internal resources that emerged in this group were: (1) developing the resolve to advocate for themselves, (2) deciding to seek out a support network, (3) developing insight and self-observation, (4) optimal disequilibrium, (5) maintaining a sense of humor, and (6) determination or self-motivation.

(1) Developing the Resolve to Advocate for Themselves. Self-advocacy for these students took various forms. For some, just making a contact at a student service center was a big step in acknowledging that they were having some difficulties and doing something about it. Following through with providing the necessary documentation, e.g. in order to receive accommodations, was another big step for 12 of these 30 students in advocating for themselves. There were also ways in which they advocated for themselves that didn't involve student services. As mentioned earlier, students felt a lot of reluctance in telling professors about having ADHD because they felt a lot of stigma has been attached to the diagnosis. However, a minority of students went to their professors at the beginning of a course to tell them that they had ADHD.
One student said:

I talk with my professors. I’m embarrassed but all but one has been good about it. I tell them, “I have ADHD and I take Ritalin to help with it. What is the best way for me to succeed in this class?” They tell me very specifically what I need to do and sometimes even make their notes available to me.

2) Deciding to Seek Out a Support Network. As we saw earlier, one struggle that was almost universal to this group was whether to tell others that they have ADHD. Of course, some students were more cavalier than others. “Oh, I don’t care who knows.” For others, it was a risk to tell people about it, including a risk to volunteer for the interview for this study. What emerged in this group of students was that the person they saw as most supportive to their college success was someone in whom they had confided about having ADHD.

Studies have shown that students who are more involved with the college environment are more likely to be retained (Astin, 1993)). Two key factors in involvement theory are whether students live on or off campus, and how much involvement they have with faculty outside of class time. This group of students had some things to say in relation to these factors. Living on campus did not emerge as a pattern in terms of students with ADHD feeling more immersed in the college experience. In fact, some students felt that, because of the nature of the difficulties associated with ADHD, living in a dorm had a deleterious effect on their functioning.
Don't live in the dorm if you have ADHD. I would have failed right off if I had had to live in the dorm. There are too many distractions there. Go (to college) part-time or wait a while until you go back. You'll never make it in the dorm.

In relation to faculty, this group of students did not generally regard their professors as persons to whom they felt particularly connected nor did they consider a professor as someone in whom they could confide that they have ADHD. Several students however did make an effort to make sure their professors knew their names. They felt this made it more likely that they would show up for class and that they would participate in class discussions. Like other college students, students with ADHD often develop their support networks among family, friends, and other students in their field. Students in this group did not seek out other students with ADHD, nor did their diagnoses necessarily form the basis for the connection to their support network.

(3) Developing Insight and Self-observation skills. Students also provided insights and self-observations about the change within themselves. Students described how they had changed their lives since coming to college. One student said, “When I started college, I didn’t know HOW to start. I didn’t know how to organize a schedule or map out my course of study. But at least now I’m very orderly. I HAVE to be in order to function.” Another said, “In my opinion, I’ve gained a lot here (in college). I’m more disciplined now. Sure, I have ADHD but I can harness it and use it to get things done.”

To find out whether students regarded having ADHD only as a liability, they were asked if they felt there were any advantages to having ADHD. A few students said that
they felt it made them more creative, gave them lots of energy, and gave them the ability
to do several things at once. A few more said that they didn’t know if it had advantages
because it was just a part of their person, not something they could separate out. But the
vast majority of students responded with a resounding “no” to the question. Most felt
that they had to work harder than other students did to keep up their grades. They knew
they had to implement more organizational and special study skills in order to succeed.

Sometimes the insights these students provided were painful for them, and the
interview touched on issues which held a lot of emotion for them. One student, who
described himself as being in the sophomore slump, had this to say:

You are asking me what contributes to my success in
college? (Long pause). I don’t feel like I AM a success in college (Long
pause). I have a terrible living environment. My roommates are
unmotivated. My life style isn’t conducive to studying. I have a bad
schedule. There isn’t anybody here that I feel has been particularly
helpful to me. I’m so aware that I should be doing more than I am.

(4) Optimal Disequilibrium. Another pattern that emerged in the interviews with
these students was that some had an optimum stress level. Students commented that they
“seem to thrive on stress.” Another said, “I have a big problem with procrastination. I
always find something else to do. But I work better under pressure. At the eleventh hour,
I get focused and I pull it off!” Yet another said, “I look at college like an adventure, like
Disneyland. There’s always something new and exciting and I’m not exactly sure how
I’ll handle it, but when I’m afraid, it’s more fun!”
(5) Maintaining a Sense of Humor. Another internal resource that students described was maintaining a sense of humor about having the diagnosis. This ability to sometimes laugh at themselves or their actions seemed to serve them in good stead. Here's what they said about themselves:

My parents had me evaluated when I was in high school. I didn’t seem to be interested in school. I enjoyed the social aspects of high school but I had no direction. After I got the diagnosis, my dad wasn’t sold on the idea. And he wasn’t sure that getting medication was the way to go. By the way, since then, he went to be evaluated for it (ADHD) and he has it, too. He’s on Ritalin also. We give my mom a bad time now. My dad and I will be doing something together and we’ll come home and she’ll say, “Did you remember to bring home what I asked you?” We’ll look at each other and then we’ll look at her and we’ll say, “Mom, look who you’re talking to! The Ritalin boys! We can’t remember anything!”

Another student laughed at herself for having “a huge panel of stupid buttons,” meaning she had made plenty of mistakes along the way in her college career. Another said of his propensity to put things off, “Procrastination is spelled D-I-S-A-S-T-E-R!” One woman said, “One of the advantages to my having it (ADHD) is that it lets me be goofy once in a while. I make people laugh and I can laugh at myself. That’s been a long time in coming though.”

(6) Motivation and Self-determination. These students talked specifically about what they thought contributed to succeeding in college. Some students were motivated by: a) not wanting to let others down, b) the goal of having a better life and c) the need to prove something to other people. One student said, “There is a lot of pressure to do well.
I'd feel like I'd be letting people down if I didn't make it.” Other students dreamed of a better life. One said in relation to this, “You know what motivates me? I worked for years in factories. I decided that was not the life for me.” Other students had a need to prove something. One student said, “I got kicked out of (another) college. Basically they said, ‘You screwed up!’ That experience actually made me more determined than ever to show them I wasn’t stupid.” Yet another student quipped, “It’s my desire to go back to my high school class reunion with my college degree in my hand and say, ‘See? I wasn’t stupid after all!’”

Self-determination was the topic about which students talked most vehemently. Students identified these internal motivators in pursuing a degree:

“Keep your eye on the goal.”

“My belief in myself.”

“My upbringing and personal attitude.”

“(The thing that helps me succeed in college) is self-motivation.”

“I don’t believe in the word ‘can’t.’”

“It’s my determination and my passion for (my field).”

“My desire to better myself!”

This internal motivation led students to regard themselves in a new way, one in which they felt more capable and competent. One student capped this feeling when he said:

College is harder than I thought it would be. But I do feel now that I can do most anything. I’m invincible! College doesn’t frighten me any more. If you have problems, you fix them!
One student who made use of many university services and accommodations said:

Probably the biggest thing I’ve gained is the ability to go on. If I get a bad grade, I tell myself, “That’s okay.” And I continue to plug away at it until I can do it. I really want to be able to do this on my own.

Results of Inquiry re Maximizing Internal Resources. Students maximized their own inherent resources to succeed in college. These included learning to advocate for themselves when they needed to, developing a support network that included people who were aware of and understood the diagnosis of ADHD, gaining insights to how they learned and using ADHD to their advantage if possible, having an optimal stress level that pushed them to get things done, maintaining a sense of humor about mistakes they’d made, and possessing some internal motivation to attain the goal of a college degree.

The next block of the unfolding matrix analyzed how these common experiences of college students with ADHD related to their perceptions of the usefulness of student services to their success in college.
Figure 9. Usefulness of Student Services
Usefulness of Student Services as They Relate to Common Experiences of College Students with ADHD

The six common experiences of college students with ADHD that were identified from the interviews of 30 students were: (1) developing new skills in relation to symptomatology, (2) deciding about medication, (3) making use of technology, (4) accessing services, (5) making use of accommodations, and (6) maximizing internal resources. The next block in the unfolding matrix was whether student services played a useful role in facilitating these experiences, and if so, in what way. What emerged were two categories: (1) students' perceptions of services as being helpful to building their skills and/or contributing to their change processes, and (2) students' perceptions of services as not being helpful and/or contributing little to their change processes. This provided the data to answer the last two questions of this study. Question Six: How do students with ADHD regard student services as contributing to their success in college? Question Seven: What are the reasons students who self-report they have ADHD do not seek campus services?
Figure 10. Student Services: How do Students Perceive Them?

Usefulness of Students Services

Helpful to building skills
Contributes to change process

Not helpful
Contributes little to change process
Hypothesis/Question Six

How do students with ADHD perceive the student services they receive as contributing to their success in college?

Students who saw student services as helpful and contributing to their success perceived direct assistance and accommodations as being helpful. Such things as tutoring, taped texts, note takers, filling prescriptions, extended test-taking time, and priority registration assisted them in being able to make it through their college careers. Almost all the students in this group had had a medication trial at some point in their lives and most of them continued to take the medication. This is the intervention that students talked about as making the most difference in their lives. Many of these students had been initially diagnosed by a licensed professional that was not associated with the university. However, many of them wanted to be able to continue their treatment with medication by being followed by a physician at the student health service or a psychiatrist at the student counseling center. Because most stimulant medications are Schedule II drugs and are prescribed only if a person is being seen on a regular basis by a physician, it follows that students wanted to be seen by a local physician at a price they could afford.

In addition, some students felt that such services as counseling, advising, and offering classes in organizational and study skills were invaluable. Often times students built a rapport with someone who worked in a student service center and that person became part of the student’s support network within the college environment. They saw that person as someone who helped them make changes in themselves so that they felt and acted more capable and competent.
In summary, a pattern emerged among these students who were at one time at a crisis point in their lives, in a state of disequilibrium. Often times after some direct interaction with one or more of the student service centers, e.g., receiving university accommodations, counseling, or starting medication, they moved to a more contented and functional state. Long after the intervention had occurred, the student continued to feel more capable and competent. They had actually incorporated these beneficial attributes into their sense of themselves as capable students. Most of these students identified their own determination as the most important factor in their success. Getting and taking medication ranked as a close second in importance to their success. Other services such as tutoring, counseling, and accommodations were perceived to be sometimes helpful, but less essential to their success.

The last block of the unfolding matrix organized the reasons that students chose not to use student services.

Hypothesis/Question Seven

What are the reasons students who self-report they have ADHD do not seek campus services?

Students who initially contacted a student service center but then did not actually access any services had many reasons for doing so. Some students felt they got the information they needed in the initial contact and didn’t need to go back. Others felt that it was too difficult to access the help because of the documentation that was required.
Some were bitter about being denied services they had asked for, particularly accommodations authorized by the student disabilities services, and felt they would be doing better and would be farther along in college if they had been given some accommodations they felt they needed.

The other pattern that emerged was that some students really had little interaction with student services. Some were reassured to know that they had access to help if they needed it. Others simply didn’t regard any of the three student service centers as a part of the equation in their growth process, and/or they didn’t feel they needed them. Many of these students voiced the wish to be able to succeed in college on their own without any assistance from medication, counseling, accommodations, or any other assistance. Many of them felt they had a strong determination to make it through college, and that was a key factor in their success.
CONCLUSIONS AND RECOMMENDATIONS

Statement of the Problem

The problem of this study was to determine if there was a difference in the college success rate of students with Attention Deficit Hyperactivity Disorder (ADHD) who were consistent users of student support services and those students with ADHD who were inconsistent users of student support services, with college success rate measured by grade point average.

Discussion of Extraneous Variables

There were seven potentially contaminating or extraneous variables in this study: (a) students who self-disclose that they have ADHD but have no documentation of the disorder, (b) co-morbidity of other psychiatric disorders, (c) the fact that more males are diagnosed with ADHD than are females, (d) students who used more than one service center on campus, (e) local history, (f) differences in different disciplines/colleges, and (g) number of credit hours.

The first variable of whether or not the student was actually diagnosed with ADHD was controlled for in this study by collecting data only on those students who had received the clinical diagnosis of ADHD from a licensed and qualified professional.
Previous studies (Saravia-Cornelius, 1994) pointed to the need to collect data and interview students with the diagnosis, rather than rely on screening checklists or self-diagnosis as a basis for studying this population. All the students in this study had been diagnosed with ADHD by a clinician, and the majority of them had written documentation of that diagnosis. Those who didn’t have written documentation gave an account of who had diagnosed them, at what age, the credentials of that clinician, and the evaluation process they went through. Based on that information, the researcher did not exclude any students from the study because the diagnosis was in doubt.

Co-morbidity was a second contaminating variable that the researcher took into account. Co-morbidity refers to the presence of another condition that might interfere with the student’s learning processes, e.g., a learning disability, depression, or obsessive-compulsive disorder. About half of the students in this study had a co-morbid condition, however, due to issues of confidentiality, the researcher could not determine the prevalence of certain conditions, e.g., was depression more common than a learning disability? However, one conclusion can be drawn about the co-morbidity profile of this particular sample: Based on the types of medications that students were taking, the vast majority of them were being treated primarily for symptoms of ADHD, rather than a concomitant condition. Stimulant medications are almost never prescribed to treat depression or anxiety. By and large, learning disabilities are not treated with medication. The students in this sample were dealing primarily with the symptoms of ADHD. It is not safe to assume that ADHD always interferes more than other conditions that may be present, but in this particular sample, students were struggling primarily with the
interference from their symptoms of ADHD, even though about half of them had a concomitant condition.

The third extraneous variable was that males outnumber females in the general ADHD population. The ratio of men to women in this sample was almost 2:1. This reflected the generally accepted ratio in the larger population of persons with ADHD of 3:1.

Another potentially confounding variable was that of students who used more than one service center on campus of the three that were studied. A letter was sent out to a total of 110 students from the three student service centers. If a student used more than one service during the academic year 1996-97, they may have received more than one letter. The data, however, did not represent any duplications. The students in the quantitative analysis were counted only once, independent of whether they responded to the letter or not. The students in the qualitative portion of the study were obviously interviewed only once, even if they had received more than one invitation to be interviewed. No student mentioned to the interviewer that he/she had received more than one letter.

Another one of the confounding variables in this study was that of local history on the Bozeman campus. This local history reflects many of the dilemmas faced by college campuses across the country in serving students with ADHD. The dilemmas include how students who weren’t diagnosed as children can get evaluated as adults, how students can obtain medication in a timely and affordable way, and how to provide follow-up care for a group of students who respond well to stimulant medication, but who are also at great
risk for drug abuse, as shown in previous studies. The specific dilemma that MSU-
Bozeman faced was that of comprehensive evaluation. For a time during the 1996-97
academic year, a psychiatrist diagnosed students with ADHD before gathering
corroborative evidence that the student had in fact experienced academic difficulties prior
to their college career. Only two of the students in the qualitative portion of this study
had been seen by that particular psychiatrist, and one of those two had been diagnosed
with ADHD prior to seeing him. This lends validity to the study's assumption that all
students involved in the study did in fact meet the criteria for the diagnosis set forth in the
DSM-IV. The students in this study who were diagnosed with ADHD in college had
gone through an appropriate evaluation process and had produced corroborative evidence
of having had the condition as a child. The student health service did see an increase in
students with ADHD at their clinic during the 1996-97 academic year but attributed that
to the fact that ADHD is more widely recognized in adults. It reflected a larger trend in
the diagnosis of ADHD rather than a phenomenon explained by local history (Mitchell,
1998).

The extraneous variable of differences in GPA in different colleges and
disciplines was one that was examined. Again, due to issues of confidentiality, the
researcher did not know the declared major of each individual student. However, the
researcher did examine the majors of this sample of students in aggregate form. An
examination of this type cannot answer the question whether some of the differences in
GPAs in this sample might be accounted for by the differences in mean GPAs among
various disciplines, e.g., the mean GPA in the college of engineering might differ
significantly from the mean GPA in the college of agriculture. The researcher did examine the clusters of majors among the students in this sample. No college or discipline particularly stood out as being over-represented, nor was any discipline not represented.

The last extraneous variable was that of number of credit hours. The researcher wanted to examine whether taking fewer credit hours during a semester accounted for some of the difference in the mean GPAs. The students were categorized by part-time and full-time status, thus building this extraneous variable in as an independent variable.

After taking each of these variables into consideration, the researcher collected both quantitative and qualitative data on these students. While not all the variables could be controlled, the researcher made every effort to ensure that the data was valid and reliable.

Summary of Quantitative Data Analyses

The quantitative portion of this study was conducted with data on 44 students on the Montana State University-Bozeman and Montana State University-Billings campuses gathered from student disabilities services for the academic year 1996-97. All these undergraduate students had made contact with the student disabilities services center, had been clinically diagnosed with ADHD by a licensed professional, and all of them qualified to receive academic accommodations reserved for students with disabilities.
The first question utilized descriptive statistics to categorize the types of accommodations that students use. The accommodations these students used included priority registration, alternative testing site, time and a half allowed for tests, note-taking, taped texts, and use of a computer. The accommodations were ranked in order, according to how frequently each particular accommodation was requested. Priority registration was requested most often by the students on the Bozeman campus. The next most requested accommodations were a quiet place to take exams, and extended time to take exams. Both of these accommodations were requested by about 58% of students on both campuses. After that, the accommodations of note-taking assistance, the use of a computer in the disabilities center, and the use of recorded texts each were requested by less than a third of the students.

While the first question described which accommodations were requested most frequently, the second question examined whether the consistent use of these accommodations impacted the mean GPAs. Whether students used accommodations consistently or inconsistently was not a statistically significant factor when comparing students' GPAs. In other words, when students were grouped by whether they used accommodations consistently or inconsistently, the mean GPAs of the groups did not differ significantly.

The third question examined whether the consistent or inconsistent use of accommodations was related to gender or to class standing (F, So, Jr, Sr). Using a chi-square test, the rate of use of accommodations was independent of gender, and of class
standing. In other words, there was no relationship between rate of accommodation use, and gender or class standing.

The next question examined students' use of medication coupled with their use of accommodations. Of the 37 students known to take medication for ADHD, the mean GPA of those who used accommodations consistently did not differ significantly from the mean GPA of those who used them inconsistently. The mean GPA of students in this study who didn’t use medication could not be analyzed because there were so few of them.

The last quantitative question examined whether the number of credit hours that students carried, coupled with their use of accommodations, might impact students' GPAs. Again there was no significant difference among the mean GPAs of students when grouped by the credit hours they carried, and whether they used accommodations consistently or inconsistently.

**Summary of Qualitative Data Analyses**

An unfolding matrix design was used to trace the patterns of college students with ADHD. Cross case analysis was utilized to identify the emerging patterns. A pattern of negative school experiences prior to coming to college was almost universal in this group of students. As these students transitioned to college, there were some pivotal points. Just getting the diagnosis made a huge difference for some of the students. They began to understand why they felt bright but seemed to be incapable of learning in the usual
way. When these students sought services, it was at a crisis point for them, e.g., flunking a test, feeling depressed, or feeling physically ill. They sought services, not necessarily to help with their ADHD, but to help with whatever crisis they were going through. Most students felt it was not a good idea to tell professors and even friends that they had ADHD because they felt a lot of stigma has been attached to the diagnosis.

In the college environment, this group of students had a number of experiences in common. They developed new skills to deal with the symptoms of ADHD, such as organizational, time management, and ways to persist in their studies. One of the most common examples of “environmental engineering” (Ratey, 1997, p. 585) that this group of students reported was to have some kind of music playing in the background while they studied. Hallowell & Ratey (1996) reported that one theory about the use of t.v. or background music is that the noise “engages that part of the brain that would otherwise be sending distracting signals to the part of the brain that is trying to focus (p. 98).

Every student in the study faced a decision at one time in their lives about whether or not to take medication, and most of them chose to try, and then to stay, on medication. Most thought that new technological aids would be helpful to them, but none had access to it or the means to obtain it for themselves.

Students also called upon a number of internal resources in pursuing their goals: 1) they learned to advocate for themselves when they needed to; 2) they developed a support network of people who understood what having ADHD meant, but having ADHD did not form the basis for the relationship; 3) they gained insight, sometimes painfully so, into what they needed to do differently in order to succeed in college; 4)
they learned to use some of the stress in their lives as a motivator by keeping themselves in a state of optimal disequilibrium; 5) they maintained a sense of humor about having ADHD and the havoc it wreaked with their lives; and 6) they felt like the most important contributor to their success in college was their own determination and persistence. From the perspective of educators, the students’ descriptions of this internalization process reflected the developmental learning processes elucidated by King and Magolda (1996). These students talked about the processes of organizing and reorganizing what and how they learned, e.g., learning new ways to study and organize themselves. They talked about how the process of making meaning of their experiences in college improved over time, e.g. students who flunked out of another college, or who partied too much when they first started college. These are the very principles upon which King and Magolda based their beliefs that student affairs professionals can provide a bridge for students (1996, pp. 169-171). The bridge fosters the development of a life-long learner, an appreciation of diversity, a willingness to take personal responsibility, and a desire to make a positive contribution.

Also in relation to these internal resources, Ratey et al (1997) wrote that many ADHD adults find it difficult to develop the kinds of internal resources that lead to emotional maturity. Their “awareness of self is facilitated through securing a quiet place within the self to which one can retreat to process (one’s) experience” (p. 583). Adults with ADHD find this task almost impossible because of the “noise” that overwhelms them, the constant intake of stimuli. These same authors discussed the need for conflict and trauma in some adults with ADHD. Just as the students in this study identified a state
of optimal disequilibrium, Ratey et al concluded that “highly excitatory situations or states may paradoxically serve as organizing forces in their lives” (p. 584).

The central issue in the qualitative analysis was how students perceived student services as contributing to their college success. Patterns emerged as the students in this sample reported common experiences. The results of the analysis showed that in students’ perceptions, a relationship existed between student services and their success in college. For some students, the service was perceived to be extremely helpful, e.g., student health services providing them with their medication. Those who used accommodations also felt these services gave them the extra assistance they needed, e.g., being able to use priority registration for classes. Students perceived other concrete services, such as study skills classes and time management seminars, as helping them build skills they could integrate and use universally. These perceptions are a reflection of the student development theory advanced by Chickering (1993). In Chickering’s conceptualizations, the first vector of developing competence includes not only developing intellectual competence, but also developing confidence in one’s abilities. This was a phenomenon that students talked about candidly in the interviews, how learning new skills and ways of organizing themselves played a role in how they felt about their abilities in general. The third vector in Chickering’s theory is that of moving through autonomy towards interdependence. In this vector, students develop increased self-direction, problem-solving ability, and persistence. Again many students talked freely in the interviews about the growth they felt they had made in relation to these attributes. Some students also mentioned forming a connection with student service
personnel, and it was that relationship that helped them maximize some of their own internal resources. However, of all the aids that were identified as useful, medication was by far the biggest help.

Some students didn't perceive student services as contributing much to their success. The evidence was not so much that students had negative experiences with a student service center, although there certainly were a few students who reported that they did have a negative experience when they tried to pursue help. However, most of these students, who did not use student services after their initial contact, perceived the student service center as a safety net, someplace they could go for help if they needed it. Many of the students in the group of students who did not perceive student services as contributing to their college success were followed medically by a private physician rather than student health services, and therefore just simply didn't have much need for contact with an on-campus student service.

In summary, the students who saw student services as helpful held this perception because (a) they felt connected in a positive way to personnel in the student service center; (b) they valued the study skills, the time management skills, and the organizational skills that they learned to integrate into their daily lives; and (c) they knew how important medication was to their successful functioning and were glad to have a way to be followed medically in a way that they could afford. For the most part, the students with ADHD who did not use student services after an initial contact perceived these services to be a duplication of care they were already getting elsewhere, or they did not feel the kind of help they needed was available at the particular center they contacted.
Integration of Findings of Quantitative and Qualitative Data

Patton tells this story about mixing quantitative and qualitative methods of research. The news reporter asks the major league baseball player, “Last year you had 2 home runs all season. This year you have 5 in one month. What’s the difference?” The baseball player responds, “3” (1990, p. 446). Mixing methodologies is not a common design for a dissertation, but just like Patton’s story, the numbers can tell us only so much. Thus qualitative research techniques were utilized to expand on the stories behind the numbers.

On both campuses, the GPAs of these students with ADHD did not differ significantly from the GPAs of the student population as a whole. However, students with ADHD who qualified for disability accommodations at MSU-Billings during the 1996-97 academic year had a slightly higher mean GPA than did the general student body: 2.98 for ADHD students and 2.87 for the general student body. While not statistically significant, it is a finding that administrators of student disability service centers might observe as supportive evidence that accommodations can make a difference for ADHD students. The possibility also needs to be considered that students with ADHD who are motivated enough to seek accommodations are more highly motivated than students with ADHD who do not seek out accommodations and services. This study was not designed to explore that possibility.
There is not a lot of data about college students with ADHD, however, Weiss and Hetchman completed a longitudinal study in 1986 in which they reported that children who were diagnosed with ADHD grew into adolescents and adults who had a high incidence of poor educational achievement. They reported that only 5% of the students in their study actually graduated from a postsecondary institution, compared with 41% of a matched comparison group. As shown in that study, it is generally accepted that the majority of children who have ADHD may not attend or graduate from a postsecondary institution. Also as was discussed in the literature review, the tentative normative data coming in about college students with ADHD is showing that, as a group, their degree of ADHD symptoms is modest (Heiligenstein at al, 1998). In this current study, students had a mean GPA on both campuses that did not differ significantly from the general student population. We might speculate that those students with ADHD who do get into college and who use available accommodations can hold their own grade-wise. That is only a speculative finding and one that would need to be further researched.

Kathleen Nadeau, who is recognized nationally for her work with people who have ADHD, has published a list of guidelines for students with ADHD (1994). This current study supports Nadeau’s suggestions that students should: (a) obtain accommodations they qualify for; (b) become their own advocates; (c) should recognize that attention, concentration and organization are difficult for them; and (d) should stay on medication during college if they were on medication prior to coming to college. This current study did not however support her suggestion that a reduced course load impacts students’ GPAs in a positive way. The data analysis in this study showed that there was
no significant difference in the mean GPA of students who went part-time from the mean GPA of full-time students.

Dr. Frank Gersh contended that ADHD in college populations should be treated with a variety of therapeutic approaches including medication, skill development, and accommodations, to name a few (1993). The combination of approaches, according to Dr. Gersh, should be customized for each student and requires collaboration among student service centers. This current study certainly reconfirms Dr. Gersh's contentions.

Freshmen and sophomores who used student disabilities accommodations outnumbered juniors and seniors by almost 2:1. Much speculation can be attached to this fact about this sample. First of all, given what the students reported in their interviews, one could speculate that student services often helped students in their quest to become more autonomous, more organized, more capable, and more competent. Many students described the internal changes they went through in learning to manage themselves successfully in college. If one of the roles that student services plays in maximizing the student's ability to utilize his/her own internal resources, it stands to reason that fewer upper division students would need to use the accommodations than did lower division students. As students moved towards a state of greater equilibrium, they may have utilized external resources less and less. Secondly, some experts contend that the rate of ADHD in any given group declines by 50% approximately every 5 years (Hill & Schroener, 1996). That would mean that the older the students, the fewer there would be who would still be manifesting symptoms. If this claim is true, it stands to reason that upper division students who, as a group, are older than lower division students would
request accommodations in fewer numbers. The third explanation might simply be that lower division students outnumbered upper division students on both campuses during the academic year 1996-97. The quantitative data showed basically that the mean GPA of students who used accommodations consistently didn’t differ significantly from the mean GPA of students who used accommodations inconsistently. The question of which combinations of services and accommodations have a beneficial impact on GPAs is a complicated one. This study concluded only one clear pattern, and that one pattern was very pronounced. The pattern that emerged from both the quantitative and the qualitative data was that medication was overwhelmingly the first line treatment for this group of students with ADHD. Students who used medication outnumbered those who didn’t use medication almost 10:1.

The original proposal for this study posited two questions relating to students’ use of medication. One question was to find out if there was a significant difference between the mean GPA of students who used medication and/or accommodations, and the mean GPA of those students who didn’t use medication and/or accommodations. The other question examined the impact of medication use, the use of accommodations, and semester credit load as variables that might impact GPAs. Neither of these questions could be answered because the number of students in the quantitative portion of the study who did not take medication was so small the statistical analysis could not be done. A most important finding of this study was that almost all of these students with ADHD were taking medication. This fact reflects the larger societal picture: there has been rapid recognition that the symptoms of ADHD do continue into adulthood, and that the same
stimulants that are effective in children are effective in adults with ADHD. This finding in this sample of students lends credence to the idea that, just as more adults in the general population are seeking medication to relieve the symptoms of ADHD, adults in college are seeking out medication more frequently than any other intervention available to them.

Dr. Barkley wrote in 1990, “At this writing the stage is set for an explosion in public activism that promises to alter both society’s view of the disorder and the manner in which it is handled by the educational system” (p. 38). ADHD is a neurological disorder and the best practice for treatment of the disorder is medication. Barkley has said that treating someone with ADHD without first trying medication is grounds for a malpractice suit (1996). He contends that medication doesn’t help everybody, but it helps most people with ADHD. Barkley’s contention is one that was borne out in this current study.

The qualitative data revealed something about those students who took medication that the quantitative couldn’t have measured. Students in the qualitative portion of the study reported that while they felt the medication was extremely helpful, most of them reported that they did not like the idea of having to take the medication to relieve their symptoms. They were reluctant medication users, not students seeking narcotics for recreational or mood-altering purposes. In fact, many reported that they had tried to manage without the medication at some point, e.g., to take a test, or when starting to college, to see if they still needed the medication. Almost all of the students reported that they resumed taking the medication, seeing it as something that was helpful to them
in getting through college. They don’t necessarily see it as something they will take for
the rest of their lives, but they do feel it is helpful to them while in college where their
symptoms interfere with the demands of studying.

The quantitative data was available on 44 students from the student disabilities
centers. College students with ADHD also commonly access the student health service
and the student counseling center to assist them with the difficulties they are
experiencing. The qualitative portion of this study was able to capture data about how all
three of those centers were helpful, as well as other services on campus. The mere fact
that so many of these students took medication to relieve symptoms of ADHD means that
student health services did and/or should play a key role in providing students with a way
to be followed medically and continue to use medication.

The quantitative portion of this student yielded information about students who
already qualified for accommodations, but revealed little about the subgroup of students
with ADHD who didn’t qualify for accommodations under the Disabilities Act (1990).
The qualitative data revealed information about this second subgroup of students. It was
found that the students in both the quantitative and qualitative samples put together for
themselves a whole array of student services, depending on what they perceived
themselves as needing. Besides seeking accommodations and medication, students
sought help for depression, anxiety, academic tutoring, organizational and study skills,
and advising. Various service centers provided that help, but in the final analysis,
students felt there were two key components in their success in college: their own
determination to succeed, and the use of medication to relieve symptoms. To be sure, the
service centers that offered them direct help with academics or overcoming their depression or controlling their anxiety or finding the right combination of services and accommodations were immensely helpful in these students' perceptions. But the students in this group also wanted to be able to use the student services only to develop the skills they could then use on their own and to tap into their own internal resources in order to succeed. Student service centers assisted these students in their processes of becoming more autonomous by not only teaching them skills, e.g., time management, but often times, also offering the opportunity to establish a connection with a university-related professional. Most of these students did not see faculty as part of their support network in the college environment. However, many of them did describe student service professionals (physicians, counselors, directors) as people who helped them feel more capable and competent. This in turn led to a stronger determination to meet their goal of obtaining a college degree.

In summary, the qualitative data supported the finding in the quantitative data, i.e., that students frequently used medication to diminish their symptoms of ADHD. In addition, it mattered little how many, how often, and what kinds of services students with ADHD used. What made a difference was how those services contributed to their process of increased autonomy and increased competence, two of Chickering's vectors. As students relied more on their own internal resources and less on external ones, they internalized the change process that was enhanced by their use of student services.
Recommendations for Future Action

This study contributes to the growing body of knowledge about college students with ADHD. The commonality among students in this sample was the consistent use of medication to relieve the symptoms of the disorder. This finding is not unique to the Montana State University system, nor is it a surprising one. This finding does however provide some empirical data from which to argue that college students with ADHD need a convenient and practical way to be followed regularly by a physician. They also need a convenient and cost-effective way to obtain their medication.

Student health services and student counseling centers across the country are cautious about becoming the diagnosticians who initially recognize ADHD in a college student. The diagnosis of ADHD has undergone many changes in terms of its taxonomy and the criteria for making the diagnosis. The task that faces many student service centers on American campuses right now is setting up protocols for documentation of the disorder prior to coming to college, insuring that a qualified and licensed clinician conducted an appropriate evaluation in making the diagnosis. The mission for student health centers, student counseling centers, and student disability centers is to promote the education of the students who attend their institution. Students with ADHD are helped in a dramatic way by the use of medication. It follows that students need a convenient way to be followed by a physician and a cost-effective way to obtain the needed medication.
Student disabilities centers have led the charge on college campuses in regard to developing services and insuring that students with ADHD have their rights to higher education preserved. On most campuses, the student disabilities center, the student counseling center, and the student health service already work closely together. In relation to ADHD students, that relationship needs to be further strengthened because medication is so central to the optimal functioning of these students. At the very least, students should be advised how to access the student health service, or a student counseling clinic psychiatrist if one is available, for medical follow-up and medication management. The proper dosage of medication often takes adjustments, and students need easy access to a physician who can help them monitor that.

One of the main findings of my study was that students who used accommodations consistently did not have a significantly different mean GPA from those students who used them inconsistently. If the accommodations, as a singular variable, do not make a difference, we need to examine what kinds of services, in combination with accommodations, do make a difference in GPA. College campuses routinely offer students with ADHD the same services as they offer students with a learning disability. There is no empirical evidence to support the idea that these are, in fact, the services from which students with ADHD can most benefit.

The idea of having a student orientation that would be geared to the particular needs of students with ADHD might be worth entertaining. This orientation would emphasize how to access the three student service centers at the center of this study, as well as other helpful services such as the tutoring lab, math lab, TRIO programs, etc. The
purpose of this type of orientation would be to help students know how to access these services before they undergo some major crisis in their college career. Support groups are sometimes offered, although the students in this study did not identify that as something in which they were particularly interested. However, if these students were given a chance to become acquainted with one another, e.g., in a freshmen seminar, they might draw some support from one another outside of the classroom as well.

This study also has relevance to the reconceptualizations posed by Baird (1996). Baird states that college students have been traditionally regarded as young, white, mostly male, liberal arts students who devote themselves to their studies full-time. That stereotype has vanished as the demographics of the typical college student have changed. Students are older; more are part-time; more are females and minorities; and more recognition is given to a variety of learning styles and individual abilities. A century ago, few students with ADHD would have been admitted to institutions of higher education. Today diversity on campuses is valued, and students with ADHD attending college are a reflection of that changing value and attitude.

According to Baird, students are taking a more active role in their education. They are defining their own goals in their career plans and personal needs. Baird states:

To promote learning and development, institutions need to place the responsibility for students' education in students' own hands; at the same time, institutions have a responsibility to help students learn how to handle this responsibility (p. 528).

This is exactly what the interviewed students were articulating about their perceptions of the role of student services. They wanted the responsibility of their
education in their hands, but they needed some assistance in learning how to do that. It follows that teacher training programs will need to incorporate the knowledge about educational approaches to these students into the curriculum.

Recommendations for Further Research

This study was unique in its mixed methodology design. Standard statistical procedures as well as cross case analysis were used to analyze the data. Future research should include larger sample sizes in order to compare the college success rates of students who take medication with those who don’t. The current study was originally designed to do that analysis, but the data yielded too few students who weren’t on medication to make any valid comparisons.

One issue that came up in many interviews was that math and the hard sciences were difficult for this sample of students. Future research might include an examination of the majors that students with ADHD choose. Likewise an examination of why math and science seem to be difficult, not only for the sample in this study, but in other studies as well, might be warranted. It is already known that 30% of students with ADHD have a learning disability of some kind, but a correlation of ADHD and specific learning disabilities would be useful.
There is nothing in the current literature base that examines what kinds of things are correlated with retention rates for this population of students. Future research should include an examination of drop out and stop out rates and patterns for this population, particularly examining what effect accommodations and services have on retention rates. Also there needs to be an examination of what reasons these students cite for dropping out of college. The question that is raised is whether dropping out is related to ADHD, or if the rationale for dropping out is related to other circumstances, e.g., financial, or the loss of a parent. It is also necessary to discover what attributes, services, and support systems are associated with an increased graduation rate.

Another question that needs to be examined is whether the size of a college makes a difference for these students. It is worth investigating whether students perform better in a smaller environment where they are less anonymous and more involved with faculty.

This study encompassed the academic year 1996-97. Future studies should include longitudinal data which could track the academic progress of students as they are diagnosed, start taking medication, and start making use of services and accommodations.
BIBLIOGRAPHY


Gersh, F. (November, 1993). Treatment of ADD in college students. CHADDER, Magazine published by the Children and Adults with Attention Deficit Disorders, 10-11. Plantation, FL.


Mitchell, J. (March 10, 1998). Director of student health services at Montana State University, Bozeman, MT. Personal interview.


APPENDICES
CONSENT FORM
FOR PARTICIPATION IN STUDY
MONTANA STATE UNIVERSITY

College Students with Attention Deficit Disorder

You are being asked to participate in a study about attention deficit/hyperactivity disorder in college students. The purpose of this study is for completion of a doctoral dissertation and your participation is completely voluntary. This study may help us understand what leads to greater success in college for students who have ADHD or ADD.

The study includes all students with Attention Deficit/Hyperactivity Disorder who were enrolled (full or part-time) at Montana State University during the 1996-97 academic year. Your input to this study is important, even if you did not complete the 1996-97 academic year. Even students who have a mild case of ADHD can provide valuable information. If you never received any services or special accommodations, your input is also very important. It does not matter if you are currently enrolled in school.

If you agree to sign this release, your name, phone number, and address will be released to the researcher (Vicki Burford Niemants) for a follow-up interview by phone or in person arranged at your convenience. Interviews would require approximately 30-40 minutes.

Further information about this study may be obtained by calling Vicki Burford Niemants at 406 656-6658 (collect) in Billings. E-mail: VBNiemants@aol.com

AUTHORIZATION: I, ____________________________ agree that my name, address and phone number can be given to the researcher, Vicki Burford Niemants, for a follow-up interview to be conducted by phone or in person at my convenience and a place of my choosing.

Signed____________________________________ Date____________

Address: _______________________________

Phone # Day: ______________________ Evening: ____________________
CONSENT FORM
FOR PARTICIPATION IN STUDY
MONTANA STATE UNIVERSITY

College Students with Attention Deficit Disorder

You are being asked to participate in a study about attention deficit/hyperactivity disorder in college students. This study may provide help for other students with attention problems in pursuing their college education. The purpose of this study is for completion of a doctoral dissertation by Vicki Burford Niemants and your participation is completely voluntary.

The study includes all students with Attention Deficit/Hyperactivity Disorder who were enrolled (full or part-time) at Montana State University during the 1996-97 academic year. Your input to this study is important, even if you did not complete the 1996-97 academic year. Even students who have a mild case of ADHD can provide valuable information. If you never received any services or special accommodations, your input is also very important. It does not matter if you are currently enrolled in school.

If you agree to sign this release, your name, phone number, and address will be released to the researcher (Vicki Burford Niemants) for a follow-up interview by phone or in person arranged at your convenience. Interviews would require approximately 30-40 minutes. **Only your name, address and phone number would be released.** All other information remains confidential.

Further information about this study may be obtained by calling Vicki Burford Niemants at 406 656-6658 (collect) in Billings. E-mail: VBNiemants@aol.com

________________________________________

AUTHORIZATION: **I, ____________________________ agree that my name, address and phone number can be given to the researcher, Vicki Burford Niemants, for a follow-up interview to be conducted by phone or in person at my convenience and a place of my choosing.**

Signed ________________________________ Date ____________

Address: ______________________________________

Phone # Day: ______________ Evening: ______________
Consent Form C

Signed by Students from Student Resource Center in Bozeman Who Were Interviewed

Release of Information

I, ____________________________________________, have had an interview with Vicki Burford Niemants for purposes of her dissertation by phone/in-person and agree that the Resource Center (Mr. Bob Waters) can release the following information about me:

1) Date of Birth
2) Grade point averages for previous terms
3) Credit load I carried during each term
4) The types of services I may have used in relation to my attention difficulties
5) The number of contacts I have had with the Resource Center, either in person or by phone
6) Whether or not I reported that I was taking medication for my attention deficit at the time the Resource Center interviewed me
7) The major that I had declared at the time of the intake
8) Any other learning difficulties I have (e.g. a learning disability).

I understand that the above information will be considered private information and I will not be identified individually in the final dissertation. I do give permission for Mrs. Niemants to quote me from my interview in her final paper.

Signed: ____________________________________________

Date: __________________________
Questionnaire A
College Students with ADHD
Structured Interview

1. Introduction and rapport building:
   As you know, I got your name from (the student service center). Thank you for agreeing to be interviewed. I am doing research about college students who have an attention deficit disorder. My research is focusing on what helps college students with ADHD succeed in college. Likewise, I want to know what barriers might hinder your success. I will be recording this interview and will take some notes while we’re talking. This information will be used to identify patterns among all the students I interview. At no time will your actual identity be revealed in any reports that will come from this research. Do you have any questions before we get started?

2. Demographic information
   Age, gender, GPA, class standing, credit load, and major

3. When were you diagnosed as having an attention deficit? How did getting the diagnosis effect you? Did you do anything differently after you were identified as having an attention problem?

4. Describe your attitude about school prior to coming to college. Has it changed since you’ve been in college? If so, in what way?

5. How did you find out about the availability of services on campus? At what point did you contact them initially, e.g. right when you started college, when your grades started slipping, when you got a notice of academic probation, etc.? In other words, what was your motivation for seeking services at the time that you
did? What service(s) have you used, if any, to help with your ADHD? How often did you use them? What has been the nature of most of your contact (informal, stopping by, went by to pick up my certification card, needed a quiet place to take a test, went by once to arrange on-going note-taking assistance, etc.)? What services do you use that are not university-related, e.g., seeing a private physician, being tutored privately, etc.? Are there any technological aids that you find particularly helpful, e.g., textbooks on tape, use of computer, voice recognition technology that transposes your spoken words into written text? Are there any particular environmental conditions that you find more conducive to learning, e.g., like to sit in the front row, like small class instead of big lecture, need to have noise/activity around me in order to study, etc.?

6. Is there any person that you feel has been particularly helpful to you in succeeding in college? If so, is that person another student, staff, faculty, student service personnel, etc.?

7. What difficulties does having ADHD pose for you now? What's most helpful in dealing with these challenges?

8. What are some of the coping mechanisms that you have developed (daily planners, study groups, study skills, quiet places to study, etc.)?

9. Have you ever taken medication for ADHD? When? Did it or does it help? If so, in what way? If not, why not? Who prescribes or prescribed the medication for you (physician in Bozeman, Billings, or hometown)?

10. Who else, (besides the student service center) have you told about your ADHD here at college? What do you perceive their attitudes to be towards people with ADHD?

11. What do you identify as the leading contributor to your success in college?
12. What do you regard as the biggest barrier to your success in college?
13. In your opinion, are there any advantages to having ADHD? If so, what are they?
14. Do you have a learning disability or other condition, like being depressed or having a lot of anxiety that interferes with your ability to succeed at college? If so, did you seek any help for that? What kind?
15. If you are a student with ADHD who hasn’t used any of the three student service centers, tell me why you decided not to use the center. Are there other services, on campus or privately, that you do use? What are they?
16. What advice would you give to other students coming to this university who have ADHD?
17. Is there anything else that I haven’t asked that you wish I would have asked?

Thank you for your time in talking with me. My goal in doing this research is to gather information that will be helpful to other college students who have an attention deficit. Again let me reassure you that this information will not divulge your identity in any way. Would you like a summary of my findings when I’m done with my study? Also if you have any questions later or need to contact me for any reason, here’s how you can reach me and I would be happy to talk with you.
Questionnaire B

Mailed Questionnaire for Students Who Consented to be Interviewed but Could Not be Reached by Phone

College Students with ADHD

1. Introduction:
As you know, I got your name from Bob Waters at the Resource Center. Thank you for agreeing to be interviewed. I am doing research about college students who have an attention deficit disorder. My research is focusing on what helps college students with ADHD succeed in college. Likewise, I want to know what barriers might hinder your success. This information will be used to identify patterns among all the students I interview. At no time will your actual identity be revealed in any reports that will come from this research.

2. Age ______
   Gender______
   GPA (last year Fall of 1996 and Spring of 1997) if you can remember

   What was your class standing last year? Fresh, Soph, Junior, Senior?
   Credit load last year (Full time or part-time student?)
   Major?____________________

3. When were you diagnosed as having an attention deficit? (At what age or grade in school?)____________________________
   How did getting the diagnosis effect you?

   Did you do anything differently after you were identified as having an attention problem (for example, did you try any medication? Were you put in any special classes?)

4. Describe your attitude about school prior to coming to college (in high school).

   Has it changed since you’ve been in college? If so, in what way?

5. How did you find out about the availability of the resource center services on campus?
At what point did you contact them initially, e.g. right when you started college, when your grades started slipping, when you got a notice of academic probation, etc. (In other words, what was your motivation for seeking services at the time that you did)?

What service(s) have you used, if any, to help with your ADHD?

How often did you use them?

What has been the nature of most of your contact (informal, stopping by, went by to pick up my certification card, needed a quiet place to take a test, went by once to arrange on-going note-taking assistance, etc.)?

Which services have been most effective?

What services do you use that are not university-related, e.g., seeing a private physician, being tutored privately, etc.?

Are there any technological aids that you find particularly helpful, e.g., textbooks on tape, use of computer, voice recognition technology that transposes your spoken words into written text?

Are there any particular environmental conditions that you find more conducive to learning, e.g., like to sit in the front row, like small class instead of big lecture, need to have noise/activity around me in order to study, etc.?

6. Is there any person(s) that you feel has been particularly helpful to you in succeeding in college?

If so, is that person a family member, a friend, another student, staff, faculty, student service personnel, etc.?

7. What difficulties does having ADHD pose for you now?

What’s most helpful in dealing with these challenges?

8. What are some of the coping mechanisms that you have developed (daily planners, study groups, study skills, quiet places to study, etc.)?
9. Have you ever taken medication for ADHD?________________________
   When? Did it or does it help? ________________________________
   If so, in what way? If not, why not?
   Who prescribes or prescribed the medication for you (physician in Bozeman, Billings, or hometown)? __________________________

10. Who else, (besides the student service center) have you told about your ADHD here at college (e.g. friends, professors, etc)?________________________
    What do you perceive their attitudes to be towards people with ADHD?
    ________________________________

11. What do you identify as the leading contributor to your success in college?
    ________________________________

12. What do you regard as the biggest barrier to your success in college?
    ________________________________

13. In your opinion, are there any advantages to having ADHD? If so, what are they?
    ________________________________

14. Do you have a learning disability or other condition, like being depressed or having a lot of anxiety that interferes with your ability to succeed at college?
    ________________________________
    If so, did you seek any help for that?
    ________________________________
    What kind?
    ________________________________
    In your opinion, which condition hinders your success more, your ADHD or another condition?
    ________________________________

15. If you are a student with ADHD who hasn't used any of the three student service centers, tell me why you decided not to use the center.
    ________________________________
    Are there other services, on campus or privately, that you do use?
    ________________________________
    If yes, what are they?
    ________________________________

16. What advice would you give to other students coming to this university who have ADHD?
    ________________________________
17. Is there anything else that I haven’t asked that you wish I would have asked?

Thank you for your time. My goal in doing this research is to gather information that will be helpful to other college students who have an attention deficit. Again let me reassure you that this information will not divulge your identity in any way. Would you like a summary of my findings when I’m done with my study?

Also if you have any questions later or need to contact me for any reason, here’s how you can reach me and I would be happy to talk with you.

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