

A FORMATIVE PROGRAM EVALUATION OF A DISABILITY SERVICES OFFICE

A Thesis by

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The following faculty have examined the final copy of this thesis for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Arts with a major in Liberal Studies, emphasis in Interdisciplinary Research Methods.

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ABSTRACT

A qualitative investigation of the Wichita State University (WSU) Office of Disability Services produced a program model with one proximate outcome (providing quality services to disabled students). This paper reports the program description revealed by the qualitative investigation and details the implementation and results of a quantitative survey instrument. The survey was designed to provide program monitoring information with regard to student perception of service quality. Findings include input monitoring information, information regarding student knowledge of the services available and satisfaction information. A factor analytic solution is detailed.

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LIST OF ABBREVIATIONS

WSU	Wichita State University
WHO	World Health Organization
ICF	International Classification of Functioning
AHEAD	Association on Higher Education and Disability
ADA	Americans with Disabilities Act
TRIO	Name for combined federal education programs
N/A	Not Available
S. E.	Standard Error
QSS	Quality of Service Survey
St. Dev	Standard Deviation
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
VARIMAX	Factor Rotation Procedure Which Seeks to Maximize Variance between Loadings
OBLIMIN	Factor Rotation Procedure Which Seeks Oblique Simple Structure
MANOVA	Multivariate Analysis of Variance

LIST OF SYMBOLS

χ^2	Chi Squared Statistic
p	Probability
Z	Standardized score
F	F-test Statistic

CHAPTER I

INTRODUCTION

This paper presents a program description of the Office of Disability Services at WSU and the results of a survey of disabled students. Also included are suggestions for the ongoing evaluation of this program's activities. The survey was designed to provide information on a student's perception of the quality of services rendered by the disability services office. It was completed by students registered with disability services during the summer and fall of 2007. The ongoing use of such a tool can provide the staff of the disability services office with information useful in guiding the future implementation of their program.

Program evaluation is defined by Rossi et al. (2003, p.29) as: "the use of social research methods to systematically investigate the effectiveness of social intervention programs in ways that are adapted to their political and organizational environments and are designed to inform social action to improve social conditions." This type of research has at least a three hundred year history. In its current form, it has come into prominence in the United States during and after World War II. This research is almost always carried out with at least the implicit assumption that, "the use of social research methods to systematically investigate the effectiveness of social intervention programs in ways that are adapted to their political and organizational environments..." can "...improve social conditions" (Rossi et al., 2003, p. 29).

Rossi makes a further distinction between formative and summative evaluation research. The goal of a formative evaluation is to help form or improve the program as a result of the evaluation process. A summative evaluation seeks to provide a summary of a program from which judgments of the program's overall effectiveness may be made.

Tolan et al. (1990) suggest a “contextualist/ecological” approach to research in community psychology. This approach emphasizes the importance of recognizing that, in “real world” research settings, a wide variety of methodological approaches must be utilized. Due to the complexity of these contextual research settings, along with practical and ethical constraints, controlled experimental research often cannot be employed. Specifying research endeavors that occur within the normal context of some social environment such as an office, a university, a city government, a corporation, etc., is the purpose of Tolan’s use of the terms ecological and contextual and should not be confused with some more specific meaning. Whether controlled experimentation is possible or not, the research questions must be framed in such a way that the results are meaningful in the working environment. This includes attention to the interests of the research sponsors and consumers, and the acknowledgement of political considerations that might influence the use of research results.

In discussions with the disability services office director, Grady Landrum, it became apparent that the office offered an appropriate opportunity to engage in a program evaluation process. With the disability services office staff as both research sponsors and consumers this project has proceeded as a cooperative effort. In light of Rossi’s (2003) distinctions, it should be stated that this project’s goal is to provide a formative program evaluation.

This program evaluation process can be divided into three distinct phases. First the gathering of a qualitative understanding of the disability services office. Second, to determine whether a quantitative analysis would be of use, and if so, develop the necessary tools. Third, collect and analyze the quantitative data, to provide a meaningful report to the research sponsors/consumers (LeCompte 1999a).

After a qualitative analysis was conducted the following program description was developed. Further discussion made clear that a quantitative tool for measuring the performance of the office would be useful. A tool designed to measure student's perceptions of the quality of the services provided in addition other program monitoring information. This paper presents the results of this planning and implementation process.

Overview / History

Although disability is present in the most ancient literature, little is known about the actual experience of disabled people until the mid nineteenth century. Around this time professionals working with disabled people began writing such reports. Not until the twentieth century does a literature in the voice of the disabled begin to emerge.

Starting in about the thirteenth century deaf persons began to be educated in monasteries. Around this same time alms houses and workhouses focused on certain disability types began to form. It would appear that for the most part disabled persons (not killed at birth or let to die when their disability became known) lived at home in the care of some family unit, were forced into beggary, or lived in a workhouse. (Braddock & Parish, 2001)

Late in the nineteenth century groups of disabled people began to organize based upon mutual interest. First the deaf in 1880 (National Association of the Deaf) and later the blind in 1940 (National Federation of the Blind) created national organizations of disabled persons separate from the agencies often in control of their individual lives (Matson, 1990). Spurred on by the wider civil rights struggle in America these, and other, disability specific organizations and later pan disability groups became important shapers of disabled peoples' lives and the emerging academic discipline Disability Studies (Albrecht et al., 2001, Introduction)..

The rise of the disability rights movement has caused a paradigm shift (Kuhn, 1962) in the study of disability. For several centuries the medical model of the time was the dominant paradigm used to explore disability. This model was, however, focused upon the physical nature and etiology of disability. While much work on classifying types and severity of impairment was done, this approach did little for the mostly institutionalized people who were the embodied elements of these taxonomies.

In contrast, the social model of disability developed in the twentieth century attempted to explain the socially constructed nature of disability. This model seeks to detangle impairment, or whatever physical or cognitive difference a person might have from the other, social, components of being disabled (Altman, 2001). Goffman (1963) details how other peoples' reaction to a person's impairment can confuse a person's social identity. Later criticized for "removing the body" from disability (Turner, 2001) the social model is still perhaps our best explanation of inter-personal nature of disability (Fougeyrollas & Beauregard, 2001).

Developed by the disabled themselves by borrowing from the work of other civil rights movements, especially the struggle for the rights of African Americans (Matson, 1990), the civil rights model is focused on eliminating physical and social barriers that hinder the disabled in achieving full equality as citizens. This approach emphasizes access to mechanisms of citizenship and equality in the public arena. Although this approach overlaps much with the social approach it can be best looked at as the answer to the questions posed by the social approach (Williams, 2001).

Much as the segregation or concentration of the disabled in the workhouses produced environments favorable to organization among the disabled, the initial philosophy of the civil rights approach stood in reaction to, and directly rejected, the impairment driven medical model

focusing exclusively on environmental factors. It should be noted that although a balance between individual and environmental factors has been stressed in more recent times, none of the current approaches to Disability Studies emphasizes the medical model (Brown, 2001).

What constitutes disability and under what circumstances a person should be counted as disabled has generated much debate. Creating a working definition of disability is a hard task indeed and it may be impossible to create an entirely satisfactory statement (Altman 2001). Current approaches seek shared space among the different models mentioned above (medical, social, and civil rights). This can be explained as a balance between impairment, or actual physical or cognitive individual differences, and disability, or the physical environments and social constructs that render a person disabled. For example “Bob” is a student in a wheelchair. “Bob’s” impairment means he cannot walk but it is a physical environment that is not wheelchair friendly and social attitudes concerning “Bob’s” abilities that produce the concept of “Bob” as disabled. When immersed in his normal (adapted) environment “Bob” does not think of himself as disabled at all.

Most recent attempts to measure disability seek to balance these medical, social, and physical, factors by attempting to quantify “limitation of life activities”. The various schemes currently used in developed nations place differing weight on individual and social factors with regard to how much either contributes to limitation. The issue of how to measure disability is further confounded by the fact that what constitutes “normal life activity” is mediated not only by an individual’s environment and culture but also by a range of individual beliefs and desires (Fujiura & Rutkowski-Kmitta, 2001).

In 2001 the World Health Organization (WHO) adopted a system, the International Classification of Functioning (ICF). The ICF attempts to provide a cross culturally valid

measurement of health and disability which balances the various factors of disability and is focused on “impact rather than cause” of disability (“Development of the ICF,” 2008). The ICF is designed to be used by public health professionals and clinicians and to compliment The International Statistical Classification of Diseases and Related Health Problems (ICD-10) by looking beyond disease (“History of International Classification of Functioning,” 2008).

As the disability rights movement progressed, its accomplishments and changes in focus mirrored the stages of other social movements in America. Just as in the civil rights movement of black Americans in the 1950’s and 1960’s (Matson 1990) or in the labor movement a generation earlier, once basic needs of survival for members of the movement had been secured ideas of inclusion and enfranchisement began to take shape (Terkel 1995). By the 1960’s civil rights pressure against special institutions and budgetary realities created by the growth of certain disabled populations (Matson 1990) combined with a growing belief that disabled persons could be educated led to inclusion of disabled students in public schools or “mainstreaming”. This concept was accepted in 1975 as national education policy when the congress passed Public Law 94-142, the “Education of all Handicapped Children Act.

”The Kansas state code reads “to the maximum extent appropriate, to educate children with disabilities with children who are not disabled, and to provide special classes, separate schooling or for the removal of children with disabilities from the regular education environment only when the nature or severity of the disability of the child is such that education in regular classes with supplementary aids and services cannot be achieved satisfactorily.” (“Kansas State Statute 72-976,” 2008).

Legislation such as this resulted in the growth of “special education” as an education sub-specialty. As a discipline much research has been dedicated to the field of educating the disabled alongside their non-disabled peers. For a review of the field see (Artiles 2003).

While K-12 special education and its various sub-disciplines have generated a great deal of research attention there has been much less attention focused on disabled students in higher education. What literature is available is usually concentrated on types of disabling conditions and disability services related to that disability. For a good example see (Collins & Mowbray 2005).

In the early 1970's disability services offices began to emerge on nearly every college campus in the nation. The passage of the Rehabilitation Act of 1973 in combination with the growth of the disability rights and independent living movements and the general acceptance of mainstream education seems to have driven the growth of these offices. The Rehabilitation Act empowered the Rehabilitation Services Agency to pursue rehabilitation of disabled persons with an emphasis on competitive employment. Further section 504 of the Rehabilitation Act made it illegal to deny any person access to a federally funded program on the basis of disability. In increasing numbers disabled students, many veterans with 'G. I. Bill' benefits, began appearing on college campuses often as part of programs brought about by the Rehabilitation Act. In response to these student's needs, as well as to comply with the access mandates of the Rehabilitation Act, universities created offices to provide support for disabled students and compliance oversight for their campuses.

As these offices developed their directors operated in different fiscal and social environments. Each had to react in an *ad hoc* manner to the needs of the students who presented themselves and utilize their resources as the students' needs dictated. As such each office has an nearly entirely unique history (Collins & Mowbray, 2005). Professional organizations such as the Association on Higher Education and Disability (AHEAD), founded in 1977, as a forum for

information exchange) have been the primary force in creating standards for Disability Services (“History of AHEAD,” 2008).

The passage of the Americans with Disabilities Act (ADA) in 1990 further strengthened the rights of disabled persons to pursue post-secondary education. Although sometimes criticized for vague wordings such as “reasonable accommodation” and perhaps putting too much control in the hands of disability services offices (Omvig, 2002) the ADA has unquestionably changed the landscape with regard to physical access (ramps, railings, elevators, etc.) (Federal Register, 2000). Another major accomplishment of the ADA was the codification of a person’s right to refuse accommodations (ADA, Title V, Sec. 501 Construction 42 USC 12201). Further, the ADA has served to focus other policy with regards to disabled students in post secondary education, e. g., the U. S. Dept. of Education’s statement on institutional responsibility to provide auxiliary aids and services for students with sensory impairments (“Auxiliary Aids and Services Statement,” 1998).

CHAPTER II

PROGRAM DESCRIPTION

The Office of Disability Services at Wichita State University

The disability services office at WSU was formally established in 1978. Its mission statement reads:

“Our mission is to enable the students, staff, faculty and guests of Wichita State University to achieve their educational goals, both personal and academic, to the fullest of their abilities by providing and coordinating accessibility services which afford individuals with learning, mental or physical disabilities the equal opportunity to attain these goals.” (“Office of Disability Services Mission Statement,” 2008). A less formal description, offered by a staff member was: “to work with students to provide the necessary accommodations to fully participate in the college experience”.

The staff at the disability services office almost uniformly came into their jobs at WSU with a strong background in service. These experiences range from service management, to sales, to counseling. The staff is strongly committed to providing student services in the most effective way possible. Limitations to service stem from budgeting problems, and recruitment challenges.

Activities / Workflow

The office provides a variety of services including:

- Rides on campus
- Sign language interpreters for deaf students
- Note takers
- Course materials transcription (to audio, large print or Braille) or reader assistance for students with print handicaps
- Test taking assistance and liaison with faculty regarding test security
- Oversight of physical access on campus (ramps, doors, elevators, restrooms, etc.)

- Coordination of students' physical classroom access needs
- Providing an accessible computer lab and coordinating with University computing regarding its maintenance.

Any student who can provide documentation of medical need for any of the above services is eligible for services. Specifically, the test that must be passed to become eligible is:

“A person with a disability (handicap)

1. Has a mental or physical impairment which substantially limits one or more of such person's major life activities.
2. Has a record of such an impairment; or
3. Is regarded as having such an impairment.

'Major life activities' includes functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning and working.” (“Definition of Disability,” 2008).

The 2000 U. S. census reports that nationally 14.9% of Americans are disabled. Kansas is reported to have 14.3% of the population disabled. Sedgwick County was reported to have a slightly lower percentage of disabled persons (13.9%) with a total disabled population of 58,463 disabled persons (“Number of Disabled Persons in American,” 2000). Any one in this population could at any time become a student at WSU receiving services from the disability services office. Cimarolli & Wang (2006) report association between employment and education in a sample of blind adults.

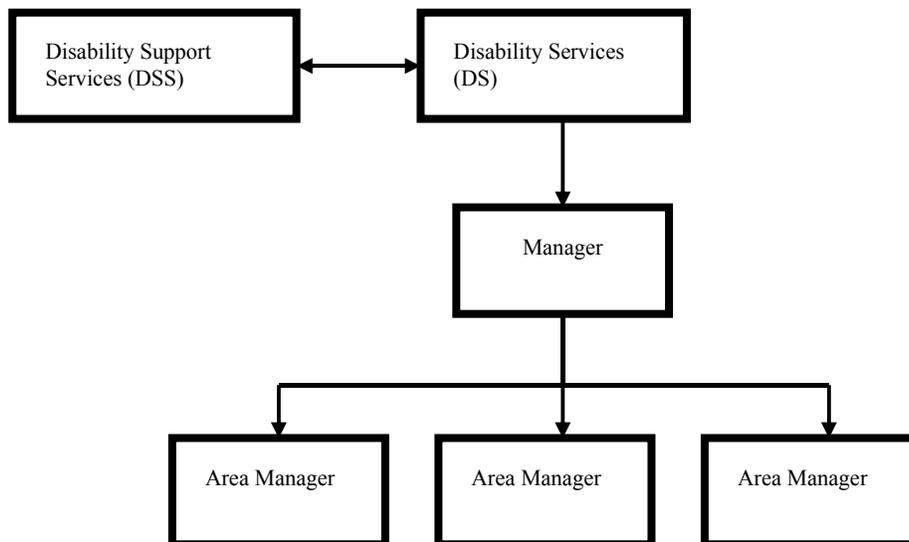
In addition to providing services to help students achieve in their classes, the staff also attempts to mentor the students to encourage them to be strong self advocates. While this is not done through any formal mechanism, each staff person indicated that advocacy development was a goal of the program. Each staff member approaches this issue individually with each student.

The disability services office works in conjunction with a separate office, the (TRIO) Disability Support Services Office. (TRIO) Disability Support Services provides a variety of

academic support services to disabled undergraduate students through a federal grant program. These services include: counseling, tutoring, and study skills seminars. The program is known as TRIO as it was a combination of three federal education programs in the 1960's ("History of TRIO Programs," 2008). The disability services office provides these support services, as possible, to graduate students who are not eligible for (TRIO) Disability Support Services office services.

The disability services office has one overall manager and three area managers. The overall manager is charged with responsibility for the entire operation as well as structural oversight on the campus. The manager also plays a major role in intake assessment. The three area managers are charged with specific areas of the offices' services. One manages/schedules interpreters and note takers. The second manages/schedules test taking and coordinates with the faculty. The third is charged with management/scheduling of textbook transcription and rides on campus. All three area managers are responsible for hiring/firing and management of student assistants for their area (see Figure 1).

FIGURE 1
WORK FLOW CHART.



Inputs / Outcomes

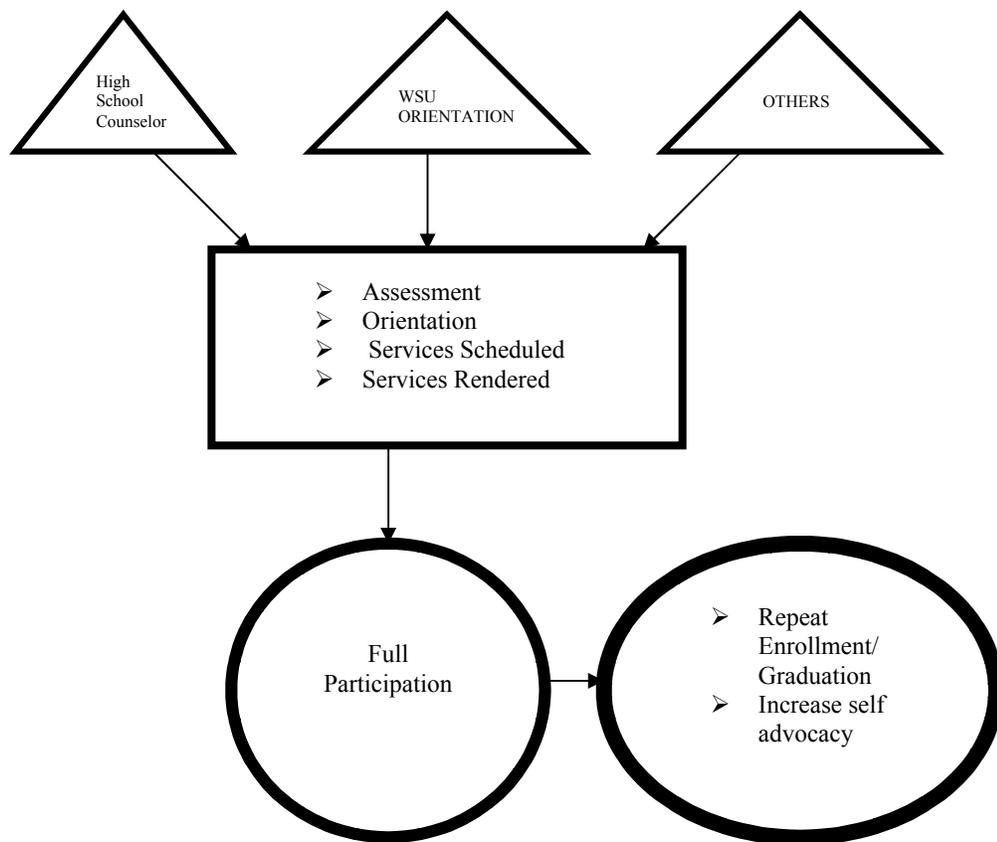
Students come to disability services from a variety of inputs. Some come by recommendation of high school guidance counselors. These generally come in advance for advising and receive services from the beginning of their student career. The disability services office puts out a business reply postcard which is included in each new student registration packet (given to new students at WSU). This card allows students to identify themselves as eligible for services. Sometimes students choose to identify their needs only when they themselves have become aware of these needs (often at a critical time in the semester). This could involve the recognition/documentation of a disability or could be the result of the onset of some temporary disability (such as a broken wrist) that would make a student eligible for services.

Each student is assessed at the beginning of a semester or at the time of their introduction to the disability services office. This assessment determines which services the student will need. The student is oriented to the various services they have requested and instructed on the manner in which requests should be submitted. Each student is then responsible for coordinating the services they desire through the personnel at the disability services office.

To summarize, from the various input sources mentioned, students arrive at the disability services office. They are then assessed to determine what services can be provided. After this the student should receive the services they need by following the instructions provided by the disability services office. If the student and office follow through, the student should receive the services they need. These services (in combination with the other structural oversight of the disability services office) should result in the student's ability to fully participate in all aspects of student life. Providing quality services constitutes the proximate outcome of the disability

services office. Desired distal outcomes are repeat enrollment leading to graduation, as well as increased self-advocacy on the part of the student (see Figure 2).

FIGURE 2
PROCESS DIAGRAM.



The program outcomes (revealed by the qualitative interviews) indicate two layers of service provided by the disability services office. The primary layer consists of the preceding description of the activities of the disability services office. The second layer of services, not expressly articulated in the program structure, consists of students becoming better self advocates. Of course, the primary services are necessary for students to overcome the various

challenges of impairment. When provided, this layer of services should lead to the proximate and the first distal outcome – quality services rendered and repeat enrollment/graduation respectively.

The second layer of service takes place in the form of mentoring through repeated interaction with the disability services staff. The distal outcome mentioned above “increased self-advocacy” is the result of this layer of service. To some extent this layer of service also must be related to the proximate outcomes. One might argue that some degree of self-advocacy must be present in the typical student seeking services since they are in college to begin with and in contact with the disability services office.

In Goffman’s (1963) work ‘Stigma’, the problems of disability which the second service layer attempts to address, is described in sociological terms. In short, he writes that the social and self identity of a disabled person is distorted by others’ perceptions and misunderstandings of their disability. In this way Goffman utilizes the experiences of disabled people as a group to illustrate the reflexive nature of societal beliefs and self beliefs. The disabled person may adjust their beliefs about themselves to match those they perceive society to hold. If this adjustment is out of character for the individual, or creates conflicts of belief, that individual can feel confused about their role in society. This loss of identity can produce social problems for a disabled person ranging from uncomfortable social situations to near imprisonment in institutions or workshops or worse.

For a student to be a successful self-advocate the student must recognize and cope with both societies’ conception of their disabilities and their own. The successful self-advocate can make clear what special tools they might need to compete with the non-disabled student. Also that student can be an educator to the public concerning their abilities and personal vision. In

this sense the self-advocating student is one who is equipped with stigma management tools/techniques.

CHAPTER III

QUALITATIVE INTERVIEWS

Participants

Institutional data from spring of 2006 provided the following information. The disability services office had 212 registered students. They were: mostly female (64.2%), mostly white non-Hispanic (68.4%), and aged from 18-60 years (see tables 1, 2, 3). The age distribution was positively skewed (skewness .592, S. E. of skewness .167). A skewness value of zero indicates a symmetric distribution. In this case the distribution has a long right tail. Comparing the skewness with its standard error term reveals this is a significantly skewed distribution. However, since we are looking at a population distribution, sample reliability is not a concern here. This age skewness is typical of an urban college campus like WSU.

TABLE 1

DISABLED STUDENTS' GENDER (SPRING 2006).

Gender	Percent
Male	35.8
Female	64.2

TABLE 2

DISABLED STUDENTS' RACE (SPRING 2006).

Race	Percent
American Indian or Alaskan Native	0.5
Asian or Pacific Islander	2.4
Black, non-Hispanic	13.7
Hispanic	3.8
Nonresident Alien	1.4
White, non-Hispanic	68.4
N/A	9.9

TABLE 3

DISABLED STUDENTS' AGE (SPRING 2006).

	Minimum	Maximum	Mean	Std. Deviation	Skewness	S. E. of skewness
Age	18	60	33.55	11.733	.592	.167

Method

Program evaluation occurs in real world contexts, as described by Tolan et al. (1990). This process typically involves a mixture of qualitative and quantitative methods, utilizing both inductive and deductive strategies. -- see Nagel (1961) for a thorough review of strategies. The researcher first enters the environment in which the research is to be performed. Then, in the manner of a cultural anthropologist learning about an unfamiliar tribe, seeks to understand the local culture.

To establish the basic features of a program evaluation, qualitative, inductive, techniques such as key informant interviews, and/or stake-holder interviews, or focused group interviews are often employed. LeCompte et al. (1999a, 1999b) provide us with a how-to guide, as well as examples, that demonstrate the need for such initial investigation.

LeCompte (1999a) relates one story of an evaluation researcher who had been called to assist a school system on a Navajo reservation in the southwestern United States. The researcher, until she had gained an understanding of the culture of the area, was troubled by the insistence on the part of school administrators that the local high school was particularly large and had problems specific only to large schools. In the researcher's experience this high school was not particularly large. But, to the residents of the area, this school was the largest to which they had been exposed. A refusal to categorize this school as large on the part of the researcher

would have jeopardized the researcher's relationship with both the research sponsors and the intended consumers of the research.

After gaining understanding of a local environment the program evaluator may choose to develop a quantitative measurement system (usually designed to measure the effectiveness or efficiency of the program under examination). Quantitative measurement tools used in program evaluation are much more likely to produce useful results if the researcher has paid attention to what is meaningful in the local culture. Once developed, the quantitative tools can then be employed as part of a deductive research strategy. In this way the use of a wide range of methods produces the most applicable results. As a foundation for this project ethnographic methods were employed to understand the culture of the disability services office and gain a greater understanding of what information would be important to the staff/management of the office.

To this end a series of semi-structured interviews were conducted during 2006. A strategy of triangulation was employed utilizing key informant interviews conducted with: the staff at the disability services office, students who were receiving services and faculty members who had worked with disabled students in the course of their teaching careers. All of the full time staff (four) and one part time staff member, six students, and three faculty members were interviewed.

The process of arranging interviews varied slightly between the participant groups (staff, faculty, and students). The staff was contacted by appointment and all were agreeable to pursuing this project. I chose members of the faculty who I knew by name but had never taken a class from. The student interviews were accomplished by "hanging around" at the disability services office lobby and meeting other students as the chance arose. After making some

introductory contact I asked whether we might meet again to talk about their experiences with the disability services office and being a student in general.

The interviews followed the following schedule:

- Informed consent, each participant was informed that their name would be known only to me and that any specific individuals they mentioned would not be recorded in my notes.
- General life background
- Educational interests
- Interaction with DS office
- Interaction with students
- Interaction with campus staff
- Interaction with faculty

With the exception of informed consent, the interviews were conducted with only the loosest adherence to the above framework. Additionally the staff interviews included inquiry into the specific role of the individual within the disability services office. Faculty were questioned regarding which teaching environments they worked in – small seminar, classroom, or lecture hall.

Results

The data from these interviews in combination with internal documents of the disability services office yielded the preceding program description. The themes that were found in the qualitative data are reported here by interview group.

The staff uniformly possess a commitment to providing quality services. They provide these services with an emphasis on student involvement. This student involvement is intended to

develop a student's ability to self advocate. The staff interviews also provided a great deal of work flow information.

From the perspective of interviewed students, the disability services office provides much needed services. The interviewed students all felt a sense of attachment and loyalty to the disability services office. They recognized the critical nature of the services to their educational mission. The students felt that the university community was behind them in their endeavors. The University represented to all a place of enlightenment where one could improve one's lot in life.

With regard to self advocacy, several themes arose. Sometimes students are put upon to self-advocate by their fellow students. This usually resulted from unnecessary offers of help. Students with invisible disabilities sometimes felt that they were treated with suspicion by their teachers. Other students mentioned being repetitively singled out for attention of a caring nature. These themes emphasize the importance of a student's social interactions with regard to self identity and the importance of the second layer of services provided by the disability services office.

The faculty interviews produced similar themes. Again the commitment of the university community to provide equal access to WSU for the disabled was clear. The main challenge that the faculty members identified was, that increasingly, the disabled students they encounter have invisible disabilities. This can lead to the instructor questioning the motivations of the student requesting disability services. The instructors were especially suspicious of students who identified themselves as disabled part way through the semester. The need to balance accommodation with responsibility was a concern.

CHAPTER IV
QUANTITATIVE SURVEY

Participants

All students registered with the WSU disability services office during the summer and fall 2007 semesters were asked to participate in the survey phase of this study. The disability services office had 267 students registered during this period. 16 registered students were excluded for various reasons see table 4. Of the remaining 251 students 188 (74.9%) responded to the requests that they participate in the study.

TABLE 4
REASONS FOR REMOVAL OF STUDENTS FROM POTENTIAL PARTICIPATION

Reason	Number
No Contact Info	9
Did Not Receive Services	6
Requested Removal	1

Dillman (2000) identifies four sources of error in self administered survey research. The first two of these are sampling and coverage error. Sampling error occurs when the system contrived to select participants leads to an unequal chance of some participants being selected. Coverage error occurs when some potential participants have zero chance to participate. Since, this project has utilized a census rather than a sample based technique; there is no need to be concerned with sampling error. There were nine students who had no useable contact information. This suggests a 3.3% coverage error which is a tolerable number.

Of the 188 respondents 2 ID numbers were duplicated; in this case the later response was used. 4 were excluded because the ID numbers entered were out of range. 7 students responded but opted out. 7 partial responses were determined to have completed at least 80% of the survey

questions and were included. This resulted in a total useable sample of 182 students a final response rate of 72.5%. The respondents were mostly female (68.2%) (See table 5), mostly white (77.1%) (see table 6), and ranged in age from 16 to 66 (see table 7). Much like the data from spring 2006, the respondent data was significantly positively skewed.

TABLE 5
GENDER (OBTAINED SUMMER AND FALL 2007).

Gender	Percent
Female	68.2
Male	31.8

TABLE 6
RACE (OBTAINED SUMMER AND FALL 2007).

Race	Percent
American Indian or Alaskan Native	2.7
Asian or Pacific Islander	4.4
Black, (non-Hispanic)	11.5
Hispanic	3.3
White, (non-Hispanic)	74.2
N/A	3.8

TABLE 7
AGE (OBTAINED SUMMER AND FALL 2007).

	Minimum	Maximum	Mean	Std. Deviation	Skewness	S. E. of skewness
Age	16	66	32.54	12.898	0.654	0.184

A series of tests were performed to compare the respondents to institutional data from fall 2006. Chi Squared tests of Homogeneity were performed on the gender and race data (see table 8 and 9) and a Kolomogorov-Smirnov test (Conover 1999) was performed to compare the respondents age data with students from the fall of 2006 (see table 10). The null hypothesis for

both of these tests is that of no difference between the two distributions. Since none of the tests produced significant results there is no reason to think that the respondents differ with regard to gender, race, or sex, from students registered with the disability services office during a typical semester. It should be noted that due to low cell frequencies (less than 5 See Daniel 1989) only the largest three of the five above categories was used for the age comparison.

TABLE 8

GENDER COMPARISON

.	Fall 2007	Fall 2006
Female	68.2	61.3
Male	31.8	38.7

$(X^2, 1 = 3.158, p = 0.076)$

TABLE 9

RACE COMPARISON

Race	Fall 2007	Fall 2006
White (non-Hispanic)	83.3	78.8
Black (non-Hispanic)	13.0	17.9
Hispanic	3.7	3.3

$(X^2, 2 = 2.708, p = 0.258)$

TABLE 10

AGE DISTRIBUTION COMPARISON (FALL 2007 AND FALL 2006)

Maximum Absolute Difference	Kolomogorov – Smirnov Z	$p =$
0.101	0.982	0.290

Materials

Quality of Service Survey

The quality of service survey (QSS) is a questionnaire constructed to measure disabled student's perceptions of the quality of services they receive from the disability services office at WSU. The questions are designed to gather information concerning:

- How was the student introduced to disability services?
- Did the student understand how to use the disability services?
- Were the services rendered in an efficient manner?
- Were the services adequate to meet the student's needs?
- Were the service providers professional in their manner?
- What services are the most important to the student?
- For this investigation, gather demographic information.

The third source of error identified by Dillman (2000) is measurement error. This questionnaire was developed with the Disability Services staff to answer the above questions. Questions were constructed to meet the guidelines put forth in 'Asking Questions' (Sudman & Bradburn 1982). These include avoiding double barreled questions (or questions that really are two or more in one), framing questions in behavioral terms, and using consistent response sets. Demographic questions were asked at the end of the survey. Three questions were drafted for each of the above areas of interest. (See Appendix A)

Method

The data was collected in two phases. All students registered with the Disability Services office during the summer 2007 semester were asked to participate during the first phase. Over an eight week period in the fall of 2007 these students were sent an announcement of this study

and its purposes and a web link to the survey (see Appendix B). Each student was provided with a unique identification number and asked to enter that number at the beginning of the survey. Once each week for the next seven weeks the students who had not yet participated were reminded by email of the opportunity to participate (see Appendix C). The announcement and follow up emails were customized for each student using mail merge so that each was named in the salutation. The messages were sent so that each was a separate message (not a group or bulk mailing). Several times during the collection period the director of the Disability Services program, Grady Landrum, sent requests that the students participate. In the last two weeks students who had not yet participated were reminded once by telephone call of their opportunity to participate.

The second survey phase took place in late 2007 and early 2008 and sought participation of all students registered with disability services during the fall 2007 semester. This phase lasted approximately eleven weeks. The three weeks around the Christmas and New Year holidays was the reason for the increased time span and, although email reminders were sent during those weeks, few students responded. Again, for the last two weeks of the collection period one telephone reminder was made to those students who had not yet participated. One other change was made between the two collection phases. In the first phase (summer students) the participant was presented with the informed consent agreement and then asked to provide their participant ID number. This did not allow for students who declined to participate after reading the informed consent information to be removed from future email reminders. During the second phase (fall students) all participants were asked to enter their ID number and then were presented with the informed consent agreement.

Of the 182 participants, 16 completed the questionnaire by telephone, and 1 was completed using a paper form. The remaining 165 completed the questionnaire by self-administration using a computer and the World Wide Web. Self administration has become the most widely used form survey research. Whether by mail or more recently via the internet it has been shown that self administered surveys are a good way to collect reliable data (Dillman, 2000).

All participants were presented with an informed consent agreement (See Appendix A). In the case of the telephone interviews this was read to the participant. The paper form was identical to the informed consent, instructions, and survey questions presented in the appendices. After reading (or listening) to the informed consent agreement the participant was asked whether he/she agreed to participate or wished to decline. From this point on, telephone participants will not be separated as their process was identical to the others, only verbal. Participants then selected 'I agree' or 'I decline' and pressed a button labeled 'next' to continue. All participants were presented with a short set of instructions (See Appendix A) and then asked to press a button labeled 'next' to continue.

MRinterview, an online survey tool developed by the SPSS Company, was used to present the survey to the participants and collect their responses. Each question was presented on its own screen along with a button labeled 'previous' and one labeled 'next'. Using radio buttons or check boxes the participant would indicate their response to a particular question. When a participant pressed 'next' the next question was shown. If a participant pressed the 'previous' button they were returned to a screen showing only the previous questions and its responses. After completing (or skipping) all of the questions the participant was shown a screen thanking them for participating (see Appendix A).

Results

Input Monitoring

Question 6 (See Appendix A) was designed to gather information regarding the input sources of Disability Services. Participants were asked to select from a list of choices regarding where they had found out about the Disability Services program. Table 11 summarizes their responses. The fourth major source of error in self administered surveys identified by Dillman (2000) is Non response error. This source of error is troubling as it introduces questions regarding whether some participants did not respond due to some shared characteristic. Non response rates for this survey were low overall and will be mentioned where appropriate.

TABLE 11

QUESTION 6, INPUT SOURCES BY PERCENT

Input Source	Percent
Other	27.5
Enrollment/Orientation at WSU	18.7
Multiple Sources	14.3
Recommended by an Instructor	13.7
Recommended by a Friend	12.1
Recommended by a Doctor	6.6
The DS Office at My Previous School	4.4
High School Guidance Counselor	1.6
No Response	1.1

Participants who chose ‘other’ from the list of choices were given the opportunity to enter text explaining where they found out about Disability Services. Slightly more than a quarter (50) of the respondents chose ‘other’; of those 45 gave further information. Table 12 summarizes the open ended results.

TABLE 12

QUESTION 6, ANALYSIS OF OPEN ENDED RESPONSES

Input Source	Percent
Found it on My Own	26.7
Other Office / Agency	22.2
Academic Advising	15.6
Other	13.3
Web Page	11.1
Family Member	11.1

Tables 11 and 12 indicate that on-campus referrals make up a large portion of the responses. Students' social networks were the next largest group of input sources. Outside agencies including High School counselors and other DS offices appeared in smaller proportion. This may indicate that efforts to raise the visibility of the Disability Services program on the WSU campus are working. Future community publicity / awareness raising projects may increase outside agencies knowledge of the WSU Disability Services program.

Services Used

Question 16 (See Appendix A) asked participants to indicate which services they used and rate that usage as 'never', 'rarely', 'sometimes', or 'routinely'. On the average each student used 2.09 services. Table 13 details the number of services used by the respondents. This question failed to capture 13.7% of the services students used. Some students do register, but don't actually use any services. Others use instructor notification only. In future implementations 'instructor notification' as well as a 'registered but did not use services' category should be added. If a high non response rate persists perhaps an open ended option could be used.

TABLE 13
NUMBER OF SERVICES USED BY A STUDENT

Number of Services	Percent
0	13.7
1	29.1
2	18.7
3	20.9
4	11.0
5	4.4
6 or More	2.1

The 157 students who reported using at least 1 service reported using a total of 380 services within the provided categories. Table 14 summarizes which services the respondents used and their frequency of use rated by ‘rarely’, ‘sometimes’, and ‘routinely’ 1 to 3 respectively. 91.7% of the respondents used at least one service sometimes or routinely.

In some situations this sort of usage information could be tied directly to staffing and budget proportions. The context of the disability services office does not allow such a use. Even one student needing and routinely using a service could justify the staff and budget for that service. In this context this information does provide a summary of how individual students are distributed among the area managers.

TABLE 14
PROPORTION AND FREQUENCY OF SERVICES USED

Service	Percent	Used (Mean)	Used (Median)
Test Taking Assistance	28.9	2.38	3.0
Computer Lab	22.9	2.17	2.0
Note takers	18.2	2.36	2.0
Course Materials Transcription	12.9	2.24	2.0
Rides on Campus	10	2.21	3.0
Dictation	4.5	1.94	2.0
Sign Language Interpreters	2.6	2.8	3.0

(TRIO) Disability Support Services

Question 22 (see Appendix A) was designed to provide information regarding whether or not a student knew which services were provided by (TRIO) Disability Support Services as opposed to the Office of Disability Services. The participants were presented with a list of six services and asked to choose which office they would go to for that service. ‘Office of Disability Services’, ‘(TRIO) Disability Support Services’, and ‘Not sure’, were offered as choices. 4.9% of participants skipped this question. The six responses were scored for accuracy. Participants correctly identified the appropriate office 50% of the time. These results compare with Question 10, which asked if participants knew which services to request from the (TRIO) Disability Support Services program. Participants were asked to choose from ‘not at all’, ‘most of the time’, ‘some of the time’, or ‘completely’. Due to a typographical error the middle two responses were flipped. The response anchors were correct and the general response pattern indicates that the participants were not critical of the text change.

On the average participants scored 3.01 which corresponds to the answer choice ‘some of the time’ but might be ‘most of the time’. A closer examination of question 10 reveals that 46.2% of the participants chose ‘completely’. So it appears that regardless of the error in the response set, students were overconfident in reporting their understanding of the difference between (TRIO) Disability Support Services and the Office of Disability Services. It would seem that continuing the effort to educate students about the offerings of the two offices is indicated. Figures 3 and 4 present the frequency distribution of Question 22 and Question 10 respectively.

FIGURE 3

QUESTION 22, NUMBER CORRECT FREQUENCY DISTRIBUTION.

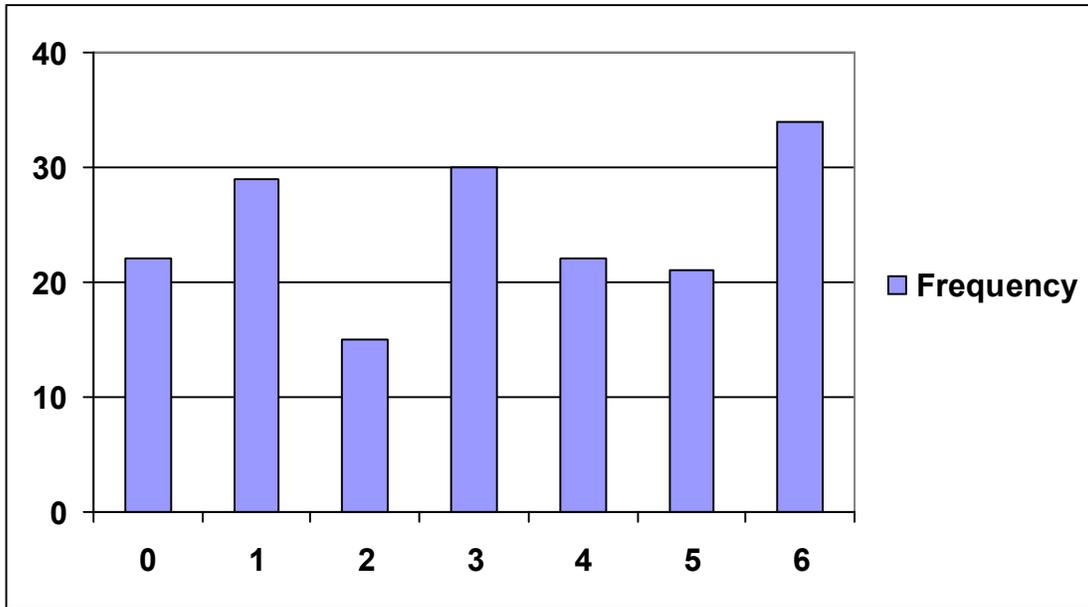
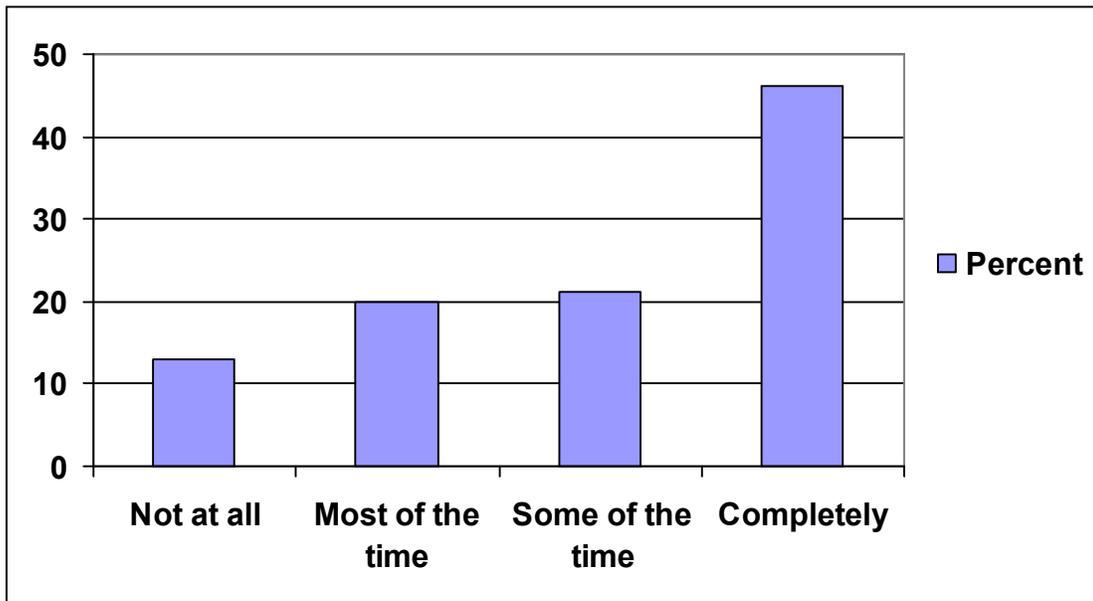


FIGURE 4

QUESTION 10, FREQUENCY DISTRIBUTION.



Satisfaction Items

The preceding sections discussed the demographic and categorical items from the QSS questionnaire. The remaining items were designed to gather information about the student's perceptions of the staff and services of the office. With the exception of question 9 (a five point scale), these questions all used four point response scales. Although a variety of response sets were used (See Appendix A), care was taken to reverse the results when appropriate so that in the following section a higher number indicates a more positive score. Table 15 presents descriptive statistics for these items.

TABLE 15
QSS ITEMS DESCRIPTIVE STATISTICS

Item	Mean	Median.	St. Dev	No response (%)
1. I Was Treated Respectfully by the Staff at the DS Office	3.81	4	0.444	0
2. I Would be Able to Complete My Classes Without DS Services	2.65	3	0.865	0
3. Before a Service Was Provided, I Had to Request It	3.71	4	0.622	2.2
4. I Understood How to Request/Schedule Specific Services at the DS Office	3.25	3	0.831	1.1
5. I Would Describe the DS Staff as Helpful	3.64	4	0.555	0
7. I Was Able to Schedule/Request the Specific Services I Needed for the Semester	3.74	4	0.603	1.6
8. Overall, I Think DS Services Are	3.42	4	0.760	1.1
9. I Knew Which Services I Needed for this Semester	4.12	5	1.240	1.1
10. I Understood Which Services I Should Request from the (TRIO) Disability Support Services Program	3.01	3	1.087	6.0
11. The Services I Requested from DS Have Allowed Me Access to WSU Classes	3.49	4	0.773	4.4
12. The DS Staff Cared about My Progress as a Student	3.39	4	0.766	1.6
13. I Found the Services I Requested from the DS Office to be Reliable	3.44	4	0.719	1.6

TABLE 15 (continued)

Item	Mean	Median.	St. Dev	No response (%)
14. The Services I Requested from the DS Office Satisfied My Needs	3.37	4	0.749	2.2
17. If I Needed Assistance at DS I Knew Who to Contact	3.51	4	0.778	0
18. The Services I Requested from the DS Office were Timely	3.32	4	0.828	2.7

Table 15 shows at a glance that students are generally positive about their experience with Disability Services. Only one item (Question 2, I would be able to complete my classes without DS services) averaged less than 3 of 4. The possible responses for this question were: 1 – ‘Easily’, 2 – ‘With some difficulty’, 3 – ‘With great difficulty’, and 4 – ‘I would be unable to complete my classes without DS services’. Table 16 presents a closer look at this item’s response frequencies.

TABLE 16

QUESTION 2 RESPONSE FREQUENCIES.

Response	Percent
Easily	8.2
With Some Difficulty	36.3
With Great Difficulty	37.9
I Would be Unable to Complete My Classes Without DS Services	17.6

With regard to how important services are to students the data from table 16 show that nearly 20% of participants found the Disability Services program to be indispensable. Further almost 75% of participants reported that they would experience difficulty in completing WSU classes without the Disability Services program.

Exploratory Factor Analysis

A principle component analysis was performed with four orthogonal factors extracted. Several questions were found to be “complex variables” or have salient loadings on more than one factor. Three summative questions, question 8, 11, and 14, were found to be complex. This is not surprising for a roundup type question. Two other complex variables were question 13, and 18. These were designed to get at aspects of service delivery. One other question, 2, loaded on its own factor both before and after a VARIMAX rotation; this is often an indication of a multivariate outlier (this question was a univariate outlier see table 15). All of these questions were deleted from further analysis.

Factor analysis seeks to reduce a large number of related random variables to a smaller set of linear combinations or factors. The QSS data met the requirements set forth in Gorsuch (1983) for sample size (>5 cases per item and at least 100 in the analysis) and interval level of measurement. Although the individual variable distributions were almost uniformly negatively skewed two tests, Bartlett’s test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy, produced results indicating that if the data did not meet the assumption of multivariate normal the analysis should be robust to the deviation. There is no absolute test for multivariate normalcy.

Bartlett’s test is a highly sensitive test of the null hypothesis of zero correlations within a matrix. In this case the Bartlett’s test produced a chi squared statistic with 32 degrees of freedom of 302.354 ($p < 0.001$) allowing the rejection of the zero correlation hypothesis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is an index of factorability computed from summed squared correlation and provides an index of factorability. Tabachnick (1996)

recommends a KMO of > 0.6 for good factor analysis. This data produced a $KMO = 0.741$ indicating that the data was suitable for factoring.

An orthogonal extraction followed by a direct OBLIMIN rotation with a specified delta of .1 (an index of the amount of correlation permitted between the factors) was performed. This level of delta should allow for a reasonable to large amount of correlation between the factors. An oblique solution was chosen since it strains credulity to imagine that whatever factors underlie student's perception of Disability Services are completely uncorrelated. After removal of the complex and outlying items the following solution was produced. Table 17 reports the factor structure, Table 18 reports the factor pattern and Table 19 shows the correlations between the factors. At initial extraction the three orthogonal factors accounted for 60.8% of the variance in the data.

TABLE 17
FACTOR STRUCTURE MATRIX.

Item	Factor		
	1	2	3
1. I Was Treated Respectfully by the Staff at the DS Office	0.736	0.189	0.376
3. Before a Service Was Provided, I Had to Request it	0.362	0.150	0.584
4. I Understood How to Request / Schedule Specific Services at the DS Office	0.199	0.753	0.213
5. I Would Describe the DS Staff as Helpful	0.846	0.344	0.497
7. I Was Able to Schedule / Request the Specific Services I Needed for the Semester	0.230	0.200	0.542
9. I Knew Which Services I Needed for this Semester	0.211	0.494	0.210
10. I Understood Which Services I Should Request from the (TRIO) Disability Support Services Program	0.197	0.584	0.118
12. The DS Staff Cared about My Progress as a Student	0.557	0.266	0.236
17. If I Needed Assistance at DS I Knew Who to Contact	0.292	0.585	0.225

TABLE 18
FACTOR PATTERN MATRIX.

Item	Factor		
	1	2	3
1. I Was Treated Respectfully by the Staff at the DS Office	*0.763	-0.102	0.021
3. Before a Service Was Provided, I Had to Request it	0.107	-0.064	*0.550
4. I Understood How to Request / Schedule Specific Services at the DS Office	-0.102	*0.786	0.016
5. I Would Describe the DS Staff as Helpful	*0.793	0.021	0.088
7. I Was Able to Schedule / Request the Specific Services I Needed for the Semester	-0.075	0.050	*0.565
9. I Knew Which Services I Needed for this Semester	0.005	*0.474	0.058
10. I Understood Which Services I Should Request from the (TRIO) Disability Support Services Program	0.012	*0.604	-0.079
12. The DS Staff Cared about My Progress as a Student	*0.566	0.079	-0.076
17. If I Needed Assistance at DS I Knew Who to Contact	0.082	*0.551	0.009

(* indicates salient loading)

TABLE 19
CORRELATION BETWEEN FACTORS AFTER OBLIQUE ROTATION

Factor	1	2	3
1	1.000	0.373	0.507
2	0.373	1.000	0.316
3	0.507	0.316	1.000

The pattern matrix indicates that indeed the remaining nine questions cluster along the conceptual lines they were designed to. The first factor comprised of questions 1, 5, and 12, addresses the student's experience with staff. The second factor comprised of questions 4, 9, 10, and 17, clusters together questions related to the students knowledge. The third factor, comprised of questions 3 and 7, addresses student's experience with using services. I will refer to these factors as experience with staff, student knowledge, and experience with services.

The results of the analysis suggest that questions 13 and 18 should be reworded. The best approach would be to ask about reliability and timeliness in several ways. Perhaps responses to these new items will cluster along factors of their own.

Factor analysis allows the creation of factor scores that represent the weighted combination of variables loading on that factor for an individual case. These scores have a mean of 0 and standard deviation of 1. These scores can be used for later analysis. Table 20 shows Pearson's correlations between the questions excluded from the analysis and the factor scores.

TABLE 20
PEARSON'S CORRELATION OF SUMMATIVE AND
OTHER REMOVED VARIABLES WITH FACTOR SCORES

Item	2	8	11	13	14	18
2. I Would be Able to Complete My Classes Without DS Services	1					
8. Overall, I Think DS Services are	-0.081	1				
11. The Services I Requested from DS Have Allowed Me Access to WSU Classes	0.131	*0.279	1			
13. I Found the Services I Requested from the DS Office to be Reliable	-0.003	*0.479	*0.371	1		
14. The Services I Requested from the DS Office Satisfied My Needs	0.025	*0.389	*0.386	*0.548	1	
18. The Services I Requested from the DS Office Were Timely	0.019	*0.466	*0.324	*0.552	*0.493	1
15. My Expected GPA for this Semester is	0.004	**0.181	0.050	0.116	0.056	0.060
22. Total Correct Identifications	0.120	0.078	*0.257	0.101	0.092	0.056
Experience w/ Staff FS	0.008	*0.624	*0.317	*0.621	*0.492	*0.545
Student Knowledge FS	0.062	*0.370	*0.441	*0.402	*0.463	*0.354
Experience w/ Services	0.079	*0.580	*0.399	*0.615	*0.577	*0.840

(* indicates $p < .001$, ** indicates $p = .0161$)

TABLE 20 (continued)

Item	15. My expected GPA for this semester is	22. Total Correct Identifications	'Experience w/ staff' Factor Score	'Student knowledge' Factor Score	'Experience w/ services' Factor Score
15. My Expected GPA for this Semester is	1				
22. Total Correct Identifications	-0.088	1			
Experience w/ Staff FS	0.095	0.073	1		
Student Knowledge FS	0.106	*0.171	*0.468	1	
Experience w/ Services	0.112	0.133	*0.732	*0.474	1

(* indicates $p < .001$, ** indicates $p = .0161$)

Table 20 reveals that in fact question 2 does not correlate with any other question or factor score. Since it loaded highly on its own factor it may well be a marker of another factor of interest. In future surveys this question should be considered to represent a potential factor and other questions drafted to get at this same concept. Questions 8, 11, 14 were highly correlated with both experience factors and less so with student knowledge. This sort of correlation was expected for these summative questions. In future surveys question 8 should be retained as a roundup question. A reworked question 11 may be of interest in the grouping of questions similar to question 2.

Questions 13 and 18 also correlate with both experience factors. It may be useful to generate new questions that ask about reliability and timeliness of both the staff and services to attempt to detangle this association. Other questions should be drafted to try and get at these concepts.

Question 15 was intended to provide a compliment to the other distal outcome information when compared with actual grade point averages from disabled students enrolled

during the Fall of 2007. At the time of this writing the institutional data to complete this comparison was not available. It is interesting to note, however, that expected GPA is not reliably correlated with any of the factor scores and only slightly correlated with question 8 ('overall I think...').

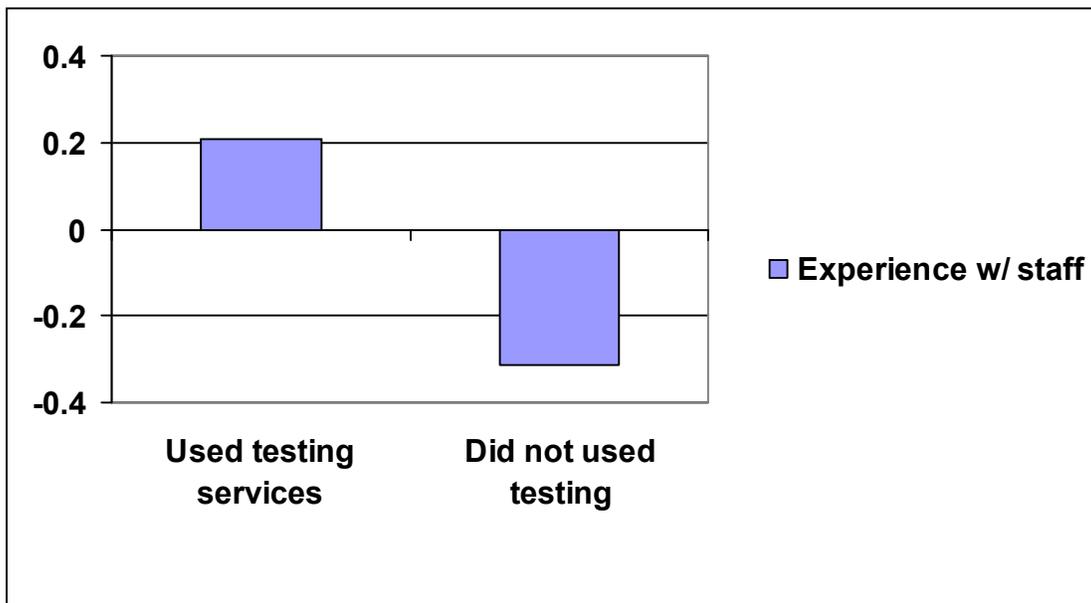
Question 22, total correct, is the scored result of the respondent's identification of whether they would go to the Office of Disability Services or (TRIO) Disability Support Services for a particular service. Although this represents actual student knowledge of services this variable was not highly correlated with either of the 'experience' factor scores or the round-up variables. Where low but reliable correlations were found were with the student knowledge factor score and with Question 11 ('the services I requested have allowed me access...').

Means Testing of Factor Scores by Services Used

Using the factor scores generated in the previous analysis, Multivariate Analysis of Variance (MANOVA) was used to determine if participants mean factor scores varied systematically among groups created from the services used data. Type IV sums of squares method was used to carry out the analysis as there were unbalanced and some empty cells. Using the previously obtained factor scores as dependent variables satisfied most of the basic assumptions of MANOVA. There is no test for multivariate normality but Kolomogorov Smirnov indicated that both of the factor scores were not distributed as univariate normal (Experience with staff factor Kolomogorov Smirnov $Z = 3.203, p < .001$, Experience with services factor Kolomogorov Smirnov $Z = 2.085, p < .001$). Box's M test was significant indicating that the variance in this data was not homogenous across groups. One multivariate effect was found. Those students who used testing services (Wilk's lambda $[3,121] = .892, p = .003$) the lambda for this test reveals that 1-lambda or .108 or 10.8% of variance was explained

by this effect. The observed power for this test (.901) was sufficient to trust that the chance of type II error was low. Tests of between subject effects revealed significant differences between group means of the ‘experience with staff’ factor score (estimated marginal means, testing group = 0.207, non testing group = -0.312, $F [1,123] = 14.483 (p < .001)$ and the ‘experience with services’ factor score (estimated marginal means testing group = -0.053, non testing group = -0.085, $F [1,123] = 8.709 (p = .004)$. Figure 5 and 6 show the results of these tests.

FIGURE 5
MEANS OF ‘EXPERIENCE WITH STAFF’ FACTOR SCORE.

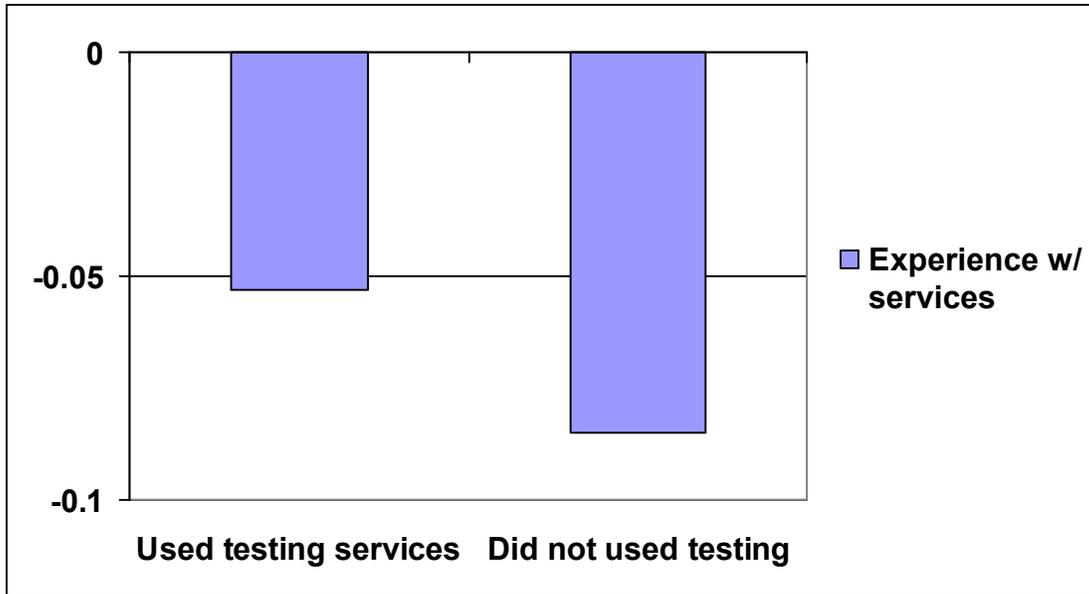


$$F [1,123] = 14.483 (p < .001)$$

This pattern of results may indicate that examination of the processes/systems employed in the testing sub-area may provide ideas for improving the processes/systems of the other sub areas. Two between subjects interactions were found that did not produce multivariate effects. These were: scanning crossed with testing, and rides crossed with computer lab. More power may be required to produce a multivariate effect.

FIGURE 6

MEANS OF 'EXPERIENCE WITH SERVICES' FACTOR SCORE.



$$F [1,123] = 8.709 (p < .004)$$

Figure 7 shows the grand means by service used for the 'experience with staff' factors. Figure 8 shows the grand means by service for the 'experience with services' factor scores. We can see that although the difference between testing use and non use was reliable sign language users report the greatest average scores. Similarly figure 8 shows that average factor scores are highest for sign language users.

As a follow up to the MANOVA a discriminant analysis was performed. Discriminant analysis seeks to create a weighted combination of variables such that maximum separation between groups is achieved. In this case the obtained Wilk's Lambda of .985 indicates that the obtained factor scores do not discriminant between testing service users or non users to any meaningful extent. Given the likelihood that the assumption of multivariate normality was violated this pattern of results is not unexpected.

FIGURE 7

'EXPERIENCE WITH STAFF' FACTOR SCORES BY SERVICES USED

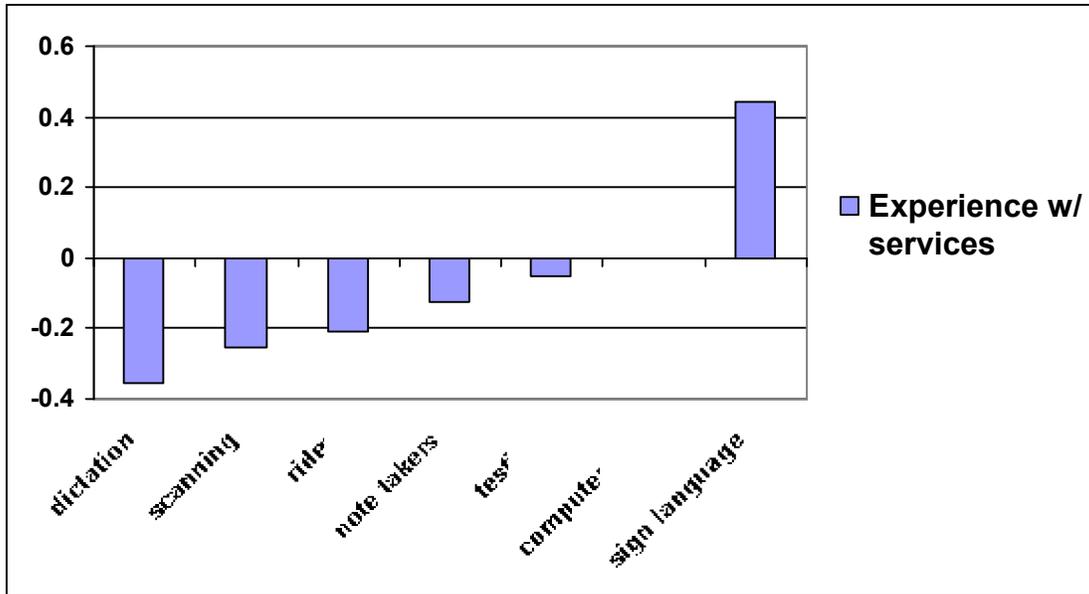
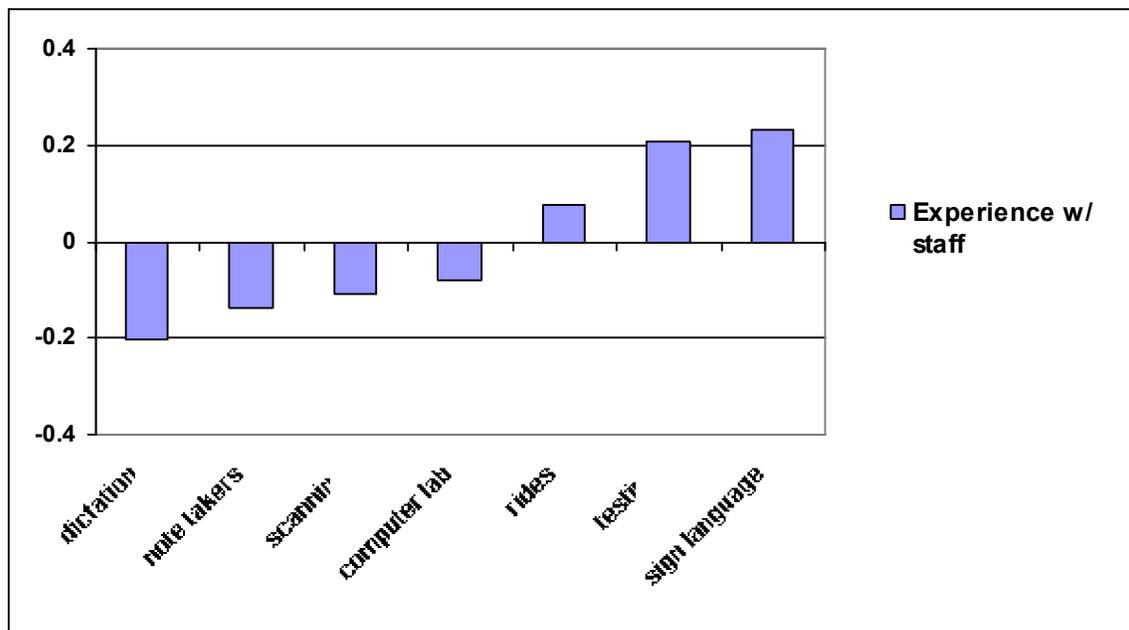


FIGURE 8

EXPERIENCE WITH SERVICES' FACTOR SCORES BY SERVICES USED



CHAPTER V

STUDENTS NO LONGER RECEIVING SERVICES

Participants

Institutional data was used to identify students who had been enrolled at WSU and registered with the Office of Disability Services during the fall 2006 semester and/or spring 2007 semester that were enrolled at WSU in the fall of 2007 but not registered with Disability Services. 22 students were identified. Of this group 7 had no contact information. Attempts were made to contact the remaining 15 students by telephone which yielded 3 respondents (a 20% response rate).

This low response rate can be attributed to the age of the data available for this group. Due to limitations in access to the institutional data this group was not able to be contacted until the end of the spring of 2008. Student's are a mobile group and this delay undoubtedly accounts for much of the inability to contact these students.

Method

Each potential participant was contacted by telephone and asked to participate in the study. The three respondents were interviewed according to the following semi-structured schedule:

- Informed consent, each participant was informed that their name would be known only to me and that any specific individuals they mentioned would not be recorded in my notes.
- Question(s) regarding correct identification
- Question(s) regarding why the student was no longer using disability services
- Discussion of satisfaction with services previously used

Each interview began with an introduction and explanation of the research and continued with an informed consent agreement. All respondents verbally agreed to participate. The interviews were then conducted in a conversational style following the guidelines mentioned earlier from LeCompte (1999a, 1999b).

The interviews took five to ten minutes to complete. Although conversational, in each interview each participant was asked at least one question relevant to the above areas. A transcript of a typical interview is:

Researcher: “Hello, My name is Thomas Page and I am working with the Office of Disability Services at WSU to conduct a survey of students who have used the services. Can I talk to you about your experience with the Office of Disability Services?”

Respondent: “Yes”

Researcher: “This interview is part of my master’s thesis research and is designed to produce information that will help the management of the office improve services. Participation is totally optional. If you choose to participate you will not be named in any notes or your individual responses used in any way that could identify you. Will you participate?”

Respondent: “Yes”

Researcher: “University records have identified you as a student who has used disability services in the past but not during the fall 2007 semester. Please tell me about your experience with disability services when you did use them?”

Respondent:”....”

Researcher: “Which services did you use?”

Respondent: "..."

Researcher: "Why did you stop using that/those service(s)?"

Respondent: "..."

Researcher: "Overall how would you rate your experience on a scale of 1-4?"

Respondent: "..."

Researcher: "Thanks for your time. Your participation helps a lot. Are there any questions about this project I can answer for you?"

Respondent: "..."

Researcher: "Thanks again, good night!"

Results

This small interview group yielded each of the possibilities considered when contemplating this group in the planning stages of this research. These were: students who were dissatisfied with Disability Services, students with temporary disabilities, and, students whose self advocacy had limited or removed their need for services. One student complained that when he was unhappy with the timeliness of a ride he lined up outside help. One student indicated that after her first couple of semesters she found she could negotiate directly with her teachers for needed testing accommodations and no longer needed Disability Services as a go between. The final student suffered from a broken bone and healed over the summer of 2007.

The number of students identified suggests that only a very small number of students who register with the Office of disability services (< 5% a semester) continue at WSU but do not continue using disability services. This group did provide information on a case where student self advocacy removed the need for disability services. Further examination of this group may

reveal more information about this outcome and perhaps suggest research that can help provide insight into the mechanisms involved in the growth of a student's ability to self advocate.

CHAPTER VI

DISCUSSION

In addition to providing the preceding program description, and gathering input and usage monitoring information, this project sought to provide a snapshot of student's perceptions of the quality of services provided by the WSU Office of Disability Services. Much information has been gathered. Overall the findings are positive. Considerable negative skewness on almost all of the survey items indicates that most participant's responses were positive. 86.7% of participants rated the services they received as mostly adequate or better.

With regard to program input it seems that on-campus sources provide many referrals. Overall visibility efforts such as working with enrollment/orientation and the office's web page appear to be reaching students. The data also showed that off-campus sources were the smallest contributors. This may indicate that outreach activities targeted to high school seniors and programs such as Vocational Rehabilitation may be appropriate. One such outreach to high school students interested in possibly attending WSU has been offered during the spring 2008 semester.

With regard to importance of services to the student:

- 60.4% of students reported using at least one service routinely
- 86.7% of students used multiple services
- 91.8% of students would experience at least 'some difficulty' without Disability Services

These findings indicate that students are not generally "dabblers" with regard to disability services. They use services routinely and connect the presence of those services to success as a student.

At least with regard to the difference between the Office of Disability Services and (TRIO) Disability Support Services students could use more knowledge of how to use available services. Greater clarification of the differentiation between the offices is needed during orientation to Disability Services. In general, however, the results of the exploratory factor analysis show that student knowledge is not highly associated with overall satisfaction.

If we had a rating of staff satisfaction with students we might find the opposite! During the interview phase the various area managers expressed a great deal of concern about student knowledge of services. So, even if not directly associated with overall satisfaction, it does appear that any efforts to improve the clarity of how to request and schedule various services might improve student's satisfaction with staff and services. Each sub area could easily develop a brief explanation or guide detailing by whom, when, and how, services can be used.

Questions regarding the efficiency and reliability of services were the least successful in implementation. Following the recommendations made in the exploratory factor analysis section may result in a better capture of this information. In future research this improvement should be a top priority.

Regarding the student staff interaction, as expected, this conceptual category contributed heavily to explaining variance in the data. Of course the manner in which a student is treated by the staff is important to the student. In light of the discussion of social complications of disability it may be useful to periodically remind staff members of the special dynamics of the population they are serving. An awareness of the pioneering nature of many students as well as an understanding of differences between differing sub-cultures of the disabled is necessary to provide adequate service. Perhaps retreat type trainings, where the staff can interact with students and other disabled community members would be useful. Another approach would be

to encourage staff members to investigate community based groups of disabled persons to help foster cultural understanding.

The rankings presented in figures 7 and 8 give a real start point in examining which areas can use the most work. Extra and specialized staff trainings for the lower ranked services should be considered. Student's using sign language services reported more satisfaction with both staff and services than other students. It would be informative to examine the practices of the sub-area manager and compare them to those of the other areas.

The interviews with students "no longer receiving services" did not produce a great amount of data. The information gathered was, however, of particular interest. In the future this sort of identification process could be performed each semester to identify students no longer receiving services but still enrolled in classes. Departmental data can be used to eliminate those students with temporary disabilities. This should yield a small enough number of students to make follow up easy. Information about students who were extremely dissatisfied or not receiving services for some other reason can be a great benefit to the management of the office.

The finding that in fact at least one student in two semesters no longer needed the Office of Disability Services is intriguing. Further examination of students who are part of this group would be interesting future research. Over time the management may be able to turn information gathered from this group into an programmatic approach to self advocacy development (one of the goals mentioned in the program description).

As a formative evaluation the data presented in this paper is best understood when compared to future data sets. An improved QSS survey, taking into account the earlier suggestions, could be implemented to provide such a comparison. Relative change over time can be very informative to the management of the office. Keeping track of systematic changes in the

way the program is implemented, for example the high school senior program mentioned earlier, and comparing those changes with survey results over time can provide much information about the impact of program activities.

Staff and system changes are inevitable. Changes in students' reports of the three factors detailed earlier can be associated in time with such changes to assess their impact. Combined with budget information these changes can help the overall manager to better anticipate budgetary needs. Future survey implementations can also be used to assess the relative stability of the model proposed in this report.

In conclusion, although this report may be light on recommendations, a series of benchmarks have been created that can allow the office management and staff alike to challenge themselves to improve their relative performance. In keeping with the goals of contextual research a digest of results for the office staff and another report for students were prepared (See Appendices D and E).

The primary audience of this paper is the thesis committee comprised of senior faculty. Much of the detail presented here regarding the construction of the factor solution and MANOVA is relevant here but not important to the staff and management of the office. Meetings were held with management to determine which information would be most relevant to students and staff. This resulted in the mentioned appendices. It is hoped that by providing this easy to interpret digest, interest in future research will be increased.

Future research can include efforts to gather information on distal outcomes. In addition to gathering information regarding semester GPA's graduation rates would be useful for ongoing program monitoring. Another approach would be to compare the inputs, demographics, and outcomes of disabled students to those of non-disabled students during several semesters. Even

if used only for benchmark purposes this sort of analysis would provide information complementary to existing program monitoring data.

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APPENDICES

APPENDIX A

QSS SURVEY

ID

Please enter the ID number that you received:
(0 - 999)

Informed Consent

Welcome! Please read and agree to the following informed consent information before continuing. Please click 'Next', then after reading the next page click 'I agree' below to continue.

The Office of Disability Services (DS), and the researchers below, are conducting this survey to gather information that help the DS office improve the services they provide. All students registered with the DS office in the FALL semester of 2007 are being asked to complete a brief questionnaire. You will be asked a series of questions about your experiences using DS services.

Each student will be assigned an ID number which will be used to track participation by the researchers. This information will never be known to the staff of the DS office and will be destroyed at the time the project is completed. All data will remain in a locked cabinet or on computers in the locked offices of the researchers.

By participating in this study you will provide valuable information which will help guide the DS office in the future.

Any information obtained in this study by which you can be identified will remain confidential and will be disclosed only with your permission.

Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with Wichita State University and the Office of Disability Services. If you agree to participate in this study, you are free to withdraw from the study at any time without penalty.

If you have any questions about this research, you can contact the researchers at:
Thomas Page (topage@swbell.net) or
Dr. Charles Burdsal (charles.burdsal@wichita.edu)

If you have questions pertaining to your rights as a research subject, you can contact the Office of Research Administration at Wichita State University, Wichita, KS 67260-0007, telephone (316) 978-3285.

You are under no obligation to participate in the study. Your completing the questionnaire will be taken as evidence of your willingness to participate and your consent to have the information used for the purposes of the study. You may keep this cover letter and explanation about the nature of your participation in this study and the handling of the information you supply.

APPENDIX A (continued)

If you agree to participate in the study please choose I Agree below to begin the short survey.

- I agree
- I do not wish to participate

Instructions

You will be asked a series of questions regarding your experience with the Office of Disability Services during the Fall semester.

Please answer all the questions asked to the best of your ability. If a question does not seem to apply to you, please skip that question and go on to the next. Use the radio buttons or check-boxes to indicate your selection or enter the information requested. Then click the 'Next' button to continue.

Thank you for your participation!

Q1

I was treated respectfully by the staff at the DS office

- Never
- Sometimes
- Most of the time
- Always

Q2

I would be able to complete my classes without DS services

- Easily
- With some difficulty
- With great difficulty
- I would not be able to complete my classes without DS services

Q3

Before a service was provided, I had to request it

- Once
- Twice
- Several times (3 or 5)
- Many times (6 or more)

APPENDIX A (continued)

Q4

I understood how to request/schedule specific services at the DS office

- Not at all
- Some of the time
- Most of the time
- Completely

Q5

I would describe the DS staff as helpful

- Always
- Most of the time
- Sometimes
- Never

Q6

I found out about the DS office from:

- My high school guidance counselor
- Enrollment/orientation at WSU
- Recommended by an instructor
- Recommended by a doctor
- Recommended by a friend
- Recommended by the DS office at my previous school
- Other

Q6 Other

You chose other, please enter where you found out about Disability Services below:

Q7

I was able to schedule/request the specific services I needed for the semester

- I was unable to register for needed services
- With great difficulty
- With some difficulty
- Easily

APPENDIX A (continued)

Q8

Overall, I think DS services are

- Quite Adequate
- Mostly adequate
- Could use some improvement
- In great need of improvement

Q9

I knew which services I needed for this semester

- Still unsure
- After Mid-Term
- By Mid-Term
- Within the first month
- From the beginning

Q10

I understood which services I should request from the (TRIO) Disability Support Services program

- Completely
- Some of the time
- Most of the time
- Not at all

Q11

The services I requested from DS have allowed me access to WSU classes

- Not at all
- A little
- Mostly
- Completely

APPENDIX A (continued)

Q12

The DS staff cared about my progress as a student

- A great deal
- Mostly
- A little
- Not at all

Q13

I found the services I requested from the DS office to be reliable

- Never
- Sometimes
- Most of the time
- Always

Q14

The services I requested from the DS office satisfied my needs

- Always
- Most of the time
- Sometimes
- Never

Q15

My expected GPA for this semester is

- ≤ 2.0
- 2.0-2.5
- 2.6-3.0
- 3.1-3.5
- 3.6-4.0

APPENDIX A (continued)

Q16

I used the following services:

	Never	Rarely	Sometimes	Routinely
Rides on campus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sign language interpreters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Note takers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Course materials transcription (to audio, large print, braille, or reader)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test taking assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer Lab	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dictation/Typing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q17

If I needed assistance at DS I knew who to contact

- Never
- Sometimes
- Most of the time
- Always

Q18

The services I requested from the DS office were timely

- Always
- Most of the time
- Sometimes
- Never

APPENDIX A (continued)

Q22

To obtain services from the following list which office/program would you go to?

	Office of Disability Services	(TRIO) Disability Support Services	Not sure
Taped text books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tutoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Test taking assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assistance to and from classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Academic and financial aid advising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scholarship opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q19

Please enter your age:
(0 - 99)

Q20

I am

- Male
- Female

Q21

My ethnic background

- White non Hispanic
- Black non Hispanic
- Hispanic
- Asian or Pacific Islander
- Native American
- Non resident alien

APPENDIX A (continued)

Thanks for your time and feedback. Your information will help us a great deal! If you have any questions or comments concerning this survey please contact:

Thomas Page
1845 N Fairmount
Wichita, KS
67260-0132
316-267-7868
topage@swbell.net

APPENDIX B

EMAIL ANNOUNCEMENT

<First Name>,

The Office of Disability services (DS) at Wichita State University is asking all students who were enrolled in the FALL 2007 session to participate in a survey project. This project is designed to help to the DS office improve the services they provide and the way that they are provided. The survey is quick. There is no time limit and only about 10 minutes of your time will be needed. Please click the following link to begin the survey.

You will be asked to enter a participant number. Your number is: <participant id number>

<http://mrinterview.wichita.edu/mrIWeb/mrIWeb.dll?I.Project=DSQSSFALL07>

Thanks, without your time and energy we would be unable to complete this project. If you would like assistance in filling out the survey please call me at 316-267-7868 or respond to this email. Please feel free to contact myself or Grady Landrum at 316-978-3309 if you have any questions.

Thanks again for your time,
Thomas Page

APPENDIX C
SHORT EMAIL REMINDER

<First Name>,

The survey is quick! Only about 10 minutes of your time will be needed.

You will be asked to enter a participant number. Your number is: <participant id number>

Please click (or copy and paste into your browser) the following link to begin the survey:

<http://mrinterview.wichita.edu/mrIWeb/mrIWeb.dll?I.Project=DSQSSFALL07>

Without your time and energy we would be unable to complete this project. If you would like assistance in filling out the survey please call me at 316-267-7868 or email me at tom.page@wichita.edu. Please feel free to contact myself or Grady Landrum at 316-978-3309 if you have any questions.

Thanks again for your time,
Tom Page

If you have already responded please reply to this email.

APPENDIX D
STUDENT DIGEST

Thanks again for your participation in this survey effort. Of course, as usual, bring any problems or complaints you may have to the attention of the Office of Disability Services staff. Grady, Kathy, or Makenzi will be glad to help you. You can contact them at:

Wichita State University
Office of Disability Services
Quality of Services Survey
Summer and Fall 2007

Office of Disability Services
Wichita State University
1845 N. Fairmount
Wichita, KS 67260-0132
316-978-3309

If you have any questions about this research project please contact:

Thomas Page
1451 Fairview
Wichita, KS 67203
316-267-7868
topage@swbell.net
or
Dr. Charles Burdsal
1845 N. Fairmount
Wichita, KS 67260-0034
316-978-3170
charles.burdsal@wichita.edu

APPENDIX D (continued)

If you were a student registered with the Office of Disability Services (DS) during the summer or fall of 2007 you were asked to participate in a online survey about your experience with DS.

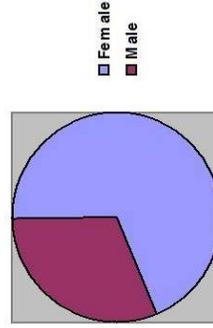
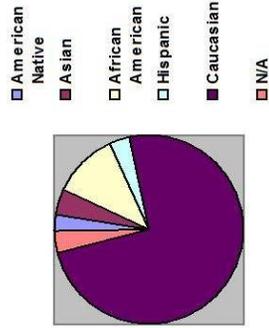
The response was great! We received over 180 completed surveys. The results have been compiled and will be reflected in future improvements around the office.

Thanks so much for your participation.

Here is some of what was learned.

Who we are:

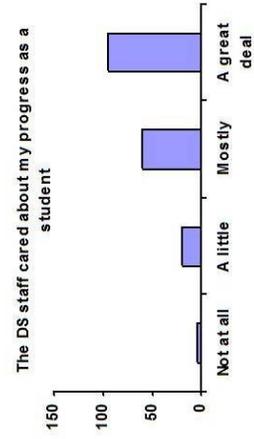
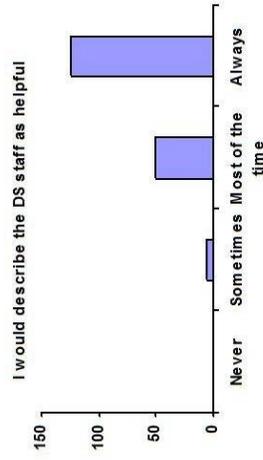
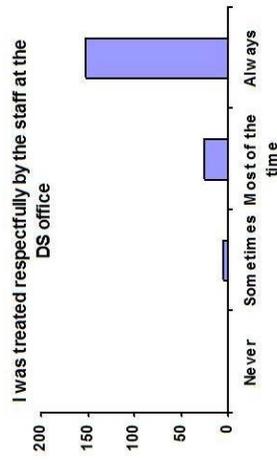
Disabled students at Wichita State are a diverse group drawn from many backgrounds:



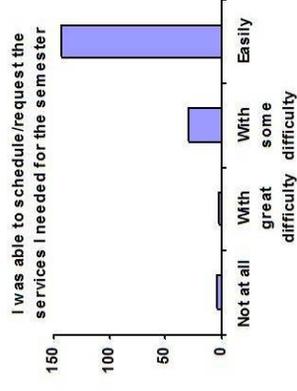
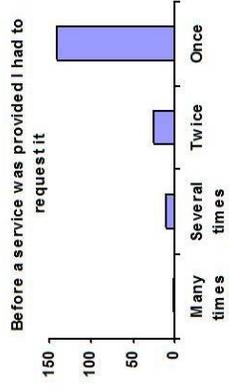
Students registered with the office ranged in age from 16 to 66 with an average age of 32.54 years.

Satisfaction with Staff and Services:

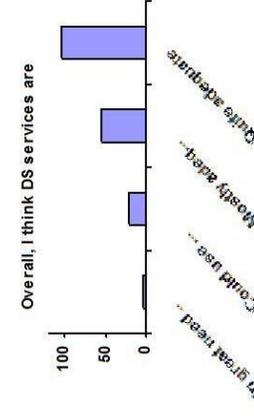
Three questions were found to be highly associated with students' experiences with staff.



Two questions were associated with students' experiences with DS services.



Overall on a 1 to 4 scale students rated their experience with the DS office as a 3.42.

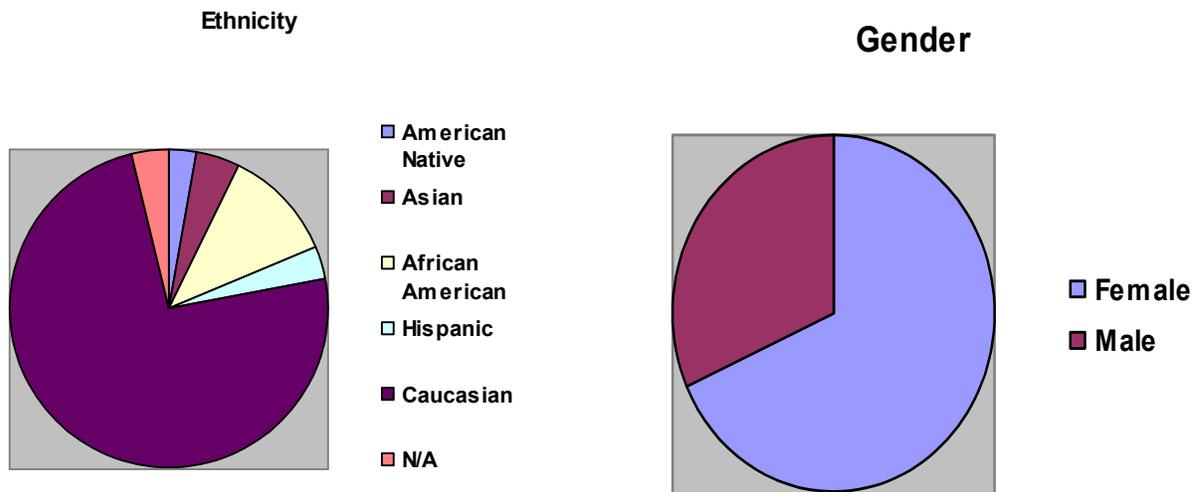


APPENDIX E

STAFF DIGEST

Wichita State University
Office of Disability Services
Quality of Services Survey Report
Summer and Fall 2007

All students registered with the Office of Disability Services (DS) during the summer and fall of 2007 were asked to participate in an online survey regarding their experience with DS staff and services. 182 complete surveys were returned (74.9% of the total population). A series of tests were conducted on three demographic factors. It was found that the respondent group did not differ from previous semester's students with respect to gender, ethnicity, and age. The summer/fall 2007 respondents were:



	Minimum	Maximum	Mean	Std. Deviation	Skewness	S. E. of skewness
Age	16	66	32.54	12.898	0.654	0.184

APPENDIX E (continued)

Input Monitoring

One of the areas of interest across staff areas was: How do students find out about the DS office? Our survey revealed the following:

Input Source	Percent (%)
Other	27.5
Enrollment/Orientation at WSU	18.7
Multiple sources	14.3
Recommended by an instructor	13.7

Recommended by a friend	12.1
Recommended by a doctor	6.6
The DS office at my previous school	4.4
High school guidance counselor	1.6
No response	1.1

The following table summarizes the open ended responses (other).

Input Source	Percent (%)
Found it on my own	26.7
Other office / agency	22.2
academic advising	15.6
Other	13.3
Web page	11.1
Family Member	11.1

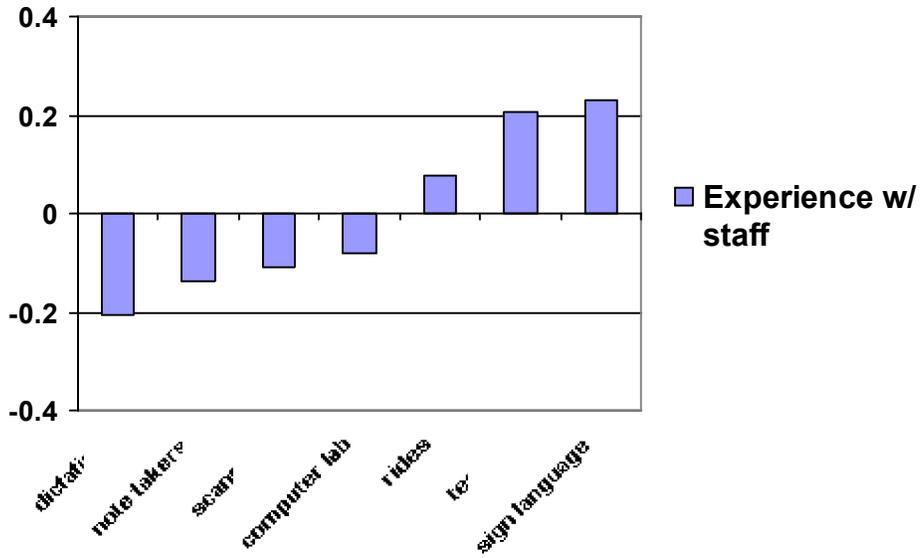
The data indicates that on campus referrals are a large source of students. Continuing outreaches to high school students and perhaps some sessions for social workers or vocational rehabilitation workers is indicated.

Process Monitoring / Satisfaction

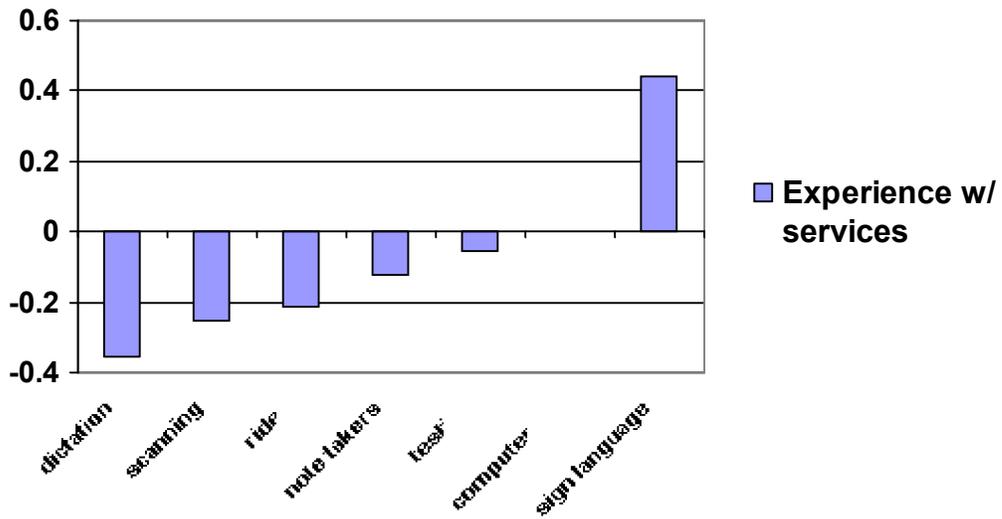
An exploratory factor analysis provided a model consisting of three factors (underlying dimensions) drawn from relationships within the survey results: 'Experience with staff', 'Student knowledge of services', and 'Experience with services'. Each of these factors is a weighted linear combination of questions from the survey that were highly associated with one another. The factor scores are scaled so that the average is 0. Below are the factor score averages across the different service areas.

APPENDIX E (continued)

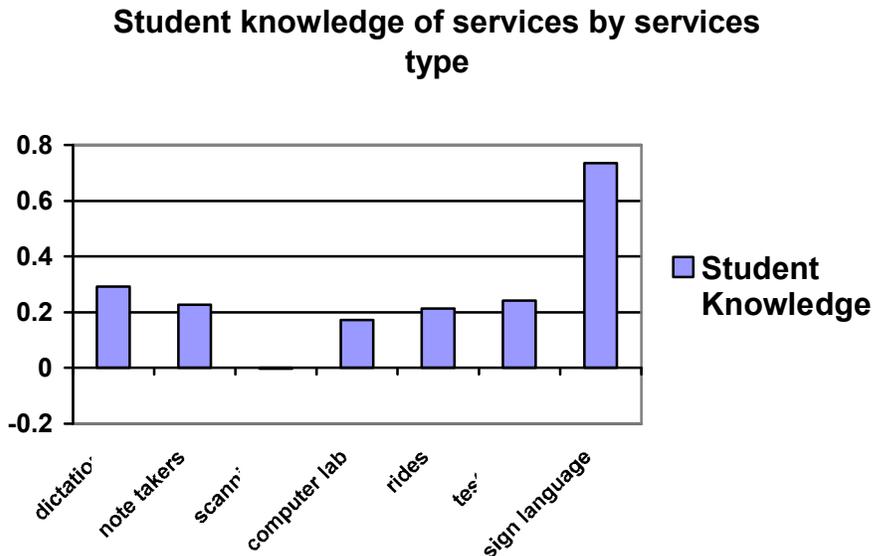
Experience with staff by service type



Experience with serices by service type



APPENDIX E (continued)



The preceding charts display the differences between students' average factor scores, grouped by the type of service the student used. Sign language users stand out as high raters both of their experience with staff and their experience with the services. Students using the dictation, note taking, scanning, and computer lab rated their experiences as below average.

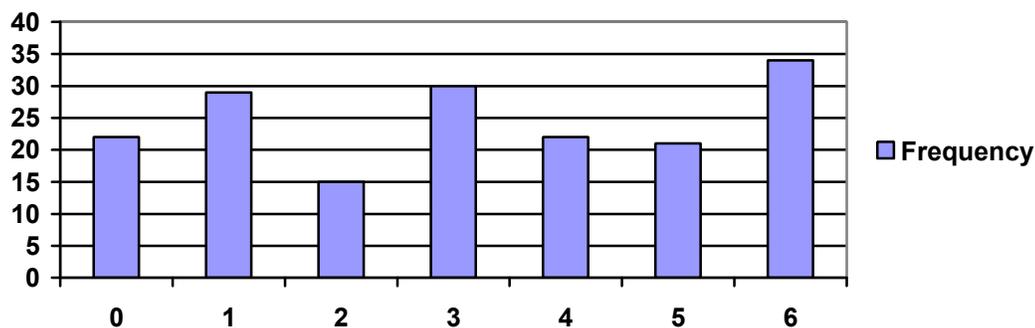
These scores are benchmarks, snapshots of things the way they appeared to students during a particular time period. There is much to be learned by comparing future survey results to these scores. There is also real benefit to be gained by examining the difference between the service areas. This examination should be collaborative and include every effort to gain more understanding of the student's experience with DS. Below are a series of questions we can discuss regarding the results.

Reviewing the procedures and infrastructure associated with the below average services is indicated. With regard to experience with services questions such as the following arise: How on time and how reliably is a service being performed? Do we have adequate staffing and equipment to effectively provide this service?

The experience with staff results also suggested some questions, such as: How can a student's experience be improved? Are there systems that can be changed to improve the student's experience with the staff? Of course, basic customer service concepts apply here: efficiency, friendliness, thoroughness, etc..

APPENDIX E (continued)

Correct Identifications of TRIO vs DS Services



When examining the results of the student's knowledge of the services we should look at both the student reports and their actual knowledge. The student knowledge factor score is comprised of student reports of how much they understood how to use DS services. The chart above presents, in contrast, the actual number of correct choices students made when asked to identify whether they should go to TRIO or DS to obtain a specific service. It appears that students rate their knowledge of the services as higher than it actually is.

Although, the student knowledge factor score was not correlated with the other two experience factors, there is a round-a-bout connection. From the staff point of view students who do not understand how to request/utilize the DS services present a challenge. I suspect that students who do not present a challenge generally have better experiences with the staff and in actually using the services. To this extent I recommend continuing existing efforts to educate students on the differences between TRIO and DS as well as the different DS service areas. Written descriptions of how the office systems work might be provided to new students. Efforts made to create accessible office forms and schedules may be rewarded by student self service.

In conclusion, thanks to all of you for your thoughtful suggestions during the design phase of this study as well as for what you do every day. The services you provide make all the difference in terms of leveling the playing field. If you have any questions please contact Tom Page at: 267-7868 (topage@swbell.net), or Dr. Charles Burdsal at 978-3170 (charles.burdsal@wichita.edu).