COMPASS 2002: A COMPARATIVE SURVEY OF EMPLOYMENT, EDUCATION, AND BENEFIT NEEDS OF OHIOANS WITH DISABILITIES AGED 16-64

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University

By

William T. Darling, M.S.

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The Ohio State University

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Dissertation Committee:

Bruce S. Growick, Ph.D., Adviser
Michael A. Klein, Ph.D.
Michael L. Kelly, Ph.D.

Approved by

____________________________

Adviser

Adviser

College of Education
The Ohio Rehabilitation Services Commission (ORSC), the Ohio state-federal vocational rehabilitation program, in partial fulfillment of its commitment to the United States Department of Education, periodically performs a statewide survey of people with disabilities. The factors studied in this “Compass 2002” study focus on education, severity of disability, employment rate, compensation, presence of health insurance and other benefits, and access to assistive technology.

This study is a replication of the 1994 “Compass” project, and provides comparisons of randomly selected subsets of Ohio’s disability population. The study also focuses on the impact that education has on employment and earnings within the 2002 dataset.

Employment for people with disabilities has improved from 28.7% in 1994 to 35.9% in 2002. The education level of people with disabilities improved nearly one-half of a grade, from 11.8 to 12.2. Personal earnings and household
earnings are significantly higher in 2002 than they were in 1994. The presence of health insurance and other benefits has risen significantly in Ohio in the past eight years.

The most significant variables that predict earning potential for people with disabilities in 2002 are gender, level of education, and length of job tenure. The presence of multiple disabilities also has a significant negative impact upon earnings. In the 1994 study, the variables were gender, length of job tenure, level of education, and level of job satisfaction.

When conducting cluster analysis, the variables that had the most dramatic effect of clustering cases were severity of disability and, to a lesser extent, race of the individual.

The economic and educational status of Ohioans with disabilities has improved since 1994. More people with disabilities are working, they are earning more money, and they are being afforded essential benefits. Educational levels are higher and its impact on employment and earnings is significant.
ACKNOWLEDGMENTS

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This work is dedicated to my wife Jill in thanks for all of her love and support. It is also dedicated to my children, Albert, Isabelle, David, Caroline, and Justin. These beautiful people are my life.

To Mark Hemphill.

“A ship in harbor is safe. But that’s not what ships are built for.” -- William Shedd.
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<tr>
<td>1990</td>
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<tr>
<td>1992</td>
<td>M.S., Rehabilitation Counseling, Southern Illinois University, Carbondale, Illinois</td>
</tr>
<tr>
<td>1992 – 1993</td>
<td>Social worker, Southeast Community Mental Health Center, Columbus, Ohio</td>
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<td>Rehabilitation counselor, MEDVOC Management, Inc., Columbus, Ohio</td>
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<td>1998 – present</td>
<td>President, Darling Rehabilitation</td>
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<tr>
<td>2000 – present</td>
<td>Associate Director, Assistive Technology of Ohio, The Ohio State University</td>
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CHAPTER 1

INTRODUCTION

The history of the disability rights movement is based on the premise that people with disabilities deserve the freedom to succeed – or fail – based upon their own individual talents. The United States government, starting with the first Continental Congress and its efforts to help those injured in battle, has always understood that government has a role helping those with disabilities. In our country’s history, there have been numerous legislative attempts to level the playing field and modify a world that is not set up for those of differing abilities. These laws, laid out in chronological order, show a concerted effort on behalf of state and federal governments to recognize the difficulties facing people with disabilities and address them. By all accounts, progress has indeed been made.
More than at any point in our nation’s history, public transportation is accessible to people with disabilities. More than ever, people with disabilities can find apartments, houses or hotel rooms that are wheelchair accessible. People with disabilities can move freely through places of work and public buildings without fear of being confined to certain areas due to physical limitations. More than ever before, assistive technology can help minimize or eliminate the limitations associated with disability, opening wider the doors of opportunity, and allowing people with disabilities the chance to learn, to work, and to live independently.

The highpoint in the disability rights movement occurred July of 1990 in Washington, D.C., at the White House. On that warm day, President George H. W. Bush signed the Americans with Disabilities Act (ADA), the most sweeping reformation of disability rights in the history of the country. The signing of the ADA, passed after years of hard work by disability and congressional leaders, was intended to be the beginning of the end of discrimination against people with disabilities in all aspects of life. It
was to be the dawn of a new day in the employment of Americans with disabilities. From that day forward, it was hoped, life for Americans with disabilities would begin to improve in ways that truly matter: in employment, in education, and in activities of daily living.

Four years prior to the passage of the ADA, a national poll found the employment rate of people with disabilities to be thirty-three (33) percent (Harris, 1998), nearly sixty points lower than the national employment rate for people without disabilities (Houtenville, 2000a). Other national studies such as the annual March Supplement conducted by the U.S. Department of the Census, though using slightly different operational definitions of disability, showed similar numbers and employment patterns. Numbers like this were fuel for the fire lit across the country that led to the understanding that change was needed. Ultimately, and hopefully, some of that change would come in the form of the ADA.

In some areas, the ADA has made a significant improvement in the lives of Americans with disabilities. Public offices, hotels, entertainment establishments, and
public transportation are constructed to be consistent with the needs of Americans with disabilities. Government Internet websites are in many instances more accessible to Americans with visual and learning disabilities. Sidewalks, city parks, and shopping centers are being set up so that all Americans can enjoy them, including people with disabilities.

Unfortunately, one of the areas most in need of improvement – employment rate – has not seen the same progress. A follow-up national study was conducted in 1992 in order to gain an understanding of how the lives of Americans with disabilities were being impacted by such legislation. The same group, conducting the same research eight years later, found the employment level had actually declined to 31%, at a time when national unemployment was virtually non-existent. Six years further down the road, in 1998, the employment rate had dropped even further, to 29% (Harris, 1998). Unfortunately, Ohio’s results mirrored those of the national survey efforts. In Ohio, in 1994, the unemployment rate was found to be 28.7% (Glazier, 1994).
No rationale or motivation for the passage of the ADA was more important than the basic one of improving the employment rate. Employment, presence or absence of disability notwithstanding, has a positive impact on all aspects of daily living. It was hoped that the improved employment rate that was expected with the passage of the ADA would have the trickle-down effect of improving the overall life experience of Americans with disabilities. And while areas of daily living have improved since the passage of the ADA, it has not been as a result of improved employment rates.

The purpose of the state-federal vocational rehabilitation program is to address this very issue. Present in every state, and funded by a formula-driven mix of state and federal dollars, vocational rehabilitation programs represent the largest sustained effort on behalf of state and federal governments to make people with disabilities both employable and employed. The state of Ohio, through its Rehabilitation Services Commission (ORSC), has been one of the most successful programs in the
country for training and placing people with disabilities into employment settings.

To its credit, ORSC has also taken upon itself the responsibility of attempting to understand in clearly defined terms the status of people with disabilities in their state. The Rehabilitation Act of 1973, as amended in 1992, specified that a state’s three-year plan provide for a “comprehensive, statewide assessment of the rehabilitation needs of individuals with severe disabilities.” Beginning in the mid 1970s, the state of Ohio conducted a statewide survey called “Project Ohioans” that looked at disability prevalence, knowledge of state programs, and employment and education levels of Ohioans with disabilities. This led to a follow-up study conducted in 1983. These studies, “laid the groundwork (for) ORSC planning, state and federal budget requests, general public awareness of the dimensions of disability as a social issue, and self-knowledge among the disability community” (Glazier, 1994, p. 1).

It is impossible to measure the works of a state agency - or the impact of legislative efforts - without
valid, consistent, and reliable information. The Rehabilitation Services Administration (RSA), the national administrative body for the state-federal vocational rehabilitation program, requires the “state plan” be based upon a methodologically sound needs assessment. For the purpose of providing quality services, of reporting accurate and consistent information to RSA, and of improving internal policies and program planning, the state recognized the need to determine the following:

- The estimates of the numbers of Ohioans with disabilities between the ages of 16-64, by type of disability and severity of disability;

- Estimates of the number of Ohioans with disabilities by region of the state;

- Estimates of the number of Ohioans with disabilities who are not working but desire to work;
• A demographic profile of this population; and

• Estimates of needs for services that can and are offered by the state vocational rehabilitation program and various other rehabilitation providers throughout the state.

In 2002, the state of Ohio Rehabilitation Services Commission has again endeavored to measure the collective status of people with disabilities in their state. Compass 2002 is a collaborative research effort on between ORSC and the following entities: Assistive Technology of Ohio, the Rehabilitation Services Area of the Ohio State University Department of Physical Activities and Educational Services, and the OSU Center for Survey Research.

In this latest edition of the survey, an added focus has been placed upon the need to measure the prevalence and impact of assistive technology (AT) in the lives of Ohioans with disabilities. While the previous editions of Compass and Project Ohioans included questions about AT, the 2002 edition expands questions about assistive technology and attempts to quantify the impact AT has on people’s daily lives.
From a research standpoint, additional focus will be placed on the education of people with disabilities. Recent educational efforts, such as expanding the Individuals with Disabilities Education Act, have focused on the barriers to educational opportunities for people with disabilities. In order to fully understand the need for expanding educational opportunities, it is imperative to study the impact education truly is having today on people with disabilities. This research study will focus on the impact educational level has on the following constructs: employment rate, employment tenure, salary level, benefit levels, and overall job satisfaction.

Studies such as Compass 2002 are an imperative. They must be done and they must be done in a professional, thorough and useful way. The impact of the information generated by Compass 2002 will reach far beyond just the ORSC. Many state agencies, including the departments of Mental Retardation and Developmental Disabilities, Mental Health, Health, Aging, Youth Services, and Education, as well as disability organizations across the state will benefit from the knowledge derived herein.
CHAPTER 2

LITERATURE REVIEW

On a warm day in July of 1990, President George Bush, surrounded by congressional and disability leaders from across the country, signed Amended Senate Bill 457, more commonly known as the Americans with Disabilities Act (ADA). The signing of this bill into law came after years of hard work; lobbying, testifying, speaking, negotiating, protesting, and licking of envelopes. The signing of the ADA was regarded as a watershed moment in the history of civil rights for Americans with disabilities.

The history of the treatment of, education of, and employment of Americans with disabilities is a poor one, and one not to be fully recounted in this document. Though societal attitudes toward this population have improved, brought on in no small way by the return of heroes from world wars, the overall prospects for a citizen with a disability remained bleak. As late as 1986, the employment
rate for people with disabilities, including part-time employment, was thirty-three percent. Nearly four in ten people with disabilities had not graduated from high school. People with disabilities were far less likely than those without disabilities to socialize with friends, go out to restaurants, attend church, get adequate health care, and be satisfied with life. They were also far less likely, if they did work, to earn wages lifting them above the level of poverty (Leitman, Crooner, & Risher, 1994). Facts and trends such as these gave grassroots momentum across the country to a movement that ultimately led to the passage of the ADA.

The scope of the ADA is broad. The ADA is designed to improve employment prospects for people with disabilities: employment opportunities, employment rates, and employment rights. It was also intended to make the country more accessible for people with disabilities by increasing access to buildings, sidewalks, parks, and public transportation. It was an attempt to gradually transform communities so that they would be accessible to all members
of the population, including those who had historically been excluded.

The ADA, in its attempt to promote and protect people with disabilities, was also required to specify to whom the law applied. The historical connotation of people with disabilities includes physical conditions that are easily identifiable and universally understood: people with blindness, deafness, or neuromuscular or other conditions requiring the use of a wheelchair. The actual picture of the disability community, though clearly far broader and inclusive, is often more difficult to bring into focus.

The purpose of the ADA was to improve life for Americans with disabilities. In May of 1998, Researcher H. Stephen Kaye wrote a research piece asking the question, “Is the status of people with disabilities improving?” The topics researched were in the areas of employment, income, societal and environmental barriers, and participation. Overall, his research found, “National surveys show little improvement in the economic well-being of people with disabilities (Kaye, 1998).
Research has been conducted through the years attempting to quantify and verify the changing status of people with disabilities in the American experience. A review of that research clearly shows not only the significant obstacles facing people with disabilities through the years, but also the difficulties that arise when attempting to measure and quantify the segment of the population considered to be disabled. Medical treatments for certain previously debilitating illnesses have modified attitudes toward people with disabilities. The advancement of technology has, in some instances, minimized or eliminated functional limitations associated with some disabilities. Historical preconceptions about people with disabilities have changed for the better. At the same time, new conditions, such as Acquired Immune Deficiency Syndrome (AIDS) - and all the social and political stigma riding with it - have caused people to look anew at the meaning of disability.

Numerous studies conducted by the federal government within the span of a decade have used disparate definitions of disability. This has made it difficult in many instances
to perform research on the actual changing status of people with disabilities. Even a minor change in inclusion or exclusion of a certain class can fundamentally alter the results of different research seemingly targeted at the same topic. The next section will outline some of the challenges that have faced researchers in defining the subjects of surveys on disability.

Definitions of disability

The presence or absence of disability is not as obvious as it may initially appear. One reason for this is the tendency of the public to use disability concept language interchangeably, when the terms themselves have distinct meanings. The World Health Organization, in their conferences held in 1980 and 1993 adopted definitions of the terms “impairment,” “disability,” and “handicap.” According to the WHO, and in the context of the “health experience,” impairment is defined as, “...any loss or abnormality of psychological or anatomical structure or function” (WHO, 1993). Impairment describes the biomedical condition of the body and is characterized by abnormalities that may be temporary or permanent in nature. This may
include the restricted – or precluded – use of limbs, organs or other structures of the body, including those affecting mental functions. In everyday terms, it is the part of a person’s body that does not function in a “normal” manner.

Disability is defined as, “… restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.” The term disability is targeted toward the effect that an impairment has on an individual’s abilities to perform in activities of daily life, or ADLs. ADLs are defined as, “the things we normally do in daily living including any daily activity we perform for self-care (such as feeding ourselves, bathing, dressing, grooming), work, homemaking, and leisure” (Cancerweb, 2002). A person can have an impairment without experiencing a disability, provided that the impairment does not lessen their ability to perform those functions essential to everyday life.

Handicap, in turn, is defined as, “… a disadvantage for a given individual, resulting from an impairment or a
disability, that limits or prevents the fulfillment of a role that is normal (depending upon age, sex, and social and cultural factors) for that individual” (WHO, 1993). Handicap describes any discordance between the individual’s performance or status and the expectations of the particular group of which they are a member. Handicap refers to the, “social and environmental consequences for the individual,” arising from the presence of a disability or impairment.

There are numerous systems across the country that provide benefits or offer services to those with disabilities. Eligibility for benefits or services in these systems is contingent upon the presence of a disability, as it is defined by the offering system. While the ADA is a federal law, every state in the country has some form of protection from violation of civil rights based on the presence of disability. These laws are constituted at the state level, and are by consequence different from state to state. While states offer varying levels of protection for people with disabilities, they too offer varying categories to whom that protection is offered. What is considered a
disability in one state may not be considered as such in another. An excellent example of this variation can be found in the fifty different workers’ compensation systems that exist in the United States.

Disability in insurance systems

There are various disability insurance systems in America, and many work from differing operational definitions of what it means to be disabled, i.e., eligible for disability benefits. Workers’ compensation systems, for example, offer compensation for those who have become “permanently and totally disabled,” arising out of a workplace injury, occupational disease, or mental condition. Their definition of disability, however, is strictly tied to the degree to which the individual is unable to engage in sustained, remunerative employment as a result of the medical conditions related to a specific workplace injury.

Many people who apply for permanent total benefits under workers’ compensation have other conditions not directly related to their employment that affect their
ability to engage in substantial life activities. If it is determined through the adjudication process within the workers’ compensation system that one’s inability to work is as a result of factors other than those directly related to their workplace injury, the individual is determined to not have a disability, regardless of their overall physical or mental condition.

Long-term disability insurance coverage adopts a definition of disability similar to most workers’ compensation systems. This coverage, however, differs from workers’ compensation in that the policy is generally activated by the presence of physical or mental conditions that arose from situations other than in the course of employment. Regardless, the presence or absence of disability is directly linked to one specific substantial life activity – the ability to work.

In addition, workers’ compensation and long-term disability insurance systems provide benefits for policyholders who are totally disabled, but on only a temporary basis. Many workers’ compensation systems also provide benefits for those who have a permanent disability,
but only on a partial basis, one that does not necessarily preclude employment.

Social security, as an alternate example, provides disability benefits only to those who are unable to work and only those whose inability to work is presumed “permanent.” People are considered disabled under the federal Social Security Disability Income (SSDI) program if they have a medical condition that renders them unable to work. If the claimant is unable to engage in previous work, is unlikely to be able to adjust to alternative employment, and if the claimant’s condition is expected to last for at least one year, then they are considered to be disabled and eligible for benefits (SSA, 2002).

The ADA states the following:

A physical or mental impairment does not constitute a disability under... the definition for purposes of the ADA unless its severity is such that it results in a ‘substantial limitation in one or more major life activities.’ A ‘major life activity’ means functions such as caring for one’s self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, working, and participating in community activities...
This definition of disability, though relevant for the purposes of determining coverage under the ADA, is not the only accepted definition of the concept of disability. People with disabilities, their parents, disability advocates, and academic researchers can often disagree about the meaning of disability (LaPlante, 1998). Nagi (1975) broadly defined disability as an “inability or limitations in performing social roles and activities such as in relation to work, family, or to independent community living” (pp. 3-4). Other researches studying those covered by workers’ compensation insurance benefits have divided disability into the categories of “work disability” and “non-work disability” (Berkowitz & Burton, 1987).

These various definitions make it difficult to establish a common level of presence of disability in the United States. Numerous research studies have examined various aspects of disability life in the U.S. and part of this research has included taking a snapshot of the prevalence rate of disability in the population. If the researchers are using different definitions of disability,
it is difficult to establish an overall prevalence rate for the “disability population” in the United States.

There is also a factor of self-identification when considering presence of disability. Many people (injured workers, for example), while acknowledging the presence of a medical condition, are not quick to categorize themselves as having a disability. People with disabilities are often considered to be those who have congenital conditions, need special workshops or schools, or who have never worked. Disability is considered a different category, one in which many are slow to include themselves.

Others, from a political perspective, feel that the presence of disability is defined only by the failure of society to construct environments that are accessible to all, including those who are physically different. Others have noted, “…by defining disability socially and functionally, we turn our attention away from questions of what is physically wrong with people and toward questions of what limits people’s abilities to carry out important life activities” (Black, 1994). Arguments have also been made that the definition of disability should be based on
social and functional criteria and not on specific medical categories. A person with paraplegia who uses a wheelchair is considered to have a disability. If that person is fortunate to live and work in accessible environments, they are not as likely to place as much focus upon their physical condition. Rather, the presence of disability may only be acute when placed in an environment that it not accessible (Charlton, 1998).

Definitions of Severity of Disability

The Survey of Income and Program Participation (SIPP) is an on-going national study conducted by the United States Bureau of the Census. The specifics of the study are discussed in greater detail on later pages, but the survey has provided a wealth of disability-related information based on its attempt to operationally define severe disability, rather than the mere presence of a possibly disabling health condition. For the purpose of the SIPP, individuals over the age of 15 were identified as having a disability, if they met any of the criteria listed in figure 1.
Individuals 15 years old or older were identified as having a disability if they met any of the following criteria:

1. Used a wheelchair, a cane, crutches, or a walker;
2. Had difficulty performing one or more functional activities (seeing, hearing, speaking, lifting/carrying, using stairs, walking, or grasping small objects);
3. Had difficulty with one or more activities of daily living (the ADLs included getting around inside the home, getting in or out of bed or a chair, bathing, dressing, eating, and toileting);
4. Had difficulty with one or more instrumental activities of daily living (the IADLs included going outside the home, keeping track of money and bills, preparing meals, doing light housework, taking prescription medicines in the right amount at the right time, and using the telephone);
5. Had one or more specified conditions (a learning disability, mental retardation or another developmental disability, Alzheimer’s disease, or some other type of mental or emotional condition);
6. Had any other mental or emotional condition that seriously interfered with everyday activities (frequently depressed or anxious, trouble getting along with others, trouble concentrating, or trouble coping with day-to-day stress);
7. Had a condition that limited the ability to work around the house;
8. If aged 16 to 67, had a condition that made it difficult to work at a job or business; or
9. Received federal benefits based on an inability to work.

Figure 1: Definitions of disability status, functional limitations, activities of daily living (ADLs), and instrumental activities of daily living (IADLs).
Individuals were considered to have a severe disability if they met criteria 1, 6 or 9; or had Alzheimer’s disease, or mental retardation or another developmental disability; or were unable to perform or needed help to perform one or more of the activities in criteria 2, 3, 4, 7 or 8.

In the 1994 COMPASS study of people with disabilities in the state of Ohio, subjects were broken down by prevalence of severity of disability. The severity of disability was determined simply by asking individuals, “How does this condition affect you?” The choices ranged from 1 (severely limiting) to 4 (not limiting). In that study, 45.6% of Ohioans with disabilities aged 16-64 rated their primary disability as “severely limiting,” while an additional 35.1% rated their primary disability as “moderately limiting” (Glazier, 1994).

In other services systems, such as the state-federal vocational rehabilitation system, people seeking services undergo a dual-level medical determination. First, the presence or absence of disability is determined, followed by a determination of the severity of the disability. “Most severely disabled” is regarded as the highest level of disability. For states that operate under an “order of
selection,” this designation helps the agency determine who will receive the services first to ensure that the most difficult cases will not be ignored.

Prevalence of people with disabilities in America

How many Americans have a disability? As shown in the various definitions that exist for the concept of disability, the answer is precisely unknown and unknowable. The number of Americans with disabilities has varied widely from study to study, due in great part to the disparate definitions used in the studies to define the construct of disability. A summary of a sample of these studies is demonstrated in table 1.
<table>
<thead>
<tr>
<th>Study</th>
<th>Number of Americans with disabilities (in millions)</th>
<th>Year of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHIS(^1)</td>
<td>33.8</td>
<td>1990</td>
</tr>
<tr>
<td>HIS(^2)</td>
<td>43.0</td>
<td>1979</td>
</tr>
<tr>
<td>DSP(^3)</td>
<td>37.3</td>
<td>1984</td>
</tr>
<tr>
<td>DSP(^4)</td>
<td>34.2</td>
<td>1989</td>
</tr>
<tr>
<td>NMES(^5)</td>
<td>9.5</td>
<td>1987</td>
</tr>
</tbody>
</table>

\(^1\) (HIS, 1979); \(^2\) (NHIS, 1991); \(^3\) (DSP, 1991b); \(^4\) (DSP, 1992); \(^5\) (LaPlante, 1991).

Table 1: Number of Americans with disabilities by study.

The Americans with Disabilities Act provides the most recently accepted definition of disability for Americans.

The ADA states:

A person is considered to be an individual with a disability... when the individual’s important life activities are restricted as to the conditions, manner, or duration under which they can be performed in comparison to most people.
The National Health Interview Survey (NHIS) provides an estimate of the number of Americans with disabilities that is based on a definition closest to that which is defined under ADA. The NHIS defined someone as having a disability if they had a limitation in “major” activities associated with a particular age group, or if they were limited in other activities because of a physical or mental impairment lasting or expecting to last three months.

Conducted in 1990, the NHIS showed that there were an estimated 22.9 million people of all ages living in households who were limited in a major life activity. An estimated 10.9 million were shown to have “non-major” activity limitations. It is important to note that most of the “non-major” limitations would be covered under the guidelines established under ADA. This would bring the number of Americans with disabilities to 33.8 million, or 13.7 percent of the U.S. population in 1990 (LaPlante, 1992).

This number is in stark contrast to the figures cited in the language of the ADA, where 43 million were said to have a disability. According to LaPlante (1992), this
figure was derived from a 1979 NHIS study that included all people who reported visual, hearing, orthopaedic, and other anatomical impairments, regardless of whether the presence of those conditions resulted in a limitation in activity level.

In 1984, it was estimated that 37.3 million people, or 20.6 percent of all non-institutionalized citizens aged 15 and over had one or more selected physical or sensory functional limitation (DSP, 1991b). People with disabilities were most likely to be African-American, were more likely to be in the lower income levels, were more likely to be female, and were more likely to have lower levels of education (DSP, 1991b).

A 1989 study looked at activity limitations, which were defined as, “a long-term reduction in a person’s capacity to perform activities that other people their age are generally expected to do” (DSP, 1991a), (i.e., ‘playing’ for younger people). The study found that 14.1 percent of Americans, an estimated 34.2 million people, had activity limitation due to a chronic condition. Older people were more likely to have an activity limitation. No
difference was found on the basis of gender. Caucasians were more likely to have a reduction in a non-major activity, where African-Americans were more likely to have a reduction in a “major” activity. Activity limitation became less frequent as income level rose. The three conditions most often cited were orthopaedic impairments, arthritis, and heart disease (DSP, 1991a).

A 1987 study titled the National Medical Expenditure Study, or NMES, looked at the number of Americans who had difficulty performing “basic life activities,” defined as walking, self-care, and community and home management activities. Also included were activities of daily living (ADLs), which include bathing, dressing, toileting, transfer, feeding oneself, and getting about the home. The study also looked at Instrumental Activities of Daily Living (IADLs), which included household chores, handling money, shopping, and getting about the community. The study found that 9.5 million, or 4.0 percent, of non-institutionalized civilians “experienced difficulty in performing basic life activities due to mental or physical health problems” (DSP, 1992).
This review of only a handful of national studies attempting to determine, among other things, the prevalence of disability in America demonstrates that varying nature of results based upon the definition used. There is a discrepancy of up to 33 million people who either have or do not have a disability, based on the studies cited above. Other barometers of disability, such as the number of people who have applied for or received SSDI benefits, only add to the fluid nature of the question of the prevalence of disability in America.

Disability Research: Impact of Specific Disabilities on Major Life Activities

Visual Impairments

The historically low rate of employment for people with disabilities in general is mirrored for those with visual impairments. In 1983, the employment rate for Americans with visual impairments and blindness was estimated to be 34% (Jeppsson-Grassman, 1989). With the proliferation of assistive technologies, increased public awareness, and an increased focus on rehabilitation and
placement, the number and variety of jobs that are now held by blind or visually impaired workers has increased dramatically (AFB, 1996). Employment for people with visual impairments, as is the case for all people, has enhanced their lives and improved their quality of life (Chiang, Bassi, & Javitt, 1992).

If, however, the visual impairment was gradual, and occurred in people who were employed at the time of onset, the person was far more likely to remain employed (Geruschat, 1993). There are many barriers that face people with blindness, beyond the obvious ones related to their inability to see. People with visual impairments and blindness are also likely to face personal, societal, and programmatic barriers to employment (O'Day, 1999). One survey found that nearly six in ten (58%) of people with visual impairments had experienced discrimination because of their disability (Tedder & McBroom, 1989).

One of the recurring issues for people with visual impairments is the inability of the educational system to adequately prepare them to enter the competitive work force. In many instances, the type of school one attended
(private school for the blind, public school for the blind, general public school) had a tremendous impact on future employment rates, levels of independent living, and earnings. One study found that from three to eight years following graduation from a state school for the blind, 2/3 of graduates were unemployed (DeLaGarza & Erin, 1993). For those who went to private schools for the blind, the employment numbers were higher, but other issues were present. Though the placement rate was better, graduates were likely to be earning less than competitive wages and were more likely to be living at home with no means or plan to be self-sufficient in the near future (Geruschat, 1993). Among people with visual impairments who were employed, those who were educated in public schools earned significantly more than did those who were educated in specialized schools for the blind or visually impaired (Fireison & Moore, 1998).

Many states, through their vocational rehabilitation program, have established specialized services targeted for those with visual impairments and blindness. Even so, the level of participation and successful completion for those
with blindness has been low. Only four out of every ten cases closed in the state-federal vocational rehabilitation program results in placement in a competitive job (Hanley-Maxwell, Griffin, Szymanski, & Godley, 1990). Even successful placements, however, faced barriers. In 1985, the national mean weekly income for successful placements from the state-federal vocational rehabilitation program of people with visual impairments was $130, well below the average weekly income for successful placements of clients with different disabilities.

Deafness and hardness of hearing

Overall, national studies have estimated that the number of people who are profoundly deaf in America represent only 0.37% of the working-age population. Interestingly, 62% of Americans with severe bilateral deafness do not consider themselves to have a work limitation. The employment rate for people who are deaf in both ears is 68%, far in excess of the national average for people with disabilities (Houtenville, 2000b).

The educational and vocational opportunities for people with deafness or hardness of hearing has grown
significantly over the past generation. For over one hundred years the only school post-secondary educational training to deaf persons was Gallaudet College in Washington, D.C. Between the early 1980s and the early 1990s, the number of colleges offering specialized services to deaf students nearly tripled, from 58 to 152. During that same timeframe, the number of deaf students also increased sixty-five percent (Rawlings, 1994). By the mid 1980s, students with deafness were equally as likely to enroll in post-secondary settings as were hearing students (Armstrong & Schneidmiller, 1983; Kerstetter, 1985; White, Karchmer, Armstrong, & Bezozo, 1983).

Research has shown that deaf people who attend post-secondary school do so in a variety of settings: nearly half (48%) attend a four-year college or university, 28% attend a two-year college, with the remaining students attending either vocational / technical programs (17%), or some other form of post-secondary education (Rawlings, 1994).

A study was conducted in 1986 – with a follow-up study in 1991 – to research the transition from high school to
postsecondary education or careers for young people with deafness or hardness of hearing. The respondents were aged 17-22 in 1986, and 22-27 in 1991. The study was broken down into two main groups, demarcated by their decision to attend postsecondary education following high school.

Nearly half (47%) of the respondents who did not attend postsecondary education reported the existence of additional “educationally significant” disabilities, defined as the existence of physical or cognitive/behavioral conditions requiring modification of teaching methods in educational settings. The percentage of those who attended college who reported additional disabilities was only twenty percent.

Among those who never attended post-secondary school, the employment rate (either full-time or part-time) was fifty-four percent. Interestingly, within this subgroup, the number was higher for those who had multiple disabilities rather than deafness alone (58% to 52%). Additionally, among those who were employed, the respondents who had gone (or were going to) college were
significantly more satisfied with their salary level and job duties than were those who did not attend college.

Impact of Specific Disabilities on Employment Rates

The 1994 COMPASS Study categorized disability by the specific area of the body that had been affected by the condition. This method allowed subjects to respond in multiple categories in such instances where their disability has multiple residuals or they have multiple disabilities. The most prevalent areas affected were energy level, endurance, and mobility, and the least prevalent were complete paralysis, hearing and speech. It is important to note, however, that inclusion in a disability area is more directly indicative of a symptom related to a disability rather than a specific, generally recognized disability category.

A cross-tabulation of the results showing the employment rates within disability categories is shown in Table 2.
<table>
<thead>
<tr>
<th>Type of disability</th>
<th>N</th>
<th>Prevalence percentage</th>
<th>Employment percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>1288</td>
<td>64.5</td>
<td>22.2</td>
</tr>
<tr>
<td>Complete paralysis</td>
<td>153</td>
<td>7.7</td>
<td>20.9</td>
</tr>
<tr>
<td>Partial paralysis</td>
<td>465</td>
<td>23.3</td>
<td>22.6</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>1292</td>
<td>64.7</td>
<td>24.8</td>
</tr>
<tr>
<td>Sight</td>
<td>684</td>
<td>34.3</td>
<td>24.1</td>
</tr>
<tr>
<td>Hearing</td>
<td>353</td>
<td>17.7</td>
<td>25.5</td>
</tr>
<tr>
<td>Speech</td>
<td>297</td>
<td>14.9</td>
<td>24.2</td>
</tr>
<tr>
<td>Energy level</td>
<td>1435</td>
<td>71.9</td>
<td>25.5</td>
</tr>
<tr>
<td>Endurance</td>
<td>1411</td>
<td>70.7</td>
<td>25.2</td>
</tr>
<tr>
<td>Thinking</td>
<td>733</td>
<td>36.7</td>
<td>25.5</td>
</tr>
</tbody>
</table>

Table 2: Prevalence and employment percentages by type of disability for Ohioans with disabilities aged 16-64 in 1994 (continued on next page).
(Table 2 continued).

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning</td>
<td>565</td>
<td>28.3</td>
<td>25.1</td>
</tr>
<tr>
<td>Attention</td>
<td>733</td>
<td>36.7</td>
<td>26.1</td>
</tr>
<tr>
<td>Memory/recall</td>
<td>810</td>
<td>40.6</td>
<td>21.7</td>
</tr>
<tr>
<td>Emotional state</td>
<td>1077</td>
<td>45.0</td>
<td>23.7</td>
</tr>
<tr>
<td>Social behavior</td>
<td>569</td>
<td>28.5</td>
<td>26.0</td>
</tr>
</tbody>
</table>

History of the disability movement

The history of the disability movement in America is literally as old as the union itself. The attitudes of the populace toward our citizens with disabilities can be seen through our efforts to recognize the struggles of and increase the economic opportunities and safeguards for people with disabilities. The following is a truncated list of legislation that has had, to varying degrees, an impact on the education, employment, and full integration of people with disabilities.
Disability legislation and employment

The federal government’s involvement in cash assistance to those with disabilities is nearly as long-standing as the federal government itself. Dating back to the days of the American colonies and the Revolutionary War, the federal government offered the promise of pensions and survivor benefits as incentives for citizens to enlist in the armed forces. The idea was not new: for more than a century before, the British colonies in North America had provided pensions for disabled soldiers and sailors. There were three principal types of disability pensions provided by the U.S. government during this time: “Disability” or “invalid” pensions awarded to soldiers for disabilities incurred in the line of duty; “service pensions” to veterans based on amount of time served (irrespective of disability); and “widows’ pensions” to women whose husbands had been killed in the war.

Modifications on this disability legislation followed. In August of 1776, the first pension legislation for the American colonies as a group. This legislation called for half-pay for officers and enlisted men who were injured in
service to their country and who were unable to earn a living due to their disability. This benefit level was to continue for the duration of the disability. In May of 1778, the Continental Congress passed a resolution to offer half-pay to the widows and orphans of officers and soldiers killed in the line of duty. In 1789, the First Congress of the United States passed an act that provided that disability pensions previously paid by the Continental Congress should be continued and paid for by the newly established Federal. It is not inaccurate to say that among the first acts of the new government of the United States of America was to provide benefits to people with disabilities.

The 1960s brought a landmark era in the civil rights of Americans who had traditionally been excluded. As a result of the Civil Rights Act of 1964, it became illegal to discriminate on the basis of sex, race, and national origin. There was, however, no mention of discrimination on the basis of disability. In 1971, a bill was introduced to amend the Title VI of the Civil Rights Act to bar discrimination on the basis of disability. In 1972, a bill
was introduced to amend Title VII of the same act to end
discrimination in employment. Both died in committee
(Schneid, 1992). These acts, while commonplace for
amendments in the legislative process, are also indicative
of the attitude and relative importance placed on the
employment rights of those with physical and mental
disabilities.

While the ADA was arguably the most important piece of
civil rights and employment rights legislation, it was by
no means the first. Throughout the history of our country,
congress has taken steps to attempt to improve the lives of
Americans with disabilities. Many of these legislative
actions were taken to address concerns of soldiers who had
become disabled through their service in foreign wars.
While the employment rate of and educational opportunities
for people with disabilities has never been sufficient to
remove societal barriers, the passage and impact of the ADA
would not have been possible but for the building blocks
presented by these Acts.

The first generally recognized disability rights
legislative action was the Smith-Hughes Act of 1917. This
A piece of legislation was significant in many ways, not the least of which was setting a precedent for future federal funding of education programs (Cull & Hardy, 1973). The Smith-Hughes Act is best remembered for the establishment of a federal Board of Vocational Education that became the foundation for vocational rehabilitation in the United States (Bryan, 1996).

In 1918, congress established funding for the Board of Vocational Education under the Soldier Rehabilitation Act, better known as the Smith-Sears Veterans Rehabilitation Act. It is clear from the language of the law that its intent was to establish a vocational rehabilitation program for people who had become disabled through their participation in the military.

In 1920, the Smith-Fess Act provided for the establishment of public state and federal rehabilitation programs for people with disabilities. The act allowed only for vocational services such as guidance, training, and placement. There was no provision for physically or psychologically restorative services.
established as a temporary program, it was made permanent in the 1935 Federal Social Security Act.

The Randolph Shephard Act of 1936 established a program allowing people with visual impairments to obtain a license to operate vending stands in federal buildings. This program, still in existence today, is primarily administered by state-federal vocational rehabilitation programs.

The Wagner-O’Day Act of 1938 helped to strengthen the governmental commitment to sheltered workshops that employed people with severe disabilities. This Act created a mechanism whereby the entities of the federal government could purchase items made by citizens in sheltered workshops. The act established the Committee on Blind-Made products to determine fair market value of the products to establish the price to be paid by the government. This Act was significant in that it made it easier for workshops to have buyers for their goods, thereby allowing them to pay participants in the program salaries more commensurate with non-disabled workers.
The Barden-LaFollette Act of 1943 significantly increased the role of the federal government in the vocational rehabilitation of people with disabilities. The Act increased the level of funding to state programs, increased funding for disability research, and made funds available to train rehabilitation personnel in working with people with disabilities. The Act also specifically included those with mental illness in the provision of services in the state-federal program.

The state-federal vocational rehabilitation program was further strengthened by the Vocational Rehabilitation Amendments of 1965. These amendments provided money for innovative programs serving people with disabilities, created a wider base of services within the system, and eliminated economic need as a requirement for participation in services.

The Rehabilitation Act of 1973 was perhaps the most far-reaching and strongest legislative act to date, and serves as the cornerstone for the Americans with Disabilities Act (Bryan, 1996). Sections 501-504 of Title V established programs that continue to improve the lives of
Americans with disabilities. Section 501 established the Interagency Committee on Handicapped Employees to review the adequacy of hiring practices within the federal government. Section 502 established the Architectural and Transportation Barriers Compliance Board, commonly referred to as the Access Board, which has the charge of overseeing the construction of new buildings and remodeling of old ones to ensure accessibility. Section 503 requires employers who have business with the government to take affirmative action in the hiring of people with disabilities. Section 504, perhaps the most sweeping aspect of the bill, calls for the end of discrimination against people with disabilities in employment. For the first time, people with disabilities had been recognized by the federal government as a distinct class of people who were underserved and discriminated against.

The Rehabilitation Act Amendments of 1974 and 1978 continued to strengthen the federal commitment to the state-federal rehabilitation program. The 1974 amendments increased funding beyond the Randolph Shepard Act programs for those with visual impairments, as well as increased
funding for community services programs, industry and government collaboration, small business grants and loans, and centers for independent living.

The Technology –Related Assistance for Individuals with Disabilities Act of 1988, otherwise known as the Tech Act, created agencies and programs in states that promote the use of technology for people with disabilities. Agencies developed programs that increased opportunity, offered financial options, and promoted awareness of the role technology can play in empowering people with disabilities.

These acts, along with other legislation such as the Developmentally Disabled Assistance Act, the Housing and Community Development Act, the Comprehensive Older Americans Act, and the Fair Housing Act, all laid the foundation for the Americans with Disabilities Act, the most comprehensive piece of civil rights legislation for people with disabilities in our nation’s history.
Americans with Disabilities Act (1990)

In passing the ADA the federal government, for the first time in comprehensive terms, recognized that people with disabilities have been subjected to discrimination in all aspects of community life. The ADA set out to define disability in terms of the act itself, and to lay out the manner in which people with disabilities would have recourse should they be subjected to discrimination. It also laid out the terms in which public buildings, transportation systems, and business and industry must accommodate the needs of Americans with disabilities.

The ADA was laid out in five Titles, each dealing with a different aspect of community life. Title I deals with employment; Title II with public services; Title III with public accommodations and services; Title IV with telecommunication relay services; and Title V with miscellaneous provisions.

Title I of the ADA was phased in and became fully effective on July 26, 1992. The Act applied to all private employers who had twenty-five or more employees. The ADA
required employers to identify the “essential functions” of a job, that is, the requisite skills, experience, education and job-related requirements of each position. If two applicants want the same job, it is against the ADA to hire the non-disabled applicant solely because hiring the person with a disability would have required special accommodations.

The classic language of the ADA in regards to employment requires employers to make “reasonable accommodations,” as long as the implementation of those accommodations does not result in an “undue hardship” on the employer. Reasonable accommodations are generally defined as those that allow a person with a disability to perform, or to be considered for, a position for which they are otherwise qualified. “Undue hardship,” means an action requiring significant effort or expense; one that is quite costly, disruptive or that will fundamentally alter the nature of the position.

The purpose of the ADA was to remove barriers in society that made it more difficult for people with disabilities to participate fully in life. Chief among the
goals of the law was to set in motion changes that would improve the historically woeful employment rate of people with disabilities. While the Act itself addressed many aspects of life in America, part-and-parcel in the change in the American landscape was to remove the barriers preventing people with disabilities from reaching their full employment potential.

Status of people with disabilities

Any longitudinal study of the labor force status of people with disabilities is subject to the same limitations that affect all disability studies: the definition of disability itself. There have been efforts to study long-term rates of other distinct minority groups – African-Americans, the aged, children, and single mothers, among others. These groups, though not statically defined, have not experienced the range and contortion within definition that has been experienced in the field of disability.
One barrier to studying the historical economic well being of people with disabilities lies, ironically and circularly, in their economic well being. People with disabilities, despite improvements in the past twenty years, are not as well organized politically as other economically disadvantaged groups. “They work less, are less mobile, are older, and are less seen in the community” (Haveman & Wolfe, 1988). Researchers have found that, while people with are far more likely to have part-time (vs. full-time) employment, even among people with disabilities who work full-time, their earnings are only 72% of those without disabilities for the same positions (Kaye, 1998).

The earning of people with disabilities over the past thirty years has shown interesting ups and downs. For example, the late 1960s to the late 1970s were a period of significant increase in real earnings by people with disabilities. Using 1983 dollars as the benchmark, people with disabilities earned $10,300 in 1962. This rose consistently through follow-supp on 1968 ($13,200), and 1973

Strikingly, even the pursuit of education has not shielded people with disabilities from labor market trends. The research does show that education pays – people with disabilities with higher levels of education earned more than people with disabilities with lower levels of education in each year studied. In 1984, however, people with disabilities who had education beyond high school earned less money ($15,600) than the average of all people with disabilities earned in 1968 ($16,500), regardless of level of education (Haveman & Wolfe, 1988).

Other studies have shown that in terms of overall employment, the status of people with disabilities has been a subterranean mirror of the economic trends of people without disabilities, with one notable exception. Beginning with the zenith of employment (both in terms of numbers employed and income) that occurred in 1973, the status of people with disabilities rose and fell in concert with current economic trends. For people with disabilities,
however, “with each major peak and trough, the rate declined from the previous one” (Yelin & Katz, 1994, p. 38). People with disabilities, already employed in far fewer numbers, were not able to bounce as far back in good times as the population in general. This overall trend continued until the early 1990s, before a spiking and gradually declining following the implementation of the ADA.

People with disabilities still face many problems beyond lower pay and lower employment rates. Often the physical environment can play a role in excluding them from employment and full participation in other areas of life. In a 1994 poll, twenty-four percent of people with disabilities indicated that access to buildings was problematic, making employment more difficult (Leitman et al., 1994). For many, even the home environment could be challenging – less that three percent of Americans live in homes that are accessible to people with disabilities (Trupin, Sebesta, Yelin, & LaPlante, 1997).

People with disabilities also face the compounding problem of living in relative social isolation in
comparison to those without disabilities. People with disabilities are twice as likely to live alone as are people without disabilities (Trupin et al., 1997), and over half of people with disabilities cited the lack of a social life as one of the biggest problems they face (Leitman et al., 1994). When looking at the areas of employment, income, removal of barriers, and social participation, at least by the mid 90s, many of the dreams that inspired the passing of the ADA had yet to be realized. “It is therefore clear,” wrote Kaye (1998) “… the ADA had yet to fulfill one of its principal goals, that of increasing the level of participation by people with disabilities in mainstream American society.”

The Louis Harris group, in conjunction with the National Organization on Disability, have conducted periodic surveys of Americans with disabilities on the issues of employment, education, severity of disability, quality of life, access to health care, and political involvement. The Harris poll found that the employment rate for people with disabilities was 33% in 1986, fell to 31% in 1994, and fell again to 29% in 1998. These surveys also
included in these employment figures those who worked only part time. If part-time workers are excluded, the numbers fall to 24%, 20%, and 17%, respectively. As recently as 1998, less than one in five Americans with a disability was employed in a full-time basis (Harris, 1998). This was actually down from nearly one in four in 1986, four years prior to the passage of ADA.

The previous project COMPASS was administered by the state of Ohio Rehabilitation Services Commission and published in November of 1994. The survey was conducted by ABT Associates, Inc., of Cambridge, Massachusetts. Interviews were conducted in July, August, and September of 1994. Their study looked at numerous aspects of disability life in Ohio, including prevalence, severity of disability, employment status, educational level, and access to services for people with disabilities.

Among the most telling statistics was the overall employment rate, found to be twenty-nine percent. This figure was consistent with the national average found by the Harris group. Over 42% of Ohioans who were not working were desirous of doing so however, “a large proportion of
these persons perceive a need for vocational rehabilitation and support services.” The most pressing of those needs was job training, job search assistance, and access to job listings and job referrals. The percentage of Ohioans with disabilities that were not working, but desired to do so, had actually declined since the last time Ohio undertook a statewide survey of this kind in 1986, titled Project Ohioans.

The profession of rehabilitation of people with disabilities is undergoing significant changes as a result of federal legislation. President Clinton signed the Ticket to Work / Work Incentives Improvement Act in 1999. This legislation takes the important step of allowing people with disabilities who are on Social Security Disability Insurance (SSDI) to earn more in employment wages without jeopardizing their health insurance benefits. This will help alleviate a heretofore-oppressive barrier to employment – the fear of having no health insurance. Due to pre-existing conditions clauses in industry health insurance business packages, it was essential that Congress allow people with disabilities to remain on SSDI until they
are able to be fully integrated into the work force, including into employee benefit packages.

The Ticket portion of the law, however, holds the promise to fundamentally alter the manner in which rehabilitation services in Ohio are delivered. In years past, the coordination of services had primarily been the responsibility of the state-federal vocational rehabilitation system. The recipient of a Ticket will have a greater level of determination in selecting providers of specific services. These providers may be private, non-profit, or state agency personnel. There are numerous scenarios under which this law may play out, but clearly the landscape of service delivery will be altered.

It is therefore incumbent upon the state of Ohio to go to greater lengths to understand the present state of life for people with disabilities. In order for the state, or any service group for that matter, to adequately address the needs of this population, there must be a comprehensive understanding of the obstacles they face. Too often in the history of social services the establishment of service provision has been rooted in assumptions not based on
empirical evidence or research. The COMPASS 2002 project is a step towards crafting an improved, consumer-responsive system of rehabilitation service delivery.

Assistive technology and people with disabilities

In a sense, virtually all technology is assistive technology, in that technology is designed to improve the functions of our lives. Technology is designed to make difficult functions easy, to make the impossible possible. The history of the growth and progress of a society is to a great extent written concurrently with the creation of technological advances. Technology itself can have a positive impact on the lives of all people, but assistive technology is specially recognized as that which assists people with disabilities in their lives.

Assistive technology can impact virtually every aspect of life for a person with a disability. For young children, assistive technology can be adaptive toys or software that can stimulate hand-eye coordination and teach cause and effect relationships. Eating utensils can be adapted so that people with disabilities can eat independently. People
whose speech is affected can communicate through the use of augmentative communication devices. Motorized wheelchairs and other devices make it possible for those with mobility impairments to move about freely in their environment. Computer software can enlarge text on a computer screen for those with visual impairments. Screen reading software can read text in a synthesized voice so that people with blindness can use a computer. Voice activated software programs make people with manual dexterity problems able to operate a computer as well. Indeed, a broad spectrum of assistive technology is available for all types of disabling conditions (Church & Glennen, 1992).

Assistive technology is defined as "...products, devices or equipment, whether acquired commercially, modified or customized, that are used to maintain, increase or improve the functional capabilities of individuals with disabilities..." (Tech Act, 1988). Congress, in recognizing the important role that assistive technology can play in the lives of people with disabilities noted that technology enables
Individuals with disabilities to (A) have greater control over their own lives, (B) participate in and contribute more fully to activities in their home, school and work environments, and in their communities, (C) interact to a greater extent with the non-disabled individuals, and (D) otherwise benefit from opportunities that are taken for granted by individuals who do not have disabilities.

Also included in the definition of assistive technology are services required to ensure that appropriate technology is being assigned and that it is being used in the most effective manner. These services can include assessments or evaluations necessary for proper prescriptions of technology. These services can also include designing, fitting, customizing, and adapting the technology to meet the individual needs of the consumer. It also includes coordinating and using therapies concurrently with the use of assistive technology to increase stamina and aid proper use. It is also often necessary for people with disabilities to receive training or technical assistance in order to operate the technology correctly.

In spite of this congressional recognition, assistive technology remains underutilized by people with disabilities (Wehmeyer, 1998). In a study conducted between
1994 and 1998, the National Center for Health Statistics found that over 8 million Americans needed special equipment or aids to perform basic activities of daily living (ADLs). Over fifteen million Americans with disabilities reported using assistive devices or technologies (primarily medical) in their lives, making the combined total approximately 16.6 million who used special equipment, aids or AT in their lives. This figure does not include the over fourteen million Americans who live in homes modified to meet their special needs. Over 500,000 who modified vans or cars, and an additional 369,000 reported they needed their van or car to be modified to meet their disability (NCHS, 1999a, 1999b).

One reason for this is that the limitations inherent in some disabilities, such as mental illness and mental retardation, are sometimes difficult to address from a technological perspective. For people with mental retardation, some technology is often too complex for them to operate. For those with mental illness, the lack of a specific technology is rarely the barrier to the full completion of activities of daily living. Also, people with
disabilities, despite the efforts of such federal programs as provided through the Tech Act, are not fully aware of the presence of or benefits derived from assistive technology. Service delivery systems have often been set up without a proper appreciation of the unique importance technology can play in the lives of people with disabilities (Parette, 1991). Lastly, if people with disabilities are aware of technology, it is often very difficult to secure the funding necessary to secure the item (Wehmeyer, 1998), or they otherwise do not have access to such devices (Wehmeyer, 1999).

The National Council on Disability conducted a nationwide survey in the early 1990s and reported its findings to President Bill Clinton. The survey highlighted both the impact that technology can have in the lives of people with disabilities, as well as the shortcomings that existed in disability policy and informational dissemination. For example, the study showed that over sixty percent of people with disabilities, through the use of assistive technology, were able to reduce dependence upon family members. Fifty-eight percent were less reliant
on paid staff, and thirty-seven percent were able to increase earnings due to assistive technology. Four out of five elderly persons were able to reduce dependence upon others, half were able to reduce dependence upon paid staff, and half were able to avoid entering a nursing home (NCD, 1993).

Assistive technology also had profound impact on the ability to work. Ninety-two percent of those respondents who reported having jobs stated that assistive technology enabled them to work faster, eighty-three percent stated they earned more money, 81 percent reported working more hours, and sixty-seven percent reported that the assistive technology enhanced the obtaining of employment (NCD, 1993).

In the educational arena, thirty-eight percent of those seeking higher education indicated that such an effort would not have been possible were it not for assistive technology. Nearly one-fourth (23%) indicated they were able to increase their class load, speeding up graduation timeframes (NCD, 1993).
In regards to quality of life, assistive technology was found to have a profound impact. Subjects were asked to rate quality of life on a scale from 1 to 10, with 10 being the highest level of quality of life. Respondents who use assistive technology rated their quality of life as 8.4. Those same respondents indicated that without assistive technology in their lives, they estimated their quality of life would be 3.0 (NCD, 1993).

The need for assistive technology in the lives of people with disabilities has been well documented. According to the National Center for Health Statistics, 8.3 million Americans with disabilities use special equipment to perform ADLs, such as bathing, dressing, eating, getting in and out of bed or chairs, walking, and using the restroom (NCHS, 1999b). The same research center found that 15.4 million Americans with disabilities reported using assistive devices (mostly medical in nature) such as tracheotomy tubes, colostomy bags, catheterization equipment, walkers, wheelchairs, canes, etc. In all, nearly 17 million Americans with disabilities use some kind of
special equipment, aids, or assistive technology (NCHS, 1999a).

Studies have also shown that even when assistive technology is made available to people with disabilities, this does not close the circle as far as their AT needs are concerned. Many young people who receive technology in form of augmentative communication devices did not receive the concomitant training necessary to properly use the device (Parette, 1997). Also presenting troubles is unfamiliarity on behalf of the family to help the child properly use the device. In the beginning, the implementation of an assistive technology device may actually hinder communication between parent and child, leading to frustration on behalf of both parent and child. The result is often a premature abandonment of a device that, if properly used, could vastly improve communication skills for a child with a disability.

The personal computer has become a staple in American homes, but not necessarily in homes of people with disabilities. Americans with disabilities are less than fifty percent as likely as people without disabilities to
own a computer, and are only twenty-five percent as likely to have access to the Internet. In fact, only 1 in 10 (9.9%) of people with disabilities have both a computer and access to the world wide web (Kaye, 2000). This underscores a vital role that the mere presence of a computer can have in the lives of people with disabilities. The computer in many instances can bring the outside world into the homes of people with disabilities and allow them to participate and compete in life’s activities. The absence of a computer, conversely, has a more far-reaching negative effect on people with disabilities than it would for people without disabilities.

Higher levels of education and income are both highly correlated with increased use of computers and access to the Internet. People with disabilities, however, are more likely to have lower educational and income levels than people without disabilities. Regardless of education level and income level, however, people with disabilities are less likely to have access to the Internet. Those with disabilities within the same educational and income statuses still are less likely to have computer access than
those who do not have disabilities. These numbers continue to fall when you factor in sub-minority categories such as race and ethnic background (Kaye, 2000).

The absence of a computer, e-mail, instant messaging, the Internet, and all the various software designed to allow people with disabilities to fully participate, is a higher wall between the home and world for people with disabilities. “People with disabilities,” writes Kaye (2000), “are perhaps the single segment of society with the most to gain from the new technologies of the electronic age. Yet they have among the lowest rates of use of these technologies.” The longer that people with disabilities go without assistive technology in this technology-driven society, the further they will likely fall behind in the areas of education, employment, and full participation in everyday life.

Data Sources on Disability - Assets and Limitations

When research is conducted regarding a topic related to people with disabilities, there are three general sources for collection of data regarding this specific
population: surveys, population censuses, and administrative records (U.N., 2001). Each of these different modes of data collection carries with it advantages and disadvantages for the accurate portrayal of a specific trait or variable within the disability population, or the population at large.

**Census Data**

The use of census data gives the researcher the advantage of being able to calculate data, such as prevalence rates, for a small, local area. Another advantage is that the number of people with disabilities identified is usually large, allowing for more detailed cross-tabulations on many variables. In comparison to phone surveys, census data is usually more useful in obtaining information from populations that are traditionally difficult to reach, such as people with hearing impairments, and those with mental impairments. It is also helpful when the desire is to compare people with disabilities to people without disabilities on various constructs.
The limitations of census data included usually having to work with basic socio-economic and demographic characteristics. Census data is generally collected infrequently, perhaps as infrequently as once in a ten-year period, which can give database information diminishing usefulness as a decade passes. In most instances, the instrument of the census or the interviewer is not sensitive to a specific disability population, a factor that can limit the amount or type of quality information gathered. It is also a very expensive undertaking; especially considering that over 80% of the population is estimated to not have a disability. It is expensive to include a series of questions that researchers know will not apply to at least four out of five participants in the study.

Survey Data

The use of surveys also carries with it a list of advantages and limitations. Surveys offer greater flexibility on the depth and range of topics that can be included. Since a representative sample, and not the whole
population, is being probed, more time is allowed to research topics in depth. There is greater control over the conditions of observation in which the data collection will take place. Surveys also allow for the sample design to be modified, increasing the chances of including a specific subset of the population such as persons with disabilities. There is greater opportunity to supervise the work of those who are collecting the information, such as how they are interacting with subjects with specific types of disabilities.

Some of the limitations for the use of surveys include the difficulty that exists in estimating prevalence rates for local areas. Due to the limited number of a sample that is from, for example, a rural area, it is difficult to estimate the presence of a particular construct for that area. For disability studies, it is sometimes difficult to capture an adequate number of subjects in so much as the construct may only exist in as few as 20% of the overall population. Lastly, the coverage of people in non-traditional housing situations, such as prisons, halfway
houses, homeless shelters and institutions is usually inadequate or non-existent (U.N., 2001).

**Administrative records and registers**

In many rehabilitation, health, and disability systems there are databases that include information about a set of people identified as having particular physical characteristics or disabilities. For example, many state vocational rehabilitation agencies or disability insurance companies keep computer records on persons served in their system in order to be able to present data or conduct research on the work being performed. Another example of such a database could be found in the social security system, where information is stored on people who have applied for Social Security Disability Insurance (SSDI) or Supplemental Security Income (SSI).

While this information is not necessarily kept for statistical research purposes, it is often a vital source of potential research in the field of disability. These databases can provide researchers ready access to people with disabilities and can be the starting block for
research in this area. The manner in which the data is collected, however, may make both quantitative research and qualitative research difficult without contacting the individual directly. This may bring other legal issues to the foreground. Laws regarding confidentiality may require notification and consent prior to contacting individuals for research purposes.

Types of disability surveys

Disability surveys can be conducted in by either generating a study dedicated solely to the topic of disability or by adding a disability component to a study of a wider range of issues. For the disability-specific study, there are two main approaches: (1) preparing a sample of households and then screening all households selected into the sample for disability or (2) first screening for disability, then developing a national disability survey from these findings. A study dedicated to disability allows for the collection of detailed information about people with disabilities, their living situations, their home environment, etc. It provides the
opportunity for in-depth interviews. Unfortunately, creation of a disability-specific study often requires significant screening procedures and training of interviewers, and can be more expensive than other types of general survey methods.

The “disability module” added to a broader study allows for the opportunity to collect information that can be compared directly with the population at large. However, when disability questions are added on to an existing survey, a problem may arise when interviewees with disabilities are asked to answer significantly more questions than interviewers without disabilities, which could undermine the level of cooperation of one group versus another.

The United States Bureau of the Census has a long record of providing valuable disability-related information in regards to prevalence rates, educational levels, and employment. The Census Bureau provides disability-based data generated from three main sources: (1) the Survey of Income and Program Participation, or SIPP; (2) the
traditional census study conducted once per decade; and (3) the Current Population Survey, or CPS.

**Survey of Income and Program Participation**

The SIPP is a national household survey that began in 1984. The purpose of the SIPP is to collect information regarding the source and amount of income earned by citizens, labor force information, general demographic information, and program participation and eligibility data for existing federal programs such as food stamps (USCB, 1998). The information provided by the SIPP is designed to provide a better understanding of, “the level, and changes in the level, of well-being of the population and of how economic situations are related to the demographic and social characteristics of the individuals” (USCB, 2002).

Participants in the survey consist of between 14,000 and approximately 37,000 households who are interviewed at four-month intervals during a period of between two and one-half years and four years. An extensive and consistent set of disability-related questions was asked of the panels convened during the years of 1990-1993. Prior year panels
were also asked disability-related questions, but they were not as extensive.

**Current Population Survey Disability Studies**

One of the most valuable sources of socioeconomic information on people with disabilities on both a national and statewide scale comes from the Annual Demographic Survey, also known as the “March Supplement,” to the Current Population Survey. In March of each year the CPS basic monthly survey is supplemented by a series of questions that focus on sources of income, government program participation, previous employment, insurance, and other demographic variables. Beginning in 1981, the March Supplement was expanded to include several questions about disability, disability-based income, and disability insurance. The CPS and March Supplement are widely used by government agencies, university researchers, legislators and policy advocates to evaluate the efficacy of government programs, the economic well-being and the participation level of individuals, families and households.
A significant advantage to using the CPS and the March Supplement to study disability is the size of the sample. The CPS samples approximately 150,000 people each month, making it possible to get quality information on both the national and state levels. It is also important that the questions asked on the March Supplement have remained reasonably consistent through the years. Since 1981, the March Supplement has asked for information about household members who may, “(have) a health problem or disability which prevents them from working or which limits the amount of work they can do.”

Ohio COMPASS Project Results

Project COMPASS was a study performed in 1994, funded by the state of Ohio Rehabilitation Services Commission. The research arm of the study was the Center for the Advancement of Rehabilitation and Disability Studies through ABT Associates, Cambridge Massachusetts. A general summary of their findings in regard to disability in the state of Ohio follows.
Prevalence and Demographics

According to Project COMPASS, there were 590,998 people in the state of Ohio within the ages of 16-64. This was 7.4% higher (550,191) than was estimated in the 1990 Current Population Survey conducted in 1990. The difference may be explained by the fact that two slightly different definitions of disability were used, and that the surveys were conducted four years apart.

The results showed that more than 37.2% (220,143) of people with disabilities were categorized as “non-severely disabled,” 39.1% (230,907) were categorized as “severely disabled,” and 23.7% (139,948) were categorized as “most severely disabled.”

As would be expected, the two counties with the highest number of people with disabilities were Franklin county (Columbus) and Cuyahoga county (Cleveland). Twelve counties were found to have more than 10,000 people between the age of 16 and 64 with a disability. These twelve
counties accounted for nearly 60 percent (57.7%) of all people with disabilities in the state of Ohio.

The state was broken down into four geographical regions: northeast, northwest, southeast and southwest. The southeast region, heavily rural and partly Appalachian, had the most people with disabilities (181,665), followed by the more industrial northeast region (157,147). The southwest (141,471) and northwest (110,715) that are more of a combination of rural and industrial had the fewest people with disabilities.

**Disability and Employment Status**

Project Compass research showed that in 1994, 28.7% (169,707) of the population between the ages of 16-64 with a disability were employed at least on a part-time basis. Sixteen percent were employed on a full-time basis, and 12.7% were employed part-time. Another 42.6% (251,618) considered themselves to be looking for employment. Therefore, approximately 71% of the estimated working-age population of people with disabilities were either working or seeking employment. Another 24.6 indicated they were
disabled and not looking for work, with the remaining 4% not responding to the issue.

The research showed that the southwest portion of the state (Cincinnati, Dayton, Middletown) had the highest employment rate, 35.4%. This was followed by the northwest region (33.6%), the northeast region (26.1%), and the southeast (22.8%). The two regions with the lowest employment rate (northeast and southeast) also had the highest number of people who were unemployed and looking for work (73,989 and 78,682, respectively). The southeast region also had the most people who were unemployed but not looking for work at the time of the survey (52,417 persons).

When looking at the employment figures by race, the highest employment rate is among Caucasians, with approximately thirty percent. Hispanics with disabilities have an employment rate of approximately twenty six percent, with African-Americans having an employment rate of twelve percent. This lower percentage, it was hypothesized, came from an overrepresentation of African-
Americans in the sample within the 45-64 age group, the age group with the lowest overall employment rate.

When looking at severity of disability as a category, the employment rate for those with non-severe disabilities was forty-seven percent. The employment rate for both the Severely Disabled and the Most Severely Disabled was approximately eighteen percent. The Severely and Most Severely Disabled who were not employed made up the largest section of those who were looking for work (67%), as well as the unemployed who were not seeking employment (79%).

Job characteristics, benefits, and accommodation needs

The research showed that although nearly 94% of people with disabilities between the ages of 16-64 had held a job at some point in their lives, only 29% of them were currently employed. The mean job tenure at the current job for those who were employed was 8.1 years and the mode was 3.8 years. According to the researchers, further analysis showed that respondents followed two tracks in regard to tenure: a group that was employed for an extended period of time, and those who were employed for brief periods of
time. Very few respondents were employed near the mean of 8.1 years.

Earnings for those who were employed had a mean of $8.70 per hour with a mode of $7.21 per hour. Nearly one in four (24%) of those who were employed were working in professional or managerial positions; 14.3% were clerical or sales workers; 24.3% were service workers, 22% were unskilled laborers or farmers, and 15.5% were skilled craftsmen or foremen. The most common sites for work places for people with disabilities were health services and eating and drinking establishments.

Nearly four out of five (78.8%) of people with disabilities who were working were at least “satisfied” with their jobs. Of this number, 41.6% were “very satisfied.” Over half (54%) of working people with disabilities had health benefits; approximately 34% had dental benefits; more than 60% had paid vacation, and 43% had some form of retirement plan. Only 16% of working people with disabilities said they were dissatisfied with their jobs.
In spite of this level of satisfaction, over 1 in 4 (26.5%) indicated advancement in their current job had been hindered by their disability or chronic health problem. Of those who were not working but had worked in the past, nearly 46% indicated that disability (either work-related or non-work related) was the reason they had left the position (Glazier, 1994).

Support Programs and Benefits Received

The 1994 Compass project found that an estimated 27.6% of Ohioans with disabilities were receiving Social Security Disability Insurance (SSDI) benefits, with an additional 14.7% receiving Supplemental Security Income (SSI). Approximately 7.7% were on private insurance disability benefits, and 3.4% received benefits from the Veterans Administration. More than one in five (21%) received Public Assistance with almost equal numbers for Medicaid (21.1%), Medicare (20.4%), and private health insurance coverage (22.1%). Approximately 7% of Ohioans with disabilities were on worker’s compensation benefits and nearly 2% were on unemployment insurance benefits.
Educational level

The Project Compass Survey found that 61.6% of Ohioans with disabilities were high school graduates with an additional 10% having received their GED. Approximately 14.3% had received instruction in special education classes. Approximately 13.6% had obtained a vocational or technical degree or certificate, 6.2% had finished community college with an associate’s degree, 7.8% were college graduates, and 3.3% had some advanced degree.

Approximately 10% of those surveyed indicated they were currently pursuing their education. Almost one quarter of this group were enrolled in some form of high school program; either high school, adult basic education classes, or GED preparatory classes. Nearly 11 percent (10.7%) were enrolled in a two-year college program, 9.0% were enrolled in four-year college program, and nearly 4% were in graduate school. Over one-third (36.6%) of those who were in school were engaged in vocational or technical school or training (Glazier, 1994).
Summary

People with disabilities in the United State of America have never reached their full potential in regards to education, employment, and independent living. Over one hundred years past the industrial revolution, the employment rate for people with disabilities is 3 in 10. In the richest and most industrially advanced country in the world, the employment rate for people with disabilities remains abysmal.

It is not wholly from lack of concerted effort. Since the founding of our country, legislative bodies have been attempting to improve the lives of Americans with disabilities. Each of the legislative efforts briefly described herein were rooted in the notion of increasing services to and independence among people with disabilities. Chief among these efforts has been a desire to address a most fundamental construct relative to the independence of man: employment.

Any legislative effort that attempts to change the lives of Americans for the better should be followed up with substantive measurement to prove its worth. It is
important to have quality research done not only to fully understand the landscape that needs changing, but also to quantify the magnitude of change that has come about. In the litany of national research studies quoted herein, there has been a noted lack of consistency between research efforts. Differing methods, differing goals, and differing definitions of fundamental constructs has led to a blurry image of the actual landscape for people with disabilities in America today.

The COMPASS 2002 project is a humble step towards addressing this need. The COMPASS 2002 project is a rarity among disability research: a follow-up. It is an opportunity to for one state to measure the growth among its citizens with disabilities over an eight-year period of time. It will allow a state to measure the impact federal, state and local efforts have had on improving the lives of Ohioans with disabilities in the areas that matter most: work, school, independence, and opportunity.
CHAPTER 3

METHODOLOGY

The information presented in this chapter relates the methodology of this survey study and will contain the following topics: (a) the type of study and the rationale for its use, (b) a description of the population of the study, (c) a description of the sample of the study, (d) a structure and rationale for the subject matter, (e) the structure of the instrument, and (f) data analysis procedures.

Sampling Technique

The Compass 2002 project involved the use of a sampling technique known as random-digit-dialing (RDD). Originally proposed by Cooper (1964), RDD is a group probability sampling technique that provides a chance of reaching any household within the sample area, regardless of whether the household telephone line is listed or unlisted. The chance of reaching a single household is not
equal, however, due to the fact that many households have more than one telephone line (Visser, Krosnick, & Lavrakas, 2000).

An increasing number of Americans have telephone numbers that are either unpublished (not listed in the local telephone directory, but available through directory assistance) or unlisted (private and not accessible). It was estimated that one in three personal telephone numbers was unlisted. Contrary to popular assumptions, lower income minority incomes are more likely to have unlisted phone numbers than are higher income, white households (Visser et al., 2000). RDD reduces the potential problem of non-coverage error caused by unlisted or unpublished phone numbers. Research has found that the RDD technique was as effective as the federal government’s larger in-person surveys (such as the annual Current Population Survey, or CPS) in including all types of demographic groupings (Maklan & Waksberg, 1988). It has also been effective in such large scale research projects as the National Household Education Survey (Brick &
Projected problems with using the RDD technique for sampling occur when researchers have to attempt to predict eligibility or prevalence rates for rare populations. (Camburn & Wright, 1999). Other problems occur if the researchers are not able to accurately predict what the response rate will be of those who do qualify (Massey, 1998). If predicted response rates are too high, the worry is over the accuracy of the screening mechanism. If response rates are too low, then researchers often have to increase the sample size, increase the call size, which leads to increasing the cost of the project.

Sample

The Compass 2002 project sample was a random sample of Ohioans with disabilities between the ages of sixteen and sixty-four who have residential phones. In 1981, the United States Federal Communications Commissions estimated that ninety-six percent (96%) of Americans lived in a household with a telephone (U.S. Bureau of the Census, 1984). Other
estimates have ranged from 93% (Thornberry & Massey, 1988) to 97% (Frey, 1989).

Those households without telephones, however, are not necessarily demographically representative of the households that do have telephones. The demographics related to lack of phone ownership are (a) very low income, (b) low education (c) rural residency, (d) younger ages (e) and minority racial status (Thornberry & Massey, 1988, p. 27-41). This may present an obstacle to obtaining a sample that is wholly representative of the population of Ohioans with disabilities. People with disabilities in America are more likely to be unemployed or underemployed, more likely to have not graduated from high school, and more likely to be below the national standard for poverty than are those without disabilities (Harris, 1998). Although disability is not listed by Thornberry and Massey (1998) as a demographic related to lack of phone ownership, people with disabilities are more likely to share those demographics that are, and are thus assumed to be more likely than the general population to not own a telephone.
The population for the state of Ohio, according to the 2000 U.S. Census is 11,353,140. In 1994, it was estimated that slightly over 1.1 million of these people had disabilities. Of this group, 590,998 were estimated to be of working age. The sample used in this study will be 1,328 interviews, with approximately 11,500 screening interviews. Under ordinary situations, it would be appropriate to sample no more than 1,000 respondents, regardless of sample size (Alreck & Settle, 1995). In this study, however, 1,328 people were interviewed for the following reasons: (1) the desire to have as accurate employment rate information as possible and (2) to sufficiently account for studies to be conducted on all four geographic regions of the state.

Sampling Methodology

The sampling methodology for Compass 2002 involved screening households for people with disabilities. This was accomplished by identifying any member of the household with a disability. Survey information will then be
collected, either personally or by proxy, on the all persons aged sixteen to sixty-four with disabilities.

The RDD methodology utilized in this study is known as "list-assisted" RDD, which involves the following steps:

1. The identification of all area codes combination in service in Ohio;
2. The division into one hundred banks of one hundred consecutive ten-digit telephone numbers;
3. Utilizing the newest databases of all listed telephone numbers in Ohio, banks of one hundred numbers with less than two directory-listed numbers will be removed as outliers;
4. Because prefix areas often serve more than one county, the retained banks will be assigned to the eighty eight counties using a plurality rule; that is, the county that accounted for the plurality of the directory-listed numbers in the prefix area determined to which county the retained banks in that prefix area were assigned;
5. For each county, a simple random sample of ten digit telephone numbers will be drawn;
6. Before the sample numbers will be called, an automated procedure for identifying a portion of the business and nonworking numbers will be used. Because a small number of households could be located in a county adjacent to the county their telephone number was assigned to, county of residence was determined in the screening interview.

Figure 2: Enumerated steps in the process of computerized Random Digit Dialing.
The sample was provided by the computer databases available at the Ohio State University Center for Survey Research. This Center purchases and regularly updates databases for Ohio, the surrounding states, and for regions of the country. The Center has extensive experience in utilizing RDD for generating a sample to study the presence of a demographic in a general population.

Research Design

The design used in this research project was a “separate sample pretest-posttest” design (Campbell & Stanley, 1963), also known as the “simulated before-and-after design” (Selltiz, Jahoda, Deutsch, & Cook, 1959). For large populations such as people in the state of Ohio, it is impractical to conduct research on employment rates and educational levels using the same sample in both projects (Campbell & Stanley, 1963). Longitudinal studies using the same sample groups, while invaluable to study changes over time, raise some concerns. The interviews in 1994 were conducted anonymously, making it difficult to accurately assure that the sample used would be used in both studies. Also, even if the sample was secured for the second
research project, there is no guarantee that the sample was still representative of the population of Ohioans with disabilities, undermining the ability to generalize the results.

Campbell and Stanley (1963) outlined the separate sample pretest-posttest design as follows:

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R & X & O \\
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In this diagram, the rows represent two randomly equivalent subgroups, and X is the dependent variable. The parenthetical X represents the dependent variable that was presented only in theory to the original randomly selected subgroup.

In this research, however, there is no easily definable pretest and posttest. The ADA has been more fully implemented by 2002, the intent of the law being – among other things – to improve the employment rate of Americans with disabilities. The ADA, however, is not the only law on the books intended to improve the disability employment rate. The Tech Act, the Individuals with Disabilities Education Act, the Rehab Act, and the Ticket to Work / Work
Incentives Investment Act have all been passed, amended, or reauthorized in the past eight years. It would not be accurately possible to measure the impact of any one of the laws on employment rates. The study will be able to show, however, to some degree the impact that employment legislation as a whole has had on the employment rate of Americans with disabilities.

The manipulated variable then becomes the passage of time or, if preferred, the collective passing of federal legislation over time. The samples generated in these studies were done so randomly through the technique of random digit dialing. They are representative of the population of Ohioans with disabilities, or at least Ohioans with disabilities who are reachable through reasonable efforts over the telephone or TTY. The random nature of the selection process allows researchers to make comparisons from one study to the next.
Threats to validity

Campbell and Stanley (1963) list the threats to internal validity of this research design as follows: history, testing, regression, selection, and the “interaction of selection and maturation, etc.” They feel that the most significant of these threats, however, is history. This research design is often used in scenarios where, for example, a city may wish to improve the views of the citizens of the services the city provides. The city, after polling a random sample of citizens, embarks upon a public relations campaign. Six months later, the city again surveys a random sample of residents. In this scenario, history would be a concern as a threat to external validity.

In the current research project, however, the threat of history is not as profound. The variable is, in effect, history itself, in that the variable that distinguishes one group from the other is the year in which the study occurred. In this project, we researched the differences between the two groups on the issues of employment rates,
educational levels, etc. The reasons for the differences, if any, are significant from a public policy standpoint but do not detract from the inherent value of the data collected and analyses performed.

The main threats to external validity come in instrumentation. The instrument used in 2002 is slightly different than that used in 1994. It is shorter, having certain types of questions (i.e., on precise nature of disability) removed. The survey has questions on topics (i.e., assistive technology) that were not asked in 1994, and has, in some instances, different wording for questions addressing the same constructs. A different company is administering the survey in 2002, which may bring different styles of interviewing and, at a minimum, a different list of interviewers.
Data Collection

The data collection for this study was collected by means of telephone interview. The professionals at The Ohio State University Center for Survey Research conducted the telephone interviews for this study. The survey, when administered to an eligible subject, took between seventeen and twenty-two minutes to administer. Fourteen interviewers were given a computer-generated list of telephone numbers.

The interviewers were instructed to discard numbers when it was determined that the number was (a) a business number, (b) a fax number, or (c) otherwise was not a working number for a residential household. The calling hours for this study were between 3:00 p.m. and 9:00 p.m. on Mondays through Saturdays. Due to the fact that proxy interviews were possible, this allowed for a greater timeframe during which calls could be placed. Numbers that yielded no response after eight attempts were automatically placed in a weekend pool call list. If two subsequent weekend attempts were unsuccessful, then the number was
discarded from the sample and another number was substituted.

Although substitution is generally discouraged in survey work (Salant & Dillman, 1994), a restricted substitution was utilized in this study. Substituting a number - after ten attempts at various times - was allowed in order to assure that there were enough completed calls for thorough analysis. Additionally, through the use of RDD, there is no way to know for certain the nature of the number that is being discarded.

The data collected in the interview was recorded in a statistical database package, SPSS version 11.5. This software package was chosen for the ability to enter alphanumeric data, and the capacity to record notes and comments for clarification of answers.
Staff Selection / Training

For this study, The Ohio State University Center for Survey Research (CSR) was used for the contacting of subjects, the interviewing, and the collection of data. The CSR has over thirty stations of computer-assisted telephone and data collection capabilities. The CSR utilizes a combination of full-time staff and part-time staff to make phone calls and collect data. Some of the interviewers were students at the university.

The CSR has extensive experience in using various RDD techniques on local, regional, statewide, and national levels. The associate director also has experience with projects similar to Compass 2002, having worked on a statewide disability survey while working at a survey research center in another midwestern state. The CSR was chosen for its state-of-the-art technology, its familiarity with RDD techniques, and its history of working with people with disabilities.

The individuals who would be placing calls and conducting interviews underwent training to familiarize themselves with the purpose of the project, the nature of
the instrument and, more importantly, to become educated on the issues surrounding communication with people with disabilities. The interviewers received training on methods to communicate with people with speech difficulties, such as those with cerebral palsy. The interviewers were trained on such issues as using person-first language, avoiding outdated or demeaning terminology, and other issues that can be a barrier to direct and effective communication with this population.

Structure and Rationale for the Subject Matter

The main objective of this study was to view the current landscape for people with disabilities in Ohio in regards to employment, education, and access to assistive technology and services. To this end, an instrument was created in the form of a telephone survey questionnaire. The Compass 2002 questionnaire was based in no small part on the questionnaire utilized in 1994 by the Center for the Advancement of Rehabilitation and Disability Studies at ABT Associates, Inc., of Cambridge, Massachusetts.
As much as possible, the present questionnaire was drafted to mirror the 1994 survey in an attempt to maximize comparability. Subtle changes were made, however, at the request of the funding source, the Ohio Rehabilitation Services Commission. The 1994 instrument was thorough in the areas of demographics and in specific detail regarding the precise nature of the disabling condition. For example, the 1994 survey requested that the subject categorize their disabling condition into one of forty-three categories. Ohio RSC requested such information in 1994 for strictly prevalence purposes, and did not use the forty-three categories as independent variables. Information regarding employment, education, and the like was presented for the group as a whole, and not broken down by specific disability category.

The goal of the design of a questionnaire incorporates many factors, especially including obtaining maximum information regarding the selected subject. An additional goal, however, was obtaining a high number of completed interviews with quality information (Frey, 1989). This goal will be met by limiting the amount of time necessary to
complete the questionnaire to approximately twenty minutes. The questionnaire was also designed to intersperse demographic questions throughout, rather than having them front-loaded. This allows the subject to understand the nature of the questionnaire early in the interview, without having to answer a long list of demographic questions that may seem intrusive. The anticipated result will be more completed interviews with higher quality, usable information.

The introduction to the questionnaire had the caller identifying the organization commissioning the study, namely the Ohio Rehabilitation Services Commission. The first five questions help determine whether or not the household is eligible for study in this program. The interviewer will ask if the person if they live in a licensed group home, for data from group homes will be
excluded from this study. Question 6C asked the respondent if they (or anyone in the home) has a disability ("a physical, mental, or emotional disability or a chronic health problem that seriously limits ‘his’ ability to do work, do housekeeping, or care for ‘himself?’").

Questions regarding the nature and impact of the disability were included. Other questions were directed toward various aspects of the person’s employment experience, if applicable. These questions covered the areas of current employment status, type of work performed, length of time performed, level of pay and benefits, job satisfaction, and reason for terminating employment. The next set of questions covered any possible services the person may need to become employable, and the types of financial support they may be receiving in their current employment efforts.
The final questions covered the educational level and types of training received by the person with a disability. Questions were seeking not only the level of grade completed, but the type of vocational training and/or certificates received, if any.

Lastly, the instrument covered the amount of household income in the past year. Unlike the 1994 survey, this question was asked in an open format, rather than progressive blocked variables. Like the 1994 survey, the question was saved until the end, as it is a question that a certain percentage of respondents may not feel as comfortable answering.

Data Analysis Procedure

The data collected in this survey included all four categories of variables: nominal, ordinal, interval and ratio. The data used in this study came from two sources. The first source was the research conducted by ABT in conjunction with the Compass 1994 project conducted on behalf of the Ohio Rehabilitation Services Commission. The second source was the research conducted by this
researcher, The Ohio State University Center for Survey Research, Assistive Technology of Ohio, and the State of Ohio Rehabilitation Services Commission.

The data from both studies was processed in the statistical software program “Statistical Package for the Social Sciences,” otherwise known as SPSS. The SPSS program calculates both the descriptive and inferential statistics for this study.

Research Questions

The Americans with Disabilities Act, when passed in 1990, was enacted with the assumption that it would improve the employment rate of people with disabilities. Most national surveys, regardless of differences in definitions of disability, have shown this not to be the case. The trend in studies conducted from the mid 1980’s to the late 1990s has been for the employment rate of people with disabilities to remain even or perhaps slightly decline. Recent legislative proposals are intended to improve the employment rate. In order for the state of Ohio to understand the impact that legislative proposals from the
past decade have had on the lives of Ohioans with disabilities, as well as being able to study the impact that pending legislative changes will have in the years to come, it is imperative that a comprehensive study of the current status of Ohioans with disabilities be conducted in 2002.

Research Question 1: Is the employment rate for Ohioans with disabilities aged 16-64 in 2002 significantly different than in 1994?

Hypothesis 1

$H_0$: The employment rate for Ohioans with disabilities will not be significantly different than that found in 1994.

$H_1$: The employment rate for Ohioans with disabilities will be significantly higher than that found in 1994.

Variables: The independent variable was the specific year in which the study took place (1994 v. 2002), making the variable categorical and dichotomous. The dependent
variable was the percentage of Ohioans between the ages of 16-64 with a disability who are employed either full or part time. The dependent variable yielded ratio data.

Sample test statistic: The paired t-test was used to analyze whether there is a difference in employment rate for Ohioans with disabilities in 1994 versus 2002. The t-test is an analysis of variance test to measure whether the difference between two means is statistically significant (Alreck & Settle, 1995).

Research Question 2: Is the educational level for Ohioans with disabilities aged 16-64 in 2002 significantly different than for Ohioans with disabilities aged 16-64 in 1994?

Hypothesis 2

$H_0$: There will be no significant difference in educational level for people with disabilities from 1994 to 2002.
\( H_2: \) There will be a significant difference in educational level for people with disabilities from 1994 to 2002.

**Variables:** The independent variable was the year in which the study took place. The dependent variable was the stated level of education, with a numeral given to represent corresponding grade level completed.

**Test statistic:** The test statistic used was a t-test, comparing the computed means of the 1994 sample with the 2002 sample.

The ADA was intended to require employers to make reasonable accommodations for people with disabilities. The anticipated results of this requirement would be increased employee satisfaction, increased longevity, and higher wages due to increased longevity. The hypotheses for the constructs was:

Research Question 3: Are reported salary levels for Ohioans with disabilities aged 16-64 who were working in 2002
significantly different than the reported salary levels for Ohioans with disabilities aged 16-64 who were working in 1994?

**H₀:** The income levels of people with disabilities in Ohio (adjusted for inflation) will not be significantly different than in 1994.

**H₃:** The income levels of people with disabilities in Ohio (adjusted for inflation) will be significantly different in 2002 than in 1994.

**Variables:** The independent variable was the year in which the study took place, 1994 or 2002. The dependent variable was the level of income, adjusted for inflation into 2002 dollars. The adjustment for inflation used the consumer price index calculated for the years 1994 to 2002, which was found to be .225, or 22.5% (Inflationdata, 2003).

**Test statistic:** The independent variable was nominal and categorical. The dependent variable was ratio. The appropriate test statistic was the paired t-test.
One of the intended long-term benefits of the ADA would be better jobs with higher levels of pay, longer tenure, and higher benefit levels for people with disabilities. There has been shown to be a correlation between income, tenure, and benefit levels and increased job satisfaction. The following hypotheses will be addressed for the samples of Ohioans with disabilities between the ages of 16-64 from 1994 and 2002.

Research Question 4: Will the reported job satisfaction levels for Ohioans with disabilities aged 16-64 who were working in 2002 be significantly different than the reported job satisfaction levels for Ohioans with disabilities aged 16-64 who were working in 1994?

\[ H_0: \text{ The level of job satisfaction for employees with disabilities will not be significantly higher than in 1994.} \]

\[ H_4: \text{ The level of job satisfaction for employees with disabilities will be significantly higher than in 1994.} \]

**Variables**: The independent variable was the year in which the study took place, 1994 or 2002. The dependent
variable was the answer on a Likert scale regarding perceived job satisfaction.

**Test statistic:** The 5-point Likert scale ranged from Very Satisfied to Very Dissatisfied. The appropriate test was a t-test to compare the means from the job satisfaction question from the 1994 and 2002 samples.

Research Question 5: Is the reported job tenure of Ohioans with disabilities aged 16-64 who were working in 2002 significantly different than the reported job tenure of Ohioans with disabilities who were working in 1994?

\[ H_0: \] The length of job tenure for people with disabilities in Ohio will not be higher than in 1994.

\[ H_5: \] The length of job tenure for people with disabilities in Ohio will be higher than in 1994.

**Variable:** The independent variable was the year in which the survey took place, 1994 or 2002. The dependent variable was the duration of employment for those who are currently employed, measured in months.
Test statistic: The independent variable was nominal and the dependent variable was ratio. The appropriate test statistic was the paired t-test.

Research Question 6: Is the percentage of working Ohioans with disabilities aged 16-64 who were receiving health insurance benefits in 2002 significantly different than the percentage of working Ohioans with disabilities aged 16-64 who were receiving health insurance benefits in 1994?

H₀: The percentage of people with disabilities with disabilities who are working who have health benefits will not be higher than in 1994.

H₆: The percentage of people with disabilities with disabilities who are working who have health benefits will be higher than in 1994.

Variables: The independent variable was the year in which the survey took place. The dependent variable was the percentage of people who reported having health insurance benefits.
**Test statistic:** The independent variable was nominal and the dependent variable was nominal. The answers were coded with 1s and 0s, so that a 0 represented an absence of health insurance while a 1 represented the presence of health insurance. The appropriate test was a t-test, comparing the means of 1994 v. 2002.

Research Question 7: Is the percentage of working Ohioans with disabilities aged 16-64 who were receiving benefits other than health insurance in 2002 significantly different than the percentage of working Ohioans with disabilities aged 16-64 who were receiving benefits other than health insurance in 1994?

\[ H_0: \] The percentage of people with disabilities with disabilities who are working who have other benefits will not be significantly higher than in 1994.

\[ H_7: \] The percentage of people with disabilities with disabilities who are working who have other benefits will be significantly higher than in 1994.
**Variables:** The independent variable was the year in which survey took place. The dependent variable was the percentage of people who claimed to have benefits other than health benefits.

**Test statistic:** The independent variable was nominal and the dependent variable was nominal. The presence of any other benefit was scored a 1, and the complete absence of any other of the listed benefits was scored a 0. The appropriate test was a t-test to compare the means from 1994 to 2002.

One of the major points of focus of disability-based legislation over the past decades has been on education. The following set of hypotheses are will be as a result of analyses conducted within the 2002 data, focusing on the role of education and the impact it has on the lives of Ohioans with disabilities.

Research Question 8: Is there a significant correlation between education and employment for Ohioans with disabilities aged 16-64 in 2002?
H₀: There is no significant correlation between education and employment for Ohioans with disabilities aged 16-64 in 2002.

H₁: There is a significant correlation between education and employment for Ohioans with disabilities aged 16-64 in 2002.

Variables: The variables correlated were the level of education (continuous) and employment (coded as 0 and 1).

Test: The appropriate t-test was a correlation analysis to see if increased education level corresponded with an increased employment rate.

Research Question 9: Is there a significant correlation between the reported education level and reported salary level for working Ohioans with disabilities aged 16-64 in 2002?
H₀: Level of education will not be significantly correlated with the salary level of Ohioans with disabilities between the ages of 16-64.

H₉: Level of education will be significantly correlated with the salary level of Ohioans with disabilities between the ages of 16-64.

Variables: The independent variable was the level of education reported. The dependent variable was the reported salary level.

Test statistic: The independent variable was ordinal (level of education). The dependent variable was ratio (salary level). The appropriate test statistic was a correlation analysis to determine if an increase in educational level correlated with an increase in salary level for people with disabilities.

Research Question 10: Is there a significant correlation between reported level of education and the presence of health insurance benefits for Ohioans with disabilities aged 16-64 in 2002?
$H_0$: Level of education will not be correlated with the presence of health benefits for Ohioans with disabilities between the ages of 16-64 in 2002.

$H_1$: Level of education will be correlated with the presence of health benefits for Ohioans with disabilities between the ages of 16-64.

Variables: The independent variable was the level of education reported. The dependent variable was the presence of health benefits.

Test statistic: The independent variable was ordinal (level of education). The dependent variable was nominal. The appropriate test statistic was a correlation analysis. The purpose of the correlation analysis was to see if an increase in education corresponds with an increase in the likelihood of having health insurance benefits.

Research Question 11: Is there a significant correlation between reported level of education and length of job tenure for working Ohioans with disabilities aged 16-64 in 2002?
$H_0$: Level of education will not be significantly correlated with job tenure for Ohioans with disabilities between the ages of 16-64.

$H_{11}$: Level of education will be significantly correlated with job tenure for Ohioans with disabilities between the ages of 16-64.

**Variables:** The independent variable was the level of education reported. The dependent variable was the reported longevity (in months) of employment. The variables were computed by using the “Gregorian” method of calculating duration of time on SPSS. The reported start date for their job was subtracted from the date on which the interview took place.

**Test statistic:** The independent variable was interval (level of education). The dependent variable was ratio (employment length, in months). The appropriate test statistic was a t-test, comparing the computed mean for job tenure from 1994 to 2002.
Research Question 12: Is there a significant correlation between reported level of education and reported level of job satisfaction for working Ohioans with disabilities aged 16-64?

H₀: Level of education will not have a correlation with reported job satisfaction levels for Ohioans with disabilities between the ages of 16-64.

H₁₂: Level of education will have a correlation with reported job satisfaction levels for Ohioans with disabilities between the ages of 16-64.

**Variables:** The independent variable was the level of education reported. The dependent variable will be the response to a five-point Likert scale for job satisfaction.

**Test statistic:** The independent variable was interval (level of education). The dependent variable was ordinal (Likert score). The appropriate test statistic was the nonparametric correlation analysis of Spearman’s rho.
Research Question 13: Will reported 2002 salary levels of working Ohioans with disabilities aged 16-64 who use assistive technology be significantly different than the reported 2002 salary levels of working Ohioans with disabilities aged 16-64 who do not use assistive technology?

$H_0$: People with disabilities aged 16-64 who use assistive technology in their work will have a higher salary than people with disabilities aged 16-64 who do not use assistive technology in their work.

$H_{13}$: People with disabilities aged 16-64 who use assistive technology in their work will not have a higher salary than people with disabilities aged 16-64 who do not use assistive technology in their work.

**Variables:** The independent variable was use of assistive technology by those who were employed. The dependent variable was the reported salary of those who work.
Test statistic: Salary earned is an interval variable, and the test statistic used was the t-test.

Research Question 14: What demographic variables of working Ohioans with disabilities aged 16-64 predict level of personal salary in 2002?

Variables: The demographic variables used in the analysis were as follows: age, gender, race, region of the state, severity of disability, educational level, presence of multiple disabilities, and the use of assistive technology.

Test statistic: The analysis performed was a Linear Regression in order to determine which variables had the most significant impact on the determination of household income.

Research Question 15: What demographic variables of working Ohioans with disabilities aged 16-64 predict personal salary level in 1994?
Variables: The demographic variables used in the analysis were as follows: age, gender, race, severity of disability, and educational level.

Test statistic: The analysis performed was the Linear Regression in order to determine which variables had the most significant impact on the determination of household income.

Research Question 16: How do cases cluster, looking at characteristics of groups that are more likely to be employed versus not employed?

Variables: The variables used in the analysis were age, gender, race, region of the state, severity of disability, educational level, and use of assistive technology.

Test statistic: The test used was a two-step Cluster analysis to determine the common characteristics of the cluster of working Ohioans v. non-working Ohioans.
Summary

The COMPASS 2002 project was a comparative follow-up effort to a 1994 study conducted by the Ohio Rehabilitation Services Commission. The study measured significant differences, if any, on such constructs as employment level, educational level, earned salary, household income, length of job tenure, presence of health insurance and other benefits, and level of job satisfaction for Ohioans with disabilities aged 16-64. Research was also conducted to measure the impact that increased education levels have on such constructs as employment level, earned salary, presence of health insurance and other benefits, length of job tenure and level of job satisfaction among Ohioans with disabilities aged 16-64.
CHAPTER 4

RESULTS

The purpose of this study was to determine factors regarding employment, education, and technology from people with disabilities in the state of Ohio. Two types of analyses were conducted. First, findings from the 2002 survey results were compared to the findings of a survey research project completed in 1994. Second, the 2002 database was analyzed to determine the impact constructs such as education have on other areas of the lives of Ohioans with disabilities.

The subjects used in this study were randomly selected across the state of Ohio via the method of random-digit-dialing. The sample was stratified so as best to equally represent the four designated areas of the RSC service area: northwest, northeast, southwest, and southeast. The sample was conducted by 1,328 interviews conducted by the OSU Center for Survey Research. When a direct interview was
not possible, a proxy interview took place. In over 83% (1,104) of the cases, a direct interview took place, with only 224 (16.9%) taking place via proxy.

Descriptive Statistics

Of the 1,328 interview subjects, 83.8 percent (1,113) indicated their primary race as White/Caucasian, 11% (146) indicated they were Black / African American, and 1.1% (14) indicated American Indian. There were also 8 Hispanics, 5 Asians, and 2 from the Pacific Islands. Ninety-six subjects indicated plural racial origins. Of these, fifty-nine indicated two, nineteen indicated three, and eighteen indicated four. The sample interviewed was nearly sixty percent female (59.8%) and had a mean age of 43.9 percent.

Of the 1,328 respondents, 33.8% indicated they had a visual impairment, 21.7% indicated they had a speech or hearing impairment, nearly 2/3 (66.2%) indicated physical impairments restricting movement, and 44.2% indicated a learning disability or emotional or psychological impairment. Over twenty seven percent (361) indicated they had other disabilities not asked about.
The average educational level of the respondents in the 2002 study was 12.19 years, or just over a high school graduate.

Comparison to 1994 sample

The 2002 sample compared favorably to the sample used in 1994. In the 1994 survey, 83.4% of respondents (N=1996) indicated their primary race as “White/Caucasian,” while 11.0% indicated they were either “Black” or “African-American.” The mean education level was 11.79 years, or just under a high school graduate. One significant difference in sample demographics was gender. In the 1994 sample, the sample was 50.7% female, while the 2002 survey 59.8% female.

Research Question 1: Has the employment rate for people with disabilities improved since 1994?

For the purpose of this study, employment rate was determined by the number of people who are working either full-time or part-time at the time of the survey. Those who were working either full-time or part-time were coded with a 1, while those not employed were coded with a 0.
This allowed for the presentation of the employment rate as a mean, and the performance of t-test of the differences of those means. The 2002 survey found a significant improvement in the employment rate for people with disabilities. In 2002, the weight adjusted mean of .3591 was significantly higher than the .2868 found in 1994 (N=477, r>.001). This means that 35.9% of people with disabilities aged 16-64 in Ohio were employed, either full or part-time. In 1994, it was only 28.7%.

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Table 3: Employment rate by year for Ohioans with disabilities aged 16-64.
### Power Analysis

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<th>Source</th>
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Table 4: Power analysis test of between-subjects effects for employment rate by year.

**Research question 2:** Has educational level changed for people with disabilities since 1994?

For this question, level of education was defined by a number reflecting the number of years in school the subjects had completed. In the 2002 study, the level of
education of survey respondents was 12.19 years of education. In the 1994 study, the level of education was 11.79. This difference of nearly one-half of a grade was found to be statistically significant. In the 1994 study, 67.1% of respondents were high school graduates or higher, while in 2002, the number had risen to 75.7%.

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<td>2.44</td>
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Table 5: Education level by year for Ohioans with disabilities aged 16-64.
### Power Analysis

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Table 6: Power analysis of between-subjects effects for educational level by year.

Research Question 3: Has personal income (adjusted for inflation) risen for people with disabilities since 1994?

For the purpose of the study, personal income was determined and calculated from information given by subjects in the interview. Salary was calculated in annual monies earned prior to taxation. The 1994 data was adjusted
to reflect 2002 dollars by calculating the consumer price index of 22.5% from the years 1994 to 2002. The mean level of personal income in 2002 for those who were employed was found to be $26,389.00. The mean level of personal income in 1994 for those who were employed, adjusted to reflect 2002-dollar figures, was found to be $21,685. This difference was statistically significant on a two-tailed t-test, \( t > .001 \).

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Table 7: Personal salary level by year for Ohioans with disabilities aged 16-64.
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Table 8: Independent samples t-test for personal salary by year.
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<td>4.0661E+11</td>
<td>974.6</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Dataset</td>
<td>4015015256</td>
<td>1</td>
<td>4015015256</td>
<td>9.6</td>
<td>.000</td>
<td>.872</td>
</tr>
<tr>
<td>Error</td>
<td>2.970E+11</td>
<td>2970</td>
<td>417176814</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.081E+11</td>
<td>714</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.010E+11</td>
<td>2971</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9: Power analysis of between-subjects effects for educational level by year.

Research Question 4: Has the level of job satisfaction improved for people with disabilities since 1994?

Job satisfaction was measured on a 5-point Likert scale, with 1 being very satisfied and 5 being very dissatisfied. In 2002, the mean was 2.0718, while in 1994 the mean was found to be 2.0176. These means difference of .0542 was found not to be statistically significant.
### Table 10: Level of job satisfaction by year for Ohioans with disabilities aged 16-64.

<table>
<thead>
<tr>
<th>Dataset</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>567</td>
<td>2.02</td>
<td>1.227</td>
<td>.052</td>
</tr>
<tr>
<td>2002</td>
<td>474</td>
<td>2.07</td>
<td>1.252</td>
<td>.057</td>
</tr>
</tbody>
</table>

Research Question 5: Is the length of job tenure in 2002 different for Ohioans with disabilities aged 16-64 than it was in 1994?

Job tenure was calculated based on the information given in the interview. The date given by the subject as the start date of employment was subtracted from the date of interview. In 2002, the mean length of job tenure for people who were currently working was found to be 92.4 months. This represents a slight decrease from the 93.5
months found in 1994, but the differences are not statistically significant.

<table>
<thead>
<tr>
<th></th>
<th>Dataset</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>473</td>
<td>93.53</td>
<td>117.96</td>
<td>5.43</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>471</td>
<td>92.35</td>
<td>108.38</td>
<td>5.00</td>
<td></td>
</tr>
</tbody>
</table>

Table 11: Length of job tenure in months by year for Ohioans with disabilities aged 16-64.

Research Question 6: Do more Ohioans with disabilities who are employed have health insurance benefits in 2002 than in 1994?

The presence or absence of health insurance benefits was measured by the question in the survey on whether the employer offered health insurance benefits for the job in which they were currently employed. In 2002, 67.9 percent of Ohioans with disabilities who were working had health
insurance, compared to 53.7% in 1994. This difference was statistically significant ($r > .001$).

<table>
<thead>
<tr>
<th>Dataset</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>571</td>
<td>.5369</td>
<td>.4991</td>
<td>.0209</td>
</tr>
<tr>
<td>2002</td>
<td>471</td>
<td>.6790</td>
<td>.4674</td>
<td>.0215</td>
</tr>
</tbody>
</table>

Table 12: Presence of health insurance by year for working Ohioans with disabilities aged 16-64.
### Power Analysis

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>6.417</td>
<td>1</td>
<td>6.417</td>
<td>27.28</td>
<td>.000</td>
<td>.999</td>
</tr>
<tr>
<td>Intercept</td>
<td>344.655</td>
<td>1</td>
<td>344.655</td>
<td>1465</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Dataset</td>
<td>6.417</td>
<td>1</td>
<td>6.417</td>
<td>27.28</td>
<td>.000</td>
<td>.999</td>
</tr>
<tr>
<td>Error</td>
<td>226.53</td>
<td>963</td>
<td>.235</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>572</td>
<td>965</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>232.95</td>
<td>964</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13: Power analysis of between-subjects effects for presence of health insurance benefits by year.

Research Question 7: Do more Ohioans with disabilities who are employed in 2002 have benefits other than health insurance than those employed in 1994?

In the survey, a list of benefits was given to the subjects and they were asked to respond as to which benefits they received through their employment. If they received even one of the listed benefits, they were assumed
to have benefits other than health insurance. In 2002, 79.7% of working Ohioans with disabilities had some type of employment benefits other than health insurance. In 1994, this number was 66.0%. This difference was found to be statistically significant ($r > .0001$).

<table>
<thead>
<tr>
<th>Dataset</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>571</td>
<td>.6596</td>
<td>.4743</td>
<td>.0194</td>
</tr>
<tr>
<td>2002</td>
<td>477</td>
<td>.7974</td>
<td>.4024</td>
<td>.0184</td>
</tr>
</tbody>
</table>

Table 14: Presence of employment benefits by year for working Ohioans with disabilities aged 16-64.
<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>5.337</td>
<td>1</td>
<td>5.337</td>
<td>27.29</td>
<td>.000</td>
<td>.999</td>
</tr>
<tr>
<td>Intercept</td>
<td>512.135</td>
<td>1</td>
<td>512.135</td>
<td>2619</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Dataset</td>
<td>5.337</td>
<td>1</td>
<td>5.337</td>
<td>29.29</td>
<td>.000</td>
<td>.999</td>
</tr>
<tr>
<td>Error</td>
<td>189.66</td>
<td>970</td>
<td>.196</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>702.00</td>
<td>972</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>195.00</td>
<td>971</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 15: Power analysis of between-subjects effects for presence of other employment benefits by year.

Research Question 8: Is there a significant correlation between level of education and employment Ohioans with disabilities aged 16-64?

A correlation analysis was performed using the variables of level of education and employment. Employment was coded as a 0 for non-employment and a 1 for employment.
The correlation for education and employment was found to be .187, which is statistically significant on the Pearson Correlation (r > .01).

<table>
<thead>
<tr>
<th>Year</th>
<th>Educational Level</th>
<th>Employment Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educ. Pearson Correlation</td>
<td>1</td>
<td>.187*</td>
</tr>
<tr>
<td>Level Sig. (2-tailed)</td>
<td>.</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>1302</td>
<td>1302</td>
</tr>
<tr>
<td>Employ Pearson Correlation</td>
<td>.187*</td>
<td>1</td>
</tr>
<tr>
<td>ment Sig. (2-tailed)</td>
<td>.000</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>1302</td>
<td>1328</td>
</tr>
</tbody>
</table>

- correlation is significant at the 0.01 level (2-tailed).

Table 16. Correlation analysis for education and employment for Ohioans with disabilities aged 16-64 in 2002.

Research Question 9: Is there a correlation between educational level and salary level for working Ohioans with disabilities aged 16-64 in 2002?
A correlation was administered on the variables of education level and salary level. The correlation between level of education and personal income was found to be 0.240, significant (r > .01) on the Pearson test. The Kendall’s tau_b and the Spearman’s rho were also significant (r < .01).

<table>
<thead>
<tr>
<th>Year</th>
<th>Educational Level</th>
<th>Salary</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.223*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>469</td>
<td>378</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salary</td>
<td>Pearson Correlation</td>
<td>.223*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>378</td>
<td>383</td>
</tr>
</tbody>
</table>

- correlation is significant at the 0.01 level (2-tailed).

Table 17: Correlation between educational level and salary level by year for working Ohioans with disabilities aged 16-64.
Research Question 10: Is there a correlation between educational level and presence of health insurance benefits for working Ohioans with disabilities aged 16-64 in 2002?

A correlation was administered on the variables of educational level and presence of health insurance benefits. The correlation between educational level and presence of health benefits was found to be significant on the Pearson correlation test at the .01 level (2-tailed).
<table>
<thead>
<tr>
<th>Year</th>
<th>Correlation</th>
<th>Educational Level</th>
<th>Health Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Ins.</td>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>.122*</td>
</tr>
<tr>
<td>Ins.</td>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.004</td>
</tr>
<tr>
<td>N</td>
<td>471</td>
<td>463</td>
<td></td>
</tr>
<tr>
<td>Educ. Level</td>
<td>Pearson Correlation</td>
<td>.164*</td>
<td>1</td>
</tr>
<tr>
<td>Level</td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>463</td>
<td>469</td>
<td></td>
</tr>
</tbody>
</table>

- correlation is significant at the 0.01 level (2-tailed).

Table 18: Correlation between educational level and presence of health insurance by year for working Ohioans with disabilities aged 16-64.
Research Question 11: Is there a relationship between level of education and job tenure for Ohioans working with disabilities aged 16-64 in 2002?

A correlation test was administered on the variables of level of education and length of job tenure in months. The Kendall’s tau test found a correlation at .80, significant at the .05 level.

<table>
<thead>
<tr>
<th>Year</th>
<th>Educational Level</th>
<th>Educational Level</th>
<th>Job tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job</td>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>.066</td>
</tr>
<tr>
<td>Tenure</td>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.154</td>
</tr>
<tr>
<td>(mo.)</td>
<td>N</td>
<td>471</td>
<td>464</td>
</tr>
<tr>
<td>Educ.</td>
<td>Pearson Correlation</td>
<td>.066</td>
<td>1</td>
</tr>
<tr>
<td>Level</td>
<td>Sig. (2-tailed)</td>
<td>.154</td>
<td>.</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>464</td>
<td>1302</td>
</tr>
</tbody>
</table>

Table 19: Correlation between educational level and job tenure in months by year for working Ohioans with disabilities aged 16-64.
Research Question 12: Is there a relationship between level of education and level of job satisfaction for Ohioans with disabilities

In this analysis, the nonparametric correlations of Kendall’s tau and Spearman’s rho were used, as job satisfaction as measured on a 5-point Likert scale is more ordinal than interval data. No significant correlation between education level and level of job satisfaction was found either on Kendall’s tau or on Spearman’s rho.
Table 20: Correlation between educational level and Job Satisfaction for working Ohioans with disabilities aged 16-64, in 2002.
Research Question 13: Will reported 2002 salary levels of working Ohioans with disabilities aged 16-64 who use assistive technology be significantly different than the reported 2002 salary levels of working Ohioans with disabilities aged 16-64 who do not use assistive technology?

The reported salary of working Ohioans with disabilities who use assistive technology was $27,157.54, while the salary for working Ohioans with disabilities who did not use assistive technology was $25,831.67. This difference, however, was not statistically significant ($r > .569$).
Table 21: Mean salaries of working Ohioans with disabilities aged 16-64 in 2002 by use of assistive technology.

Research Question 14: What demographic variables of working Ohioans with disabilities aged 16-64 predict level of personal salary in 2002?

Linear regression demonstrated the factors that loaded for prediction of personal salary were gender, the level of education, tenure (in months) on the job, and presence of multiple disabilities.
Note: Dependent variable is reported salary.

Table 22: Regression coefficients for reported salary for working Ohioans with disabilities aged 16-64 in 2002

<table>
<thead>
<tr>
<th></th>
<th>Unstand Coef</th>
<th>Stand Coef</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-7228.67</td>
<td>17811.36</td>
<td>-.406</td>
<td>.685</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>5797.11</td>
<td>2107.70</td>
<td>.129</td>
<td>2.75</td>
<td>.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Sat.</td>
<td>-1120.99</td>
<td>843.64</td>
<td>-.064</td>
<td>1.329</td>
<td>.185</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td>2010.25</td>
<td>467.36</td>
<td>.201</td>
<td>4.301</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure (months)</td>
<td>75.41</td>
<td>11.26</td>
<td>.351</td>
<td>6.699</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>125.13</td>
<td>92.90</td>
<td>.072</td>
<td>1.347</td>
<td>.179</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mult. Dis.</td>
<td>-4896.09</td>
<td>2134.53</td>
<td>-.109</td>
<td>2.294</td>
<td>.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assist. Tech</td>
<td>-1323.69</td>
<td>2154.08</td>
<td>-.029</td>
<td>-.615</td>
<td>.539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race - other</td>
<td>-6482.25</td>
<td>13036.49</td>
<td>-.060</td>
<td>-.497</td>
<td>.619</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race - Afr-Am</td>
<td>2689.046</td>
<td>12768.96</td>
<td>.031</td>
<td>.211</td>
<td>.833</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race - Cauc</td>
<td>-2851.71</td>
<td>12199.40</td>
<td>-.042</td>
<td>-.234</td>
<td>.815</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe Dis.</td>
<td>3901.69</td>
<td>10406.67</td>
<td>.062</td>
<td>.375</td>
<td>.708</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate Dis.</td>
<td>1811.53</td>
<td>10157.60</td>
<td>.041</td>
<td>.178</td>
<td>.859</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild Dis.</td>
<td>-3010.12</td>
<td>10205.38</td>
<td>-.064</td>
<td>.295</td>
<td>.768</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>638.06</td>
<td>2876.69</td>
<td>.012</td>
<td>.222</td>
<td>.825</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southwest</td>
<td>3702.83</td>
<td>2842.30</td>
<td>.072</td>
<td>1.303</td>
<td>.193</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northwest</td>
<td>1852.57</td>
<td>2921.48</td>
<td>.034</td>
<td>.634</td>
<td>.526</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Sum of Squares</td>
<td>df</td>
<td>Mean sq.</td>
<td>F</td>
<td>Sig.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>----</td>
<td>----------</td>
<td>-------</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Between Subject</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>4.90E+10</td>
<td>16</td>
<td>3061415816</td>
<td>7.791</td>
<td>.000a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>1.37#+11</td>
<td>358</td>
<td>384070212</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.86E+11</td>
<td>374</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 23: Analysis of variance predictor variables for reported salary for working Ohioans with disabilities aged 16-64, in 2002
Table 24: Multiple regression model summary, reported salary, working Ohioans with disabilities aged 16-64 in 2002.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>Adjusted R Square</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.513</td>
<td>.263</td>
<td>.230</td>
</tr>
</tbody>
</table>

Research Question 15: What demographic variables of working Ohioans with disabilities aged 16-64 predicted level of personal salary in 1994?

Regression analysis showed that the variables of working Ohioans with disabilities aged 16-64 that predicted level of personal salary in 1994 were: gender, length of job tenure, level of education, and level of job satisfaction.
<table>
<thead>
<tr>
<th></th>
<th>Unstand Coef</th>
<th>Stand Coef</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Constant</td>
<td>-10392.84</td>
<td>20189.89</td>
</tr>
<tr>
<td>Gender</td>
<td>-6281.31</td>
<td>1731.40</td>
</tr>
<tr>
<td>Race- Afr.Am.</td>
<td>-9650.63</td>
<td>19949.84</td>
</tr>
<tr>
<td>Race - other</td>
<td>10026.64</td>
<td>19475.67</td>
</tr>
<tr>
<td>Severe Dis.</td>
<td>2850.02</td>
<td>3806.32</td>
</tr>
<tr>
<td>Moderate Dis.</td>
<td>3267.95</td>
<td>3584.19</td>
</tr>
<tr>
<td>Mild Dis.</td>
<td>1567.63</td>
<td>3856.25</td>
</tr>
<tr>
<td>Tenure (months)</td>
<td>48.155</td>
<td>8.176</td>
</tr>
<tr>
<td>Education</td>
<td>1967.58</td>
<td>303.19</td>
</tr>
<tr>
<td>Job Satis.</td>
<td>-2680.89</td>
<td>661.11</td>
</tr>
</tbody>
</table>

Table 25: Regression coefficients for reported salary appreciated to 2002 dollars for working Ohioans with disabilities aged 16-64 in 1994
<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean sq.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2.55E+10</td>
<td>9</td>
<td>2834214242</td>
<td>13.04</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>6.60E+10</td>
<td>304</td>
<td>217384281</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9.15E+10</td>
<td>313</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 26: Analysis of variance predictor variables for reported salary for working Ohioans with disabilities aged 16-64 in 1994
<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>Adjusted R Square</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.528</td>
<td>.279</td>
<td>.257</td>
</tr>
</tbody>
</table>

Table 27: Multiple regression model summary for personal salary, working Ohioans with disabilities in 1994.
Research Question 16: How do cases cluster, looking at characteristics of groups that are more likely to be employed versus not employed?

The cluster analysis performed by SPSS categorized the 1,328 cases into four distinct clusters. The variables included in the cluster analysis were the following: age, race, household income, level of education, gender, use of assistive technology, severity of disability, presence of multiple disabilities, and employment. A summary table of the four clusters is included below:
<table>
<thead>
<tr>
<th>Variables</th>
<th>Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>148</td>
</tr>
<tr>
<td>Age</td>
<td>43.8</td>
</tr>
<tr>
<td>Education</td>
<td>12.1</td>
</tr>
<tr>
<td>HH Income</td>
<td>24558</td>
</tr>
<tr>
<td>Severity of</td>
<td></td>
</tr>
<tr>
<td>Disability</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>21</td>
</tr>
<tr>
<td>Moderate</td>
<td>73</td>
</tr>
<tr>
<td>Severe</td>
<td>54</td>
</tr>
<tr>
<td>Region of</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>49</td>
</tr>
<tr>
<td>Southeast</td>
<td>27</td>
</tr>
<tr>
<td>Southwest</td>
<td>51</td>
</tr>
<tr>
<td>Northwest</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 28: Cluster analysis summary of 2002 dataset on various demographic variables (continued on next page).
Table 28 continued

<table>
<thead>
<tr>
<th>Cluster</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Af-Amer.</td>
<td>120</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Caucasian</td>
<td>0</td>
<td>355</td>
<td>222</td>
<td>379</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
<td>0</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Assistive Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>99</td>
<td>219</td>
<td>146</td>
<td>211</td>
</tr>
<tr>
<td>Male</td>
<td>49</td>
<td>136</td>
<td>85</td>
<td>176</td>
</tr>
<tr>
<td>Emp rate</td>
<td>30.41%</td>
<td>0.00%</td>
<td>0.01%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 28: Cluster analysis summary of 2002 dataset on various demographic variables
Summary

Statistical analyses showed that on certain employment and education constructs, there has been an improvement for people with disabilities in the eight years since this study was originally conducted. T-tests, which measure the statistical significant differences of means between independent samples, showed that there is a positive difference in the employment and educational situations for Ohioans with disabilities aged 16-64 since 1994.

Employment for people with disabilities has risen from 28.7% to 35.9% in eight years. The education level has improved by nearly half of one grade, from just below high school to just above high school level. The presence of health insurance and other benefits for those with disabilities who are working has significantly improved. There continues to be a positive significant correlation between level of education and such constructs as employment rate, salary level, and the presence of health insurance and other benefits.
CHAPTER 5

DISCUSSION

The field of rehabilitation counseling is predicated upon the assertion that people with disabilities have the capacity as well as the obligation to engage in sustained, remunerative employment and contribute to the American society as, among other things, workers. To that end, the state-federal vocational rehabilitation program was founded by statute, giving rise to the profession of rehabilitation counseling, for the primary purpose of increasing and reaching the full vocational potential of people with disabilities. The state-federal vocational rehabilitation system has worked toward this goal since the inception of the Vocational Rehabilitation Act of 1973.

Since that time, a multitude of laws have been enacted to assist both people with disabilities and professionals given the charge of assisting them, in their search for employment. These laws, chief among them the Americans with...
Disabilities Act, have been crafted, passed, and enacted with the purpose of promoting and increasing the employment of people with disabilities.

The intent of this study was to provide the state of Ohio with valuable information regarding the current status of people with disabilities in regards to employment, educational opportunities, and other factors that constitute full participation in community life. The further intent of this study was to provide a statistical analysis of the changes, if any, which have come to the population of Ohioans with disabilities, aged 16-64 on these very constructs.

Discussion of the findings

Results of this study showed that in regards to education and employment, the situation for Ohioans with disabilities is improving. Employment rate, educational level, salary level, and the presence of health insurance and other benefits have all significantly improved since the study was last conducted in 1994. Other areas, such as
length of job tenure and level of job satisfaction are unchanged since 1994.

The employment rate rose significantly from 1994, from 28.7% to 35.9%. Employment rate in this study, as in most studies of people with disabilities, includes both full-time and part-time employees. It is also important to point out that the percentage of full-time employees (defined as 32 hours or more per week) among the population who works rose from 61.7% to 71.9% by 2002.

The main difference for education was not just the statistically significant increase (from 11.8 to 12.2 years) from 1994 to 2002, but also the percentage of respondents who were high school graduates. By 2002, over 3 out of 4 (75.7%) survey respondents were high school graduates, up from just over 2 of 3 (67.1%) in 1994. This change is significant in that while there is a positive correlation between years of education and other constructs such as salary and employment rate, the variable of education has unique qualities. There are tremendous real-world differences between an 11th and 12th grade education in terms of job opportunities and salary potential. These
differences are more pronounced than the difference between, for example, a 10th and 11th grade education. Therefore, the practical and applied value of increasing the education level over the 12th grade echelon is likely more significant than the normal statistical value of increasing education level four-tenths of one grade.

The same is also true for looking at percentage of people with disabilities who are college graduates. In 1994, 7% of Ohioans with disabilities were college graduates (or above). By 2002, this number had risen to 10.4%. Again, the obtaining of a college degree is a benchmark whose benefits far exceed the additional year of education would show in a correlation analysis.

The lack of significance in the construct of job satisfaction is of interest. It may be that there is a constant level of job satisfaction that does not change, regardless of fluctuations in the employment rate for people with disabilities. Presumably, based on the expanded employment rate, there are more people with disabilities who are working for the first time. Conventional wisdom (and personal experience) shows that the level of job
satisfaction with one’s first job is not necessarily high. It may be that while the level of job satisfaction is rising for those who have been in the work force longer, the influx of new workers with entry-level jobs has resulted in a consistent level on the construct of job satisfaction.

A look at the construct of job tenure shows that there are a higher percentage of new workers. In 2002, 42.1% of workers with disabilities had less than two years’ seniority. In 1994, this number was 33.3%. Additionally, a higher percentage of workers in 2002 had more than ten years’ seniority (29.7% to 26.2%), showing that there are both more new workers and aging workers in 2002 than were present in 1994.

As expected, there was a significant correlation between level of education and salary earned. The strength of the correlation in 2002 (.223) was not as high as in 1994 (.280), but both were significant. Further research could help explain why the correlation was not as high in 2002, when both education and personal salary were significantly improved.
Cluster analysis showed that the 2002 survey clustered into four distinct clusters. The purpose of performing the cluster analysis was to determine the characteristics of groups of people with disabilities who tend to be employed versus those who tend not to be employed. The cluster analysis involved various demographic variables that applied to every participant, such as gender, race, region of the state, level of education, severity of disability, use of assistive technology, and whether or not they were employed. Variables related to actual employment (tenure, job satisfaction, salary) that applied only to the employed were omitted from the analysis.

Cluster 1 is distinguished by several factors, the most notable of which is the near exclusive membership of African-Americans and people of other races. No Caucasians were included in cluster 1. Also significant was the low level of household income. The cluster was fairly evenly distributed on such variables as severity of disability and region of the state. This cluster presented an employment rate 30.41 percent.
Cluster 2 and Cluster 3 are distinguished by the overwhelming presence of those who were not employed. Of the 686 people in the two clusters, only one reported to be working. Both clusters are also primarily Caucasian, with over 96% of Cluster 3 being Caucasian, and with Cluster 2 being exclusively Caucasian. The two clusters do differ in regards to various other variables.

Cluster 2 has the oldest mean age of 47.1 and the second lowest household income ($29,471). It consists primarily of people who are moderately or severely disabled. It also consists exclusively of people who make use of assistive technology in their lives.

Cluster 3, despite having the lowest mean education level (11.8), had the second highest household income. Cluster 3 also has the lowest mean age, 41.0. The cluster is evenly distributed among such things as severity of disability and region of the state. Cluster 3, however, had only one person who made use of assistive technology in their lives.

Cluster 4 has the second lowest mean age (41.1), the highest mean education (12.8 years), and the highest
household income ($46,175). It consists primarily of people who are either mildly or moderately disabled. It is primarily Caucasian (97.9%), and has a relatively high percentage of assistive technology use, 46.3%.

It is not possible, in any accurate way, to directly attribute the change in educational level or employment rate over the eight-year period of time to any specific act, law, or administrative rule. In the past eight years, Ohio legislators have reduced eligibility periods for welfare rolls, thereby undoubtedly forcing previous recipients to seek employment, training, or some other avenue to meet needs. Ohio has increased funding in each budget for the Ohio Rehabilitation Services Commission, leading to an increase in vocational rehabilitation counselors and other professionals in the field of employment for people with disabilities. ORSC itself has placed an increased focus upon partnerships with industry, creating a department solely dedicated to fostering permanent, living relationships between industry and Ohio’s citizens with disabilities. The impact of these actions,
while not in serious question, also cannot be accurately measured.

The analysis of the two samples used in this comparative research yields interesting questions. The purpose of the study was, in part, to determine if there are any significant demographic differences within the disability community since the last time the study was conducted. Simply put, part of the study was to determine if employment rate, salary level and educational level were changed since 1994. All were found to be significantly different in a positive direction. These changes, however, leave researchers with the fact that the two samples were significantly different on essential constructs defining their makeup. A sample that is more highly educated, for example, is likely to offer different information, given the positive correlations that education has with other constructs in the study.

There was an increased difference of .4 of a grade in the two samples, just below high school for 1994, just above for 2002. In 1994, nearly 1 in 3 (32.5%) of the participants had not completed high school, whereas by
2002, that number had dropped to nearly 1 in 4 (24.2%). Also increasing for 2002 was the percentage of respondents who indicated they had received some college, from 16.5% in 1994 to 27.5% in 2002. Also, the percentage of college graduates had increased from 7.0% in 1994 to 10.4% in 2002.

In order to allow for a comparative analysis in this situation, one must take steps to assure that the differences in the population are, to the greatest extent possible, attributable to actual differences rather than through method of sample selection. This concern was addressed through the use of the same method of reaching the sample as was used in 1994, namely telephone contact using the random-digit-dialing technique. This technique makes it equally likely that each working, household-based telephone will be included in the study.

These concerns were also addressed by using a nearly identical screening interview to determine the presence or absence of an appropriate subject for inclusion in the study. In 1994, screening interviews were conducted on 14,144 phone calls. This resulted in actual survey interviews being conducted on 1,720 households. The screening
interview / household interview ration was 8.2:1. In the 2002 study, 11,553 screening interviews were conducted, resulting in 1,328 interviews, a screening interview/actual interview ratio of 8.7:1. The purpose of the screening interview is to insure that appropriate people (i.e., people with disabilities aged 16-64) were participating. The fear, for comparability purposes, would be that the 2002 sample would include more people who would not have been included in the 1994 study, thereby calling positive results (increased employment, for example) into question. In reality, the 2002 study went to greater lengths to accurately screen for people with disabilities, and had a higher caller to participant ratio. It is likely, therefore, that the 2002 study matched or exceeded 1994 study in screening for people with disabilities.
Summary and conclusion

The field of disability research, like other areas of research, is ever changing. From one year to the next, laws, rules, and issues relevant to self-perception and self-identification will change who is included who is excluded in disability studies. The need to study the issue, however, never changes and never ceases. The disability population needs good laws to address their concerns. The disability population needs good programs, targeted and molded to meet their needs in an ever-changing world.

One clear, positive, and essential step toward these aims is good research. The disability population needs follow-up studies to be conducted so that progress - or lack thereof - can be scientifically and authentically measured. Crafting a new definition of disability for each study, based on the short-term needs of the study, does not further the cause of people with disabilities beyond the reach of the study itself.

In this research project, we have conducted a follow-up study that looked at the educational, employment and
assistive technology needs of Ohioans, allowing for comparisons with a study conducted eight years in the past. By doing this, we have been able to show that educational levels have improved, that employment rates have improved, that salary levels have improved for people with disabilities. We have also shown that there is a positive correlation between level of education and such employment constructs as employment rate, salary, and presence of health insurance and other benefits.

By conducting this follow-up study, we have been able to show that progress has been made with the disability population in one state over an eight-year period of time. More Ohioans with disabilities are working now than in 1994. Ohioans with disabilities are better educated now than in 1994, and are earning salaries higher than those earned in 1994. The benefits of these facts to people with disabilities are clear. The benefit of this research to the Ohio Rehabilitation Services Commission, and all other state agencies that provide services to Ohioans with disabilities, will hopefully be as clear for years to come.
APPENDIX A: SURVEY QUESTIONNAIRE

[# diasb2.q: modified to fix the partial completion problem on 10/18/02]

ENTER INPUT VARIABLES FROM SETUP FILE

>reg<[allow 1][loc 9/1][inputloc 1/24][#copy region code 1-4 from setup file]
>rep<[allow 3][loc 9/3][inputloc 1/26][#copy replication code from setup file]

ENTER FILL VARIABLES FOR THE SURVEY HERE

>region<[allow 60][loc 9/11][#fill for regdo]

HOUSEHOLD SCREENER

>scrint<[bold][loc 1/51]
Sometimes people have chronic health conditions or physical, emotional, or learning disabilities or impairments that [green]significantly[n][bold] limit their ability to engage in major life activities such as working, going to school, doing housekeeping, and even caring for themselves.

I'm going to ask you about some different health conditions, impairments, and disabilities. For each one, please tell me if [green]anyone[n][bold] in your household from age 16 to age 64 has that condition. I want to remind you that your identity is completely confidential.

<1> CONTINUE

===>

>s1<[bold]
First, does anyone in your household from age 16 to age 64 have any difficulty walking, sitting, standing, moving around or driving that [green]significantly[n][bold] interferes with their major life activities?

<1> YES
<2> NO
<3> NO ONE IN HOUSEHOLD IS BETWEEN AGE 16 TO AGE 64 (VOLUNTEER)
[goto scrtst]

<8> REFUSED
Does anyone in your household from age 16 to age 64 have a vision impairment or difficulty seeing that significantly interferes with their major life activities?

<1> YES
<2> NO
<3> NO ONE IN HOUSEHOLD IS BETWEEN AGE 16 TO AGE 64 (VOLUNTEER) [goto scrtst]

<8> REFUSED
<9> DON'T KNOW

What about difficulty hearing or speaking that significantly interferes with their major life activities?

[cyan](IF NEEDED: DOES ANYONE IN YOUR HOUSEHOLD FROM AGE 16 TO AGE 64 HAVE THIS CONDITION OR IMPAIRMENT?) [n] [bold]

<1> YES
<2> NO
<3> NO ONE IN HOUSEHOLD IS BETWEEN AGE 16 TO AGE 64 (VOLUNTEER) [goto scrtst]

<8> REFUSED
<9> DON'T KNOW

What about a learning disability or an emotional disorder that significantly interferes with their major life activities?

[cyan](IF NEEDED: DOES ANYONE IN YOUR HOUSEHOLD FROM AGE 16 TO AGE 64 HAVE THIS CONDITION OR IMPAIRMENT?) [n] [bold]

<1> YES
<2> NO
NO ONE IN HOUSEHOLD IS BETWEEN AGE 16 TO AGE 64 (VOLUNTEER)

<8> REFUSED
<9> DON'T KNOW

And last, does anyone in your household from age 16 to age 64 have any other physical, emotional, or learning impairments or health conditions that significantly limit their ability to engage in major life activities?

(IF NEEDED: DOES ANYONE IN YOUR HOUSEHOLD FROM AGE 16 TO AGE 64 HAVE THIS CONDITION OR IMPAIRMENT?)

<1> YES
<2> NO

NO ONE IN HOUSEHOLD IS BETWEEN AGE 16 TO AGE 64 (VOLUNTEER)

<8> REFUSED
<9> DON'T KNOW

THIS HOUSEHOLD IS INELIGIBLE, PLEASE CODE IT AS "49"-Non-eligible Household

CONTINUE

In total, how many people in your household from age 16 to age 64 have at least one of the health conditions, impairments, or disabilities that we just asked about?

THIS INCLUDES AGES 16 AND 64
Ok, but I'd just like to check because you mentioned earlier that there is someone in your household who has chronic health conditions or physical, emotional, or learning disabilities or impairments that significantly limits their ability to engage in major life activities. Did you really mean that there isn't anyone in your household with such conditions or impairments?

[cyan](THIS INCLUDES AGES 16 AND 64)[n][bold]

As part of this study, we are interviewing people in Ohio who have health conditions, impairments, or disabilities that significantly limit their ability to engage in major life activities. The information we collect will be used to plan state programs.

For this part of the study I would like to speak with the person in your household who has one of these conditions. If that person is age 16 or 17, could I speak with an adult?
in the household who could complete an interview for that person? We are not allowed to interview anyone under age 18.

[cyan]<1> RESPONDENT AVAIL NOW, GO TO QUESTIONNAIRE
<2> RESPONDENT NOT AVAIL, SCHEDULE CALLBACK

<3> PROXY AVAIL NOW, GO TO QUESTIONNAIRE
<4> PROXY NOT AVAIL, SCHEDULE CALLBACK

<8> REFUSAL [n][bold]

====>[goto prxa]

>req<As part of this study, we are interviewing people in Ohio who have health conditions, impairments, or disabilities that significantly limit their ability to engage in major life activities. The information we collect will be used to plan state programs.

For this part of the study I would like to speak with the person in your household who has one of these conditions [green]and[n][bold] who most recently had a birthday. If that person is age 16 or 17, could I speak with an adult in the household who could complete an interview for that person? We are not allowed to interview anyone under age 18.

[cyan]<1> RESPONDENT AVAIL NOW, GO TO QUESTIONNAIRE
<2> RESPONDENT NOT AVAIL, SCHEDULE CALLBACK

<3> PROXY AVAIL NOW, GO TO QUESTIONNAIRE
<4> PROXY NOT AVAIL, SCHEDULE CALLBACK

<8> REFUSAL [n][bold]

====>[goto prxb]

>prx<As part of this study, we are interviewing people in Ohio who have health conditions, impairments, or disabilities that significantly limit their ability to engage in major life activities. The information we collect will be used to plan state programs.

For this part of the study I would like to speak with the person in your household who has one of these conditions [green]and[n][bold] who most recently had a birthday. If that person is age 16 or 17, could I speak with an adult in the household who could complete an interview for that person? We are not allowed to interview anyone under age 18.

[cyan]<1> RESPONDENT AVAIL NOW, GO TO QUESTIONNAIRE
<2> RESPONDENT NOT AVAIL, SCHEDULE CALLBACK

<3> PROXY AVAIL NOW, GO TO QUESTIONNAIRE
<4> PROXY NOT AVAIL, SCHEDULE CALLBACK

<8> REFUSAL [n][bold]

====>[goto prxa]

>prxa<As part of this study, we are interviewing people in Ohio who have health conditions, impairments, or disabilities that significantly limit their ability to engage in major life activities. The information we collect will be used to plan state programs.

For this part of the study I would like to speak with the person in your household who has one of these conditions [green]and[n][bold] who most recently had a birthday. If that person is age 16 or 17, could I speak with an adult in the household who could complete an interview for that person? We are not allowed to interview anyone under age 18.

[cyan]<1> RESPONDENT AVAIL NOW, GO TO QUESTIONNAIRE
<2> RESPONDENT NOT AVAIL, SCHEDULE CALLBACK

<3> PROXY AVAIL NOW, GO TO QUESTIONNAIRE
<4> PROXY NOT AVAIL, SCHEDULE CALLBACK

<8> REFUSAL [n][bold]

====>[goto prxb]
 Just so we don't get confused, could you give me the first name of the person this interview is about?

INTERVIEWER: YOU MUST TYPE "SK CB" TO SCHEDULE A CALL BACK.

If refused, enter "this person".

Enter name [allow 60]@a

[q8a][loc 1/67][bold]
We'd like to know a little bit about the nature of [if prx eq <1>]your[else][if prx eq <2>][fill name@a]'s[endif all] health condition, impairment, or disability and how it affects [if prx eq <1>]you[else][if prx eq <2>][fill name@a][endif all].

First, [if prx eq <1>]do you[else][if prx eq <2>]does [fill name@a][endif all] have any vision impairments, conditions, or disabilities that significantly interfere with major life activities?

  <1> YES (SPECIFY) [specify]
  <2> NO [goto q8b]
  <8> REFUSED [goto q8b]
  <9> DON'T KNOW [goto q8b]

  ===>

  >q8b<[bold]
  What about any hearing or speech problems or conditions that significantly interfere with major life activities?

  <1> YES (SPECIFY) [specify]
  <2> NO [goto q8c]
  <8> REFUSED [goto q8c]
  <9> DON'T KNOW [goto q8c]

  ===>

  >q8c<[bold]
  What about any problems or conditions that significantly interfere with [if prx eq <1>]your[else][if prx eq <2>][fill name@a]'s[endif all] physical activities or the ability to move or get around?

  <1> YES (SPECIFY) [specify]
  <2> NO [goto q8d]
  <8> REFUSED [goto q8d]
  <9> DON'T KNOW [goto q8d]

  ===>

  >q8d<[bold]
  What about any learning problems or mental or emotional conditions that significantly interfere with major life activities?

  <1> YES (SPECIFY) [specify]
  <2> NO

  177
<8> REFUSED
<9> DON'T KNOW

===>

>q8e< [bold]
[if prx eq <1>]Do you[else][if prx eq <2>]Does [fill name@a][endif all]
have any conditions or disabilities that we have not asked about and
that significantly interfere with major life activities?

<1> YES (SPECIFY)[specify]
<2> NO

<8> REFUSED
<9> DON'T KNOW

===>

>q9< [bold]
Thinking about major life activities, how limiting is [if prx eq <1>]your[else][if prx eq <2>][fill name@a]'s [endif all] condition?
Would you say . . .

<1> severely limiting,
<2> moderately limiting, or
<3> mildly limiting?

<8> REFUSED
<9> DON'T KNOW

===>

>q10< [bold]
Assistive technologies are devices or services that people can use to
deal with disabilities, impairments, and chronic health conditions and
help them in daily life, school, or work.

[cyan](IF NEEDED: These are items you use to deal with an impairment or
a disability. It might be something as simple as a pen that is easy to
hold, or as complex as a special computer system.[n][bold]

Overall, how much information and advice [if prx eq <1>]have
you[else][if prx eq <2>]has [fill name@a][endif all] received about
assistive technologies? Would you say . . .

<1> none,
<2> a little,
<3> some, or
Overall, how much information and advice [if prx eq <1>] have you[else][if prx eq <2>] has [fill name@a][endif all] received about [green] how to obtain[n][bold] assistive technology devices and services? Would you say . . .

<1> none,
<2> a little,
<3> some, or
<4> a lot?

<8> REFUSED
<9> DON'T KNOW

---

>q11<<[bold]
Do you[else][if prx eq <2>] Does [fill name@a][endif all] use . . .

[cyan](READ LIST) [n][bold]
[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW) [n][bold]

a. Braille @a
b. Guide dog or other service animal @b
l. Other vision aids or ways of dealing with vision impairment (SPECIFY) @l

---

>q12askp<
[if q8a eq <1>][goto q12a][else][goto q12bskp][endif all]

>q12a<<[bold]
Do you[else][if prx eq <2>] Does [fill name@a][endif all] use . . .

[cyan](READ LIST) [n][bold]
[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW) [n][bold]

---

>q12bskp<
[if q8b eq <1>][goto q12b][else][goto q12cskp][endif all]

>q12b<<[bold]
Do you[else][if prx eq <2>] Does [fill name@a][endif all] use . . .

[cyan](READ LIST) [n][bold]
[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW) [n][bold]
d. Sign language interpreter

e. Speech communications device

f. Hearing aid or other hearing devices

l. Other ways of dealing with a hearing or speech impairment (SPECIFY)

====>

>q12cskp<
[if q8c eq <1>][goto q12c][else][goto q12dskp][endif all]

>q12c<<[bold]
[if prx eq <1>]Do you [else][if prx eq <2>]Does [fill name@a] [endif all]use . . .

[cyan](READ LIST)[n][bold]
[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW)[n][bold]

h. Manual wheelchair

i. Motorized wheelchair

j. Walker / crutches / cane

k. Artificial limb

l. Adaptive driving equipment

m. Attendant services

n. Other ways of dealing with this problem (SPECIFY)

====>

>q12dskp<
[if q8d eq <1> or q8e eq <1>][goto q12d][else][goto q13][endif all]

>q12d<<[bold]
[if prx eq <1>]Do you [else][if prx eq <2>]Does [fill name@a] [endif all]use any kind of assistive devices or special services to deal with a health condition, impairment, or disability?

    <1> YES (SPECIFY)[specify]
    <2> NO
    <8> REFUSED
    <9> DON'T KNOW

====>

>q13<<[bold]
Are there any assistive devices, equipment or services that [if prx eq <1>]you need[else][if prx eq <2>][fill name@a] needs[endif all] but cannot afford or get funding for?

<1> YES
<2> NO   [goto q15]
<8> REFUSED   [goto q15]
<9> DON'T KNOW   [goto q15]

====>

?q14<bold>
What types of devices, equipment, or services would this include?

<1> SPECIFY [specify]
<8> REFUSED
<9> DON'T KNOW

=====

?q15<bold>
[if prx eq <1>]Do you[else][if prx eq <2>]Does [fill name@a][endif all] own a computer?

[cyan](THIS CAN BE A HOUSEHOLD COMPUTER)[n][bold]

<1> YES
<2> NO
<8> REFUSED
<9> DON'T KNOW

====>

?q16<bold>
[if prx eq <1>]Do you[else][if prx eq <2>]Does [fill name@a][endif all] have access to the Internet?

[cyan](THIS CAN BE AT HOME OR ELSEWHERE, SUCH AS WORK)[n][bold]

<1> YES
<2> NO
<8> REFUSED
<9> DON'T KNOW

====>

?q17<bold>
Overall, how much has [if prx eq <1>] your [else] [if prx eq <2>] [fill name@a]'s [endif all] use of assistive technology decreased the need for help from another person? Would you say . . .

1> none, 
2> a little, 
3> some, or 
4> a lot?

7> DON'T USE ASSISTIVE TECHNOLOGY (VOL)

8> REFUSED

9> DON'T KNOW

===>

q18<[bold]
Which of the following best describes [if prx eq <1>] your [else] [if prx eq <2>] [fill name@a]'s [endif all] [green] current [n][bold] employment status?

[cyan]READ LIST [n][bold]

1) Currently employed full-time, 
2) Currently employed part-time, 
3) Currently [green]un [n][bold] employed, 
   but have been employed in the past 
4) Never been employed, 
5) a student, 
6) a homemaker, 
7) retired, or 
8) something else? (SPECIFY)

9) REFUSED/DON'T KNOW/ FINISHED

emp1 @a    emp2 @b    emp3 @c    emp4 @d

===>

>empsrt1<

[if q18@a eq <1> or q18@a eq <2>][goto q19][else]
[if q18@a eq <1> or q18@b eq <2>][goto q19][else]
[if q18@c eq <1> or q18@c eq <2>][goto q19][else]
[if q18@d eq <1> or q18@d eq <2>][goto q19][else]
[endif all]

>empsrt2<

[if q18@a eq <3>][goto q19p][else]
What kind of business is this? What does this company do or make?

1 SPECIFY [specify]
8 REFUSED
9 DON'T KNOW

When did you start this job?

JAN = 01 APR = 04 JUL = 07 OCT = 10
FEB = 02 MAY = 05 AUG = 08 NOV = 11
MAR = 03 JUN = 06 SEP = 09 DEC = 12
REF/DK = 99

MONTH: @a
YEAR: @b

On average, how many hours per week do you work on this job, including overtime?

# of hours per week <0-87>
<88> REFUSED
<99> DON'T KNOW

==>

>q23<bold>[allow float 5.2][define <o> <777>][define <r> <888>][define
<u> <999>][bold]

About how much do [if prx eq <1>]you[else][if prx eq <2>]does [fill
name@a][endif all] earn [green]per hour[n][bold]
before taxes, including tips?

$ <0.00-100.00> PER HOUR

[cyan](IF THE RESPONDENT GIVES SOME ELSE, SUCH AS "$400 PER WEEK",
PLEASE ENTER "o" for "OTHER AND ENTER THE RESPONSE)\n[n][bold]

<o> OTHER (SPECIFY)[specify]

<r> REFUSED
<u> DON'T KNOW

==>

>q24a<bold]

Does [if prx eq <1>]your[else][if prx eq <2>]\[fill name@a]'s[endif all]
employer make available any of the following benefits:

[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T
KNOW)\n[n][bold]

   a. Health, medical insurance \@a
   b. Dental benefits \@b
   c. Sick time with pay \@c
   d. Paid vacation \@d
   e. Maternity/paternity leave \@e
   f. Childcare \@f
   g. A retirement or pension plan \@g
   h. Life insurance \@h
   i. Other benefits (SPECIFY) \@i

>q24b<bold]

Overall, how satisfied [if prx eq <1>]are you [else][if prx eq <2>]is
[fill name@a][endif all] with this job?
Would you say . . .

<1> very satisfied,
<2> somewhat satisfied,
<3> neither satisfied nor dissatisfied,
<4> somewhat dissatisfied, or
<5> very dissatisfied?

<8> REFUSED
<9> DON'T KNOW

===>

>q24c<

[if prx eq <1>]Have you[else][if prx eq <2>]Has [fill name@a][endif all] ever changed jobs or left a job because of a health condition, impairment or disability?

<1> YES
<2> NO

<8> REFUSED
<9> DON'T KNOW

===>[goto q31]

[# past/not current employment sequence]

>q19p<
Thinking about the [green]last[n][bold] job that [if prx eq <1>]you[else][if prx eq <2>][fill name@a][endif all] held, what kind of business was this? What did they do or make?

<1> SPECIFY [specify]

<8> REFUSED
<9> DON'T KNOW

===>

>q20p<

What did [if prx eq <1>]you[else][if prx eq <2>][fill name@a][endif all] do at that job?

<1> SPECIFY [specify]

<8> REFUSED
<9> DON'T KNOW
When did [if prx eq <1>]you[else][if prx eq <2>][fill name@a] [endif all] start that job?

[cyan]JAN = 01    APR = 04    JUL= 07    OCT = 10    REF/DK = 99
FEB = 02    MAY = 05    AUG = 08    NOV = 11
MAR = 03    JUN = 06    SEP = 09    DEC = 12 [n][bold]

MONTH: @a

YEAR: @b [cyan](REF/DK = 9999)[n][bold]

[@a] <01-12> <99>
[@b] <1900-2002><9999>

On average, how many hours per week did [if prx eq <1>]you [else][if prx eq <2>][fill name@a] [endif all] work on that job, including overtime?

# of hours per week <0-87>

<88> REFUSED

<99> DON’T KNOW
About how much did [if prx eq <1>]you[else][if prx eq <2>][fill name@a][endif all] earn [green]per hour[n][bold] before taxes, including tips?

$<$0.00-100.00> PER HOUR

[cyan](IF THE RESPONDENT GIVES SOME ELSE, SUCH AS "$400 PER WEEK", PLEASE ENTER "o" for "OTHER" AND ENTER THE RESPONSE)[n][bold]

{o} OTHER (SPECIFY)[specify]

{r} REFUSED

{u} DON'T KNOW

---

Did [if prx eq <1>]your[else][if prx eq <2>][fill name@a]'s[endif all] employer make available any of the following benefits:

[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW)[n][bold]

a. Health, medical insurance @a
b. Dental benefits @b
c. Sick time with pay @c
d. Paid vacation @d
e. Maternity/paternity leave @e
f. Childcare @f
g. A retirement or pension plan @g
h. Life insurance @h
i. Other benefits (SPECIFY) @i

---

Overall, how satisfied [if prx eq <1>]were you[else][if prx eq <2>][fill name@a][endif all] with that job? Would you say . . .

<1> very satisfied,
<2> somewhat satisfied,
<3> neither satisfied nor dissatisfied,
<4> somewhat dissatisfied, or
<5> very dissatisfied?

<8> REFUSED

<9> DON'T KNOW
Did you have a significant disability, impairment or health condition when last worked at that job?

1. YES
2. NO
8. REFUSED
9. DON'T KNOW

What was the reason left last job?

[DO NOT READ LIST]

1. QUIT
2. LAID OFF FIRED
3. THE JOB ENDED
4. WORK-RELATED DISABILITY
5. NON-WORK RELATED DISABILITY
6. INDUSTRIAL ACCIDENT
7. RETIRED
8. OTHER (SPECIFY)

88. REFUSED
99. DON'T KNOW

Have you ever changed jobs or left a job because of a health condition, impairment or disability?

1. YES
2. NO
8. REFUSED
9. DON'T KNOW
>q28p<bold>
When did [if prx eq <1>]you[else][if prx eq <2>][fill name@a] [endif all] last work at that job?
[cyan]JAN = 01       APR = 04       JUL= 07       OCT = 10
REF/DK = 99
FEB = 02      MAY = 05       AUG = 08       NOV = 11
MAR = 03      JUN = 06       SEP = 09       DEC = 12 [n][bold]
MONTH: @a
YEAR: @b [cyan](REF/DK = 9999)[n][bold]

===>

>q29<bold>
Now I'm going to read you a list of statements about different employment situations. If [if prx eq <1>]you were[else][if prx eq <2>][fill name@a] was[endif all] looking for work, please tell me which, if any, of the following statements would apply to [if prx eq <1>]you[else][if prx eq <2>][fill name@a][endif all]?
[cyan](READ LIST) (ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW) (IF RESPONDENTS INSIST THEY ARE NOT LOOKING FOR/WILL NOT LOOK FOR WORK, ENTER 5)[n][bold]

a. No work available in the field that I have experience or training in @a
b. Need affordable, convenient, or accessible transportation to and from work @b
c. Need affordable, physically accessible housing near work @c
d. Need to find a physically accessible job site @d
e. Need to find a workplace with policies, such as flex-time, to accommodate my needs @e
f. Need child care help or help with other family responsibilities @f
g. Need reader's service for the blind during working hours @g
h. Need a sign language interpreter during working hours @h
i. Need attendant care during working hours @i
j. Need special equipment / assistive devices to perform job @j
k. Because of disability or health problems, employers will not recognize my ability to handle a job @k
l. Need additional job training to perform the job @l
m. Need additional education to perform the job @m
n. Need another service or assistance to be employed or
Now I'm going to read a list of services that are available to people who are looking or who may look for work.

As I read each one, please tell me whether or not [if prx eq <1>]you need#else[[if prx eq <2>]fill name@a] needs[endif all] this type of service.  [if prx eq <1>]Do you[else[[if prx eq <2>]Does [fill name@a] need...[endif all]

[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW) [n]

a. Job training @a
b. Job counseling services @b
c. Job search assistance @c
d. Job listings @d
e. Referral to job openings @e
f. Job development services @f
g. Job site adaptation @g
h. Job site support services @h
i. Other vocational rehabilitation services (SPECIFY) @i

===>

I'm going to mention some different programs that many people are in or payments they receive. As I read each item, please tell me whether or not [if prx eq <1>]you currently receive#else[[if prx eq <2>]fill name@a] currently receives[endif all] this benefit or payment.

[cyan](ENTER 1 FOR YES, 2 FOR NO, 8 FOR REFUSED, OR 9 FOR DON'T KNOW) [n]

a. Unemployment insurance @a
b. Workers' compensation @b
c. Supplemental Security Income (SSI) @c
d. Social Security Disability (SSDI) @d
e. Veterans' benefits @e
f. Other disability insurance @f
g. Public assistance @g
h. Membership in an HMO @h
i. Membership in a PPO @i
j. Other private health insurance coverage @j
k. Retirement Pension Plan @k
l. Medicaid @l
m. Medicare @m
n. Supported Employment
o. Extended Support Services
p. Job Coaching
q. Attendant care at the work site
r. Other (SPECIFY)

>>>>

>q32< [bold] Now I would like to ask some questions about [if prx eq <1>] your [else] [if prx eq <2>] [fill name@a]'s [endif all] education and training. What is the highest level of school [if prx eq <1>] you have [else] [if prx eq <2>] [fill name@a] has [endif all] completed?

<1> <2> <3> <4> <5> <6> <7> <8> ELEMENTARY SCHOOL
<9> <10> <11> <12> HIGH SCHOOL
<13> SOME COLLEGE
<14> ASSOCIATES CERTIFICATE/2 YEAR PROGRAM
<15> BACHELOR'S DEGREE
<16> SOME GRADUATE SCHOOL
<17> MASTER'S DEGREE
<18> DOCTORATE/ADVANCED DEGREE

<88> REFUSED
<99> DON'T KNOW

>>>>

>q33skp<

[if q32 lt <12>] [goto q33]
[else] [goto q34]
[endif]

>q33< [bold] [if prx eq <1>] Do you [else] [if prx eq <2>] Does [fill name@a] [endif all] have a GED?

<1> YES
<2> NO

<8> REFUSED
<9> DON'T KNOW

>>>>

>q34< [bold]
Have you ever received instruction as a special education student?

- YES
- NO
- REFUSED
- DON'T KNOW

What is the highest degree or certificate you have received?

- NONE/STILL IN SCHOOL
- HIGH SCHOOL ATTENDANCE CERTIFICATE
- HIGH SCHOOL DIPLOMA OR GED
- VOCATIONAL/TECHNICAL DEGREE/CERTIFICATE
- JUNIOR COLLEGE DEGREE (ASSOCIATE'S DEGREE)
- BACHELOR'S DEGREE
- GRADUATE/PROFESSIONAL DEGREE
- REFUSED
- DON'T KNOW

Are you currently attending any school or training program?

- YES
- NO
- REFUSED
- DON'T KNOW

What kind of school or training program is that?

- SPECIFY
- REFUSED
- DON'T KNOW

192
How many adults, 16 years or older, live in your household most of the year?

[INTERVIEWER--PLEASE NOTE THIS IS AGE 16 AND OLDER]

# OF ADULTS IN HOUSEHOLD <1-50>

REFUSED

Which of the following best describes [your] current living arrangements?

(READ LIST)

1. Living as part of a couple with or without children,
2. A single parent,
3. Living with parents or other relatives,
4. Living with roommates,
5. Living alone, or
6. Some other living arrangement? (Specify)

REFUSED

DON'T KNOW

Have you [Has] remodeled or made adaptations to [your] residence to meet any special physical needs?

(IF NEEDED: For example, widening doorways for a wheelchair or installing special doorknobs that are easy to grip.)

YES

NO

REFUSED

DON'T KNOW
In what year [if prx eq <1>] were you [else] [if prx eq <2>] was [fill name@a] [endif all] born?

<1880-1986>

<8888> REFUSED

And, what race or races [if prx eq <1>] do you consider yourself? [endif] [if prx eq <2>] is [fill name@a]? [endif]

(Please, do ***NOT*** read categories, but please record ***ALL*** answers given)

1) ALASKAN NATIVE
2) AMERICAN INDIAN/NATIVE AMERICAN
3) ASIAN
41) AFRICAN AMERICAN
42) BLACK
5) HISPANIC/LATINO/LATINA/CHICANO/CHICANA
6) PACIFIC ISLANDER
7) WHITE/CAUCASIAN
0) OTHER [cyan] (specify) [n]
88) REFUSED/DK
99) FINISHED, NO OTHER ANSWER GIVEN

race1 @a race2 @b race3 @c race4 @d

What county do you live in?

<1> Adams <37> Darke <73> Hocking <109> Miami <145> Scioto
<3> Allen <39> Defiance <75> Holmes <111> Monroe <147> Seneca
<5> Ashland <41> Delaware <77> Huron <113> Montgomery<149> Shelby
<7> Ashtabula <43> Erie <79> Jackson <115> Morgan <151> Stark
<9> Athens <45> Fairfield <81> Jefferson <117> Morrow <153> Summit
<11> Auglaize <47> Fayette <83> Knox <119> Muskingum <155> Trumbull
<13> Belmont <49> Franklin <85> Lake <121> Noble <157> Tuscarawas
And, approximately what was your total household income from all sources, before taxes for 2001?

# OF TOTAL HOUSEHOLD INCOME <0-8888887>

<r> REFUSED [goto d22c]

<u> UNCERTAIN [goto d22c]

Well, then, would you please tell me if it was...

[cyan](CONTINUE ON LADDER UNTIL "NO")[n][bold]

<0> more than $10,000? NO
<1> more than $20,000? NO
<2> more than $30,000? NO
<3> more than $40,000? NO
<4> more than $50,000? NO
How many different telephone numbers do you have in your home?

(IF MORE THAN "1" VERIFY: "That means you have __ different telephone numbers at home?")

# TELEPHONE NUMBERS IN HOME <1-20>

<88> REFUSED

===>

>gender<

<0> FEMALE
<1> MALE

===>

Region
REFERENCES


