THE EMPLOYMENT OF INDIVIDUALS WITH AUTISM SPECTRUM DISORDER IN THE STATE OF ALABAMA

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THE EMPLOYMENT OF INDIVIDUALS WITH AUTISM SPECTRUM DISORDER IN THE STATE OF ALABAMA

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THE EMPLOYMENT OF INDIVIDUALS WITH AUTISM SPECTRUM DISORDER IN THE STATE OF ALABAMA

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Jennifer Sellers, daughter of Maggie and Ellis Geist, was born December 10, 1966. She attended public schools in Tuscaloosa, Alabama, and graduated from Tuscaloosa County High School in 1985. She received her Bachelor of Arts degree in History from Auburn University at Montgomery in 1998. In 2003, she completed her Master's Degree in K-12 Collaborative Education at Auburn University at Montgomery. For three years, she taught students with special needs at Robert E. Lee High School in Montgomery, Alabama. In 2004, she began her doctoral work in the Department of Rehabilitation and Special Education with an emphasis on Transition and Autism Spectrum Disorder.

DISSERTATION ABSTRACT

THE EMPLOYMENT OF INDIVIDUALS WITH AUTISM SPECTRUM DISORDER IN THE STATE OF ALABAMA

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This study is an examination of possible predictor variables for employment of individuals diagnosed with Autism Spectrum Disorder in Alabama. A logistic regression was used to analyze the following variables as possible predictors of employment: money spent by Vocational Rehabilitation Services (VRS) on clients, client location (i.e., rural v. urban), referral source, family income, and ethnicity.

The Alabama Department Of Rehabilitation Services has collected and stored data on individuals diagnosed with Autism Spectrum Disorder since 1991. A total of 361 individuals diagnosed with Autism Spectrum Disorder applied for VRS services between March 1991 and September 2006. The sample of the present study is comprised of all 361 individuals.

Of the 361 individuals diagnosed with Autism and who applied for VRS, 68 individuals gained employment between March 1991 and September 2006. The results of the logistic regression analysis indicate that the source of referral to the Alabama Department of Rehabilitation Services is a predictor of employment. Individuals with ASD who were referred by a source other than an educational source were twice as likely to gain employment. No other variables included in the study were found to be predictors of employment.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

Research supports the fact that individuals with disabilities are less likely to gain employment than their typical peers (Blackorby & Wagner, 1996; Cameto, Marder, Wagner, & Cardoso, 2003). The second National Longitudinal Transition Study ([NLTS-2]; Cameto, Marder, Wagner, & Cardoso, 2005) documented that only 15% of individuals diagnosed with Autism Spectrum Disorder (ASD) gain employment, while 85% do not.

One method to examine the employment of individuals diagnosed with ASD in the state of Alabama is to retrieve data from the database of the State Department of Vocational Rehabilitative Services. Due to the small percentage of individuals diagnosed with ASD gaining employment, researchers should focus on what factors might predict employment for this population. Evaluating different factors relative to those individuals who have gained employment could lead to a possible increase in the percentage of individuals diagnosed with ASD who gain employment in Alabama and, subsequently, in other states.

Relevance of the Problem

A problem that adolescents and adults diagnosed with Autism Spectrum Disorder (ASD) face is high unemployment. Individuals with disabilities are less likely to gain employment than their typical peers (Blackorby & Wagner, 1996); but, more importantly, only 15% of all individuals with ASD gain employment (Cameto et al., 2003). If current trends continue, the unemployment rate of individuals diagnosed with ASD may increase as more children who are diagnosed and reach the age of employment. This problem impacts not only individuals with ASD and their families, but everyone who pays taxes as well. Typically, people with ASD who are employable, but not employed, utilize government benefits that, in turn, cost all of us.

The population of individuals diagnosed with ASD is increasing. Numerous sources of data have reported that the rate of autism is increasing dramatically (Autism Society of America, 2006, Center for Disease Control, 2006). In 1992, the Autism Society of America reported the incidence of autism to be 1 in 10,000 births, while in 2005 the incidence of autism was reported to be 1 in 166 births. The United States State Department of Education (2002) reported a 544% increase in the occurrence of autism from the 2000-01 school year to the 2002-03 school year. The Center for Disease Control and Prevention (2006) estimates the incidence of autism to be 1 in 150 births.

The population of individuals diagnosed with ASD reaching adulthood is increasing. Vocational Rehabilitation, a division of the Department of Rehabilitation Services, was created to assist people with disabilities in gaining and maintaining employment nationwide. The Rehabilitation Act Amendments of 1992 (PL 102-569) made assisting individuals with significant disabilities in gaining employment the Department’s primary focus. The U.S. Department of Education and Rehabilitative Services conducted a longitudinal study (Hayward & Schmidt-Davis, 2003) revealing that 65% of applicants turned away or deemed ineligible for services by Vocational

Rehabilitation fell under the classification of “significant” or “most significant” disabilities. Individuals diagnosed with ASD are categorized as persons having significant disabilities or most significant disabilities by Vocational Rehabilitation Services.

In 1989 men without disabilities had a 96.1% employment rate and men with disabilities (ages 25-61) had a 44% employment rate. For the same age group in 2000, men without disabilities had a 95.2% employment rate and men with disabilities had a 33.1 % employment rate. In the same age group, females without disabilities in 1989 had a 77.1% employment rate and females with disabilities had a 37.5 % employment rate. In 2000, females without disabilities had an 81.3 % employment rate and females with disabilities had a 32.6 % employment rate. Both men and women with disabilities had decreases in employment between 1989 and 2000 (Burkhauser & Stapleton, 2004).

Between 1978 and 1998, the number of people who were classified as rehabilitated by Vocational Rehabilitation remained constant (Walls, Misra, & Majumder, 2002). During the same time span, the number of people receiving public assistance increased from 22% to 39% (Walls et al., 2002). According to the Bureau of Labor Statistics (2006), the number of recipients of Supplemental Security Income (SSI) in Alabama in 2000 was 159,000 and in 2003 the number of recipients grew to 164,000. In terms of money, the Bureau of Labor Statistics (2006) reported that in Alabama recipients received 659 million dollars in 2000, growing to 738 million dollars in 2003. Nationally, the number of individuals receiving SSI in 2000 was over 6.5 million with that number growing to nearly 7 million in 2003. In 2000, recipients received over 30.5 billion dollars, while in 2003 recipients received nearly 35 billion dollars.

The increasing number of individuals diagnosed with ASD will soon reach the age of the labor force. The number of individuals who received Vocational Rehabilitation Services (VRS) has remained consistent; but, the amount of public assistance received by that same population has increased annually. Unless individuals diagnosed with ASD gain and maintain employment, the number of individuals who are supported by public assistance will dramatically increase.

Alabama Vocational Rehabilitation Services (VRS) served 361 individuals with a diagnosis of ASD between March 1991 and September 2006. With current trends, it may be only a matter of time before the increase in this population directly affects Alabama's VRS. In order to meet the needs, Vocational Rehabilitation should assess what is occurring in the state in terms of serving individuals with ASD and employment outcomes.

Historical Overview of the Employment of Individuals with Disabilities

Over the past fifty years, changes in society and culture have lead to changes in job demands. Prior to the 1950s, individuals with severe/developmental disabilities were not seen in public and, therefore, were not likely to be employed. In the 1950s, people with severe/developmental disabilities were provided employment in sheltered workshops. These workshops were self-contained environments and the only employees without disabilities were those in management and upper level positions (Kiernan, 2000). These workshops provided safe environments with little hope for betterment of one's life. Supported employment began in earnest in the 1980s and continues today. Supported employment involves training on-site for a real job. Individuals with disabilities who participate in supported employment are employed with typical peers and have support with actual tasks/jobs, social interactions, and transportation (Wehman & Revell, 1996). The belief that individuals with severe disabilities could gain and maintain competitive employment began to take hold in the 1990s. Competitive employment allows people with disabilities to work in integrated settings, have the same job as, and earn pay equal to their non-disabled peers (Kiernan, 2000**).**

Sheltered Workshops

Sheltered workshops, also known as rehabilitation facilities, have been the major employers of individuals with severe and developmental disabilities (Kiernan, 2000). These workshops are licensed by the Unites States Department of Labor in order to pay individuals based on their production and/or piece rate, but at less than the federal minimum wage. Sheltered workshops have two major components that are appealing for the employment of individuals with disabilities: structure and a protective environment (Wehman & Revell, 1996). In a sheltered workshop individuals with significant disabilities (a) work with their fellow peers with disabilities, (b) work at their own pace without pressure to perform, (c) have a routine that is predictable and repetitive, and (d) are rewarded for their individualized productivity level (Kiernan, 2000).

Kiernan (2000) stated that placement in sheltered workshops was the “logical and desirable” placement for people with mental retardation in the 1950s and 1960s. In fact, the popularity and acceptance of sheltered workshops led to their being recognized as a labor force by industries throughout the country. Sheltered workshops, for many individuals, became the desired goal, not just a transition goal (Kiernan, 2000; Whitehead, 1981). Few people with disabilities left sheltered workshops to enter the world of competitive employment. Individuals with cognitive disabilities could learn the skills necessary to be successful at their job in sheltered workshops; but, they were not able to generalize their skills to “real world” employment (Kiernan, 2000; Wehman, Revell, & Brooke, 2003). Questions began to arise about how successful sheltered workshops were for the individuals they served.

Gardner, Chapman, Donaldson, and Jacobson (1988) stated that sheltered workshops developed in the 1960s because vocational rehabilitation professionals believed that individuals with severe disabilities were incapable of independent employment. Even though sheltered workshops varied in types of jobs, they had a basic curriculum that had three components. These curriculum components included pre-vocational skills, self-help skills, and make-work tasks. Pre-vocational skills could include how to dress for employment, understanding the social component of the work-site, and skills that would be necessary for successful employment (e.g., the ability to use a screwdriver if the job involved assembly). Self-help skills could include how to ask for assistance and setting goals for oneself. Make-work tasks are typically involved with jobs that require the assembly of an item, (e.g., learning how to assemble an item that involves many steps and/or parts). In addition to the curriculum, sheltered workshops had four programmatic levels that individuals had to master before they were considered possible candidates for independent employment: preparation for employment, sequential skill development, exit criteria, and follow through. First, sheltered workshops were to prepare individuals for the future by offering continuous training. Secondly, the participants in sheltered workshops were to master a sequence of what were considered prerequisite skills to employment (Gardner et al., 1988). A common belief was that a person must be able to read and count money prior to attaining independent employment. Next, the participants had to demonstrate exit skills, predetermined criteria that indicated that they could work independently in order to be considered employable. The follow-through consisted of the necessary steps in gaining and maintaining employment. The result of having the four components was that individuals with severe disabilities rarely exited sheltered workshops due to the fact that they could not master the skills considered necessary for employment (Gardner et al., 1988). Sheltered workshops became the first and only job that most individuals with severe disabilities ever held.

Parent, Hill, and Wehman (1989) wrote that the stated purpose of sheltered workshops was to prepare individuals with disabilities to work in the real world. Statistically, sheltered workshops did not accomplish their purpose. Only 12% of individuals participating in sheltered workshops moved to competitive employment. Of the 12%, only 3% were still competitively employed two years after leaving a sheltered workshop (Bellamy, Rhodes, Bourbeau, & Mark, 1986; Parent et al., 1989). With a 50% to 90% unemployment rate in real world employment, sheltered workshops continued to be questioned by professionals in the field (Louis Harris Poll, 1986; Parent et al., 1989; United States Commission of Civil Rights, 1983).

Supported Employment

In the 1980s employment for persons with disabilities began to change from the isolated sheltered workshops to inclusive settings known as supported employment. The American Association of Mental Retardation (AAMR, 2005) defined supported employment as competitive, paid employment for individuals with severe disabilities. Supported employment is geared toward the individuals who have not been able to gain or maintain employment on their own. Employment occurs in normal business environments. Individuals who participate in supported employment are paid at least minimum wage and have support that allows them to gain or maintain employment.

According to the AAMR (2005), over 105,000 individuals with multiple and profound disabilities participate in supported employment. AAMR estimates that the participants earn close to $600 million annually and pay $100 million in federal, state, and local taxes. Of the 105,000 participants, 52% of their primary income comes directly from their paychecks, not from public assistance.

The AAMR (2005) also suggested that, in order for supported employment to be successful, there are certain factors that must be addressed. Employment must be seen as a viable option for individuals with disabilities. For this to occur, career preparation must be included in educational programs. These individuals must be included in every aspect of their educational programming and decision-making concerning their vocational careers. The jobs must take place in typical work environments and the participants must have safeguards concerning their pay rates and ability to move up in the business. The support offered to the individual has to be based on his or her needs and preferences. Lastly, initiatives from the federal and state governments should emphasize inclusion in typical business settings.

Wehman and Revell (1996) reviewed how effective supported employment was from 1986 through 1993. The authors addressed three areas of concern regarding supported employment in the United States: (a) the degree to which supported employment improves the lives of individuals with disabilities, (b) the degree to which employment programs are cost effective, and (c) the degree to which reduced federal funding results in reduced accountability. Their study focused on 54 state/territorial supported employment systems that included 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, and the Pacific Islands. Every year systems were given surveys to complete and phone interviews were conducted with all 54 systems to ensure that they had received the survey and to confirm the contact person and any relevant sources. Fifty-one of the 54 systems participated in the study. Over 3,700 agencies were found to provide supported employment services.

According to Wehman and Revell (1996), in 1986 approximately 10,000 people participated in supported employment; but, that number increased to 105,000 in 1993. Out of the 105,000 participants, 41% were receiving time-limited services, 55% were receiving extended services, and 4% were listed as “other participants”. The primary disability of the participants in 1992 was mental retardation (70%). Individuals with mental illness represented the second highest category with 19% and people with a physical disability represented 7% of the participants.

Wages increased for the participants from 1986 to 1993 (Wehman & Revell, 1996); however, that fact cannot be separated from the raise in the federal minimum pay rate during that same time period. The costs of providing services for supported employment participants also increased. In 1986, Vocational Rehabilitation spent $1.3 million and in 1993 Vocational Rehabilitation spent $57.95 million. With the increase in expenditures and services, study’s authors found that participants became less dependent on federal assistance programs. In addition, participants began to contribute to the local economy by contributing to state and federal taxes. The final results indicated that serving individuals with disabilities in individualized placements via supported employment programs is more cost effective than serving them in group placements and many other day treatment programs. Cost effectiveness, combined with a lower dependence on federal assistance programs, and an increase in money contributed to local economies makes supported employment a desirable option for individuals with disabilities (Wehman & Revell, 1996).

Competitive Employment

The primary difference between competitive employment and supported employment is the work environment. Competitive employment takes place in an integrated setting, while supported employment can take place in any size and type of business. According to Wehman et al. (2003), "when one thinks of competitive employment, he or she must consider the 'parity of experiences' between the individual with a disability and his or her work experiences and the individual without a disability and his or her work experiences" (p. 167). The authors suggested that the following questions be considered in order to ascertain whether a job is 'quality' competitive employment:

1) How is the person with a disability hired? Is he or she hired by the business where the work is being performed, or is he or she an employee of an employment services organization?
2) How is the person with a disability supervised? Is she or he supervised by an employee of the business where the work is being performed or by an employee of an employment service organization?
3) Is the individual with a disability paid wages and benefits that are comparable to those of co-workers who are non-disabled?

4) Does the employee with a disability have the same career advancement opportunities within the worksite as co-workers who are not disabled, as well as equal access to resources at the workplace, such as the Employee Assistance Program?

5) Is there full social access to co-workers who are not disabled, and is there an absence of a congregation of persons with disabilities within the work site? (p. 167).

Definition of Terms

Each of the following terms is used in the present study. The reader may refer to the Literature Review section for a more thorough definition of the terms.

Autism Spectrum Disorder (ASD) is a neurological disorder that impedes communication, socialization, and behavior. These deficits can occur in any combination from mild to severe. Typically, the deficits are present prior to the age of three years. In the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revised (DSM-IV-TR) autism is a disorder that is found under the category Pervasive Developmental Disorders (PDD). Clinicians and professionals in the medical field typically use the DSM-IV-TR categories when referring to individuals with autism. Many educators, organizations dealing specifically with autism (e.g., Autism Society of America), and many parents use the phrase ASD to encompass all of the disorders under the category of PDD in the DSM-IV-TR.

Individual Education Plan (IEP) is a plan designed by parent(s) and educators to meet the unique educational needs of a student with a disability for one year. The IEP should contain obtainable goals and specific details concerning how the goals will be measured, where instruction will occur, and who will implement instruction. In addition, the IEP will include any related services that are deemed necessary by the IEP team.

Individuals with Disabilities Education Act of 1990 (IDEA, P.L. 101-476) requires that transition services be included in students' Individual Educational Programs (IEP) if the student is of transition age.

Normalization is a guiding principle that revolutionized how people with disabilities are treated. Normalization was meant to apply to all areas of life such as home, work, and activities in which individuals without disabilities are engaged. This principle, which began in the 1960s, is the forerunner for The Americans with Disabilities Act of 1990, which provides full civil rights for all individuals with disabilities.

The National Longitudinal Transition Study (1996) was conducted from 1985 through 1990. Data, including employment outcomes, were collected on former students with disabilities.

The National Longitudinal Transitional Study-2 (2003) included employment data for more than 11,000 students who were 13 to 16 years of age on December 1, 2000.

The Rehabilitation Act (RA) of 1973 (P.L. 93-112) became the first federal civil rights law to protect the rights of individuals with disabilities. In addition to providing a broad definition of disability, the law mandated nondiscriminatory practices for employment and education for every agency that received federal funding.

The Rehabilitation Act of 1992 (P.L. 102-569) provided support to persons with disabilities to attain and maintain employment. The law deemed that assisting an individual with a disability to attain and maintain a job is the responsibility of rehabilitation programs, regardless of the severity of the disability.

Transition is the period of time during which an adolescent exits high school and enters the adult world. This period should include planning for life after high-school, preparing for life, and implementing the services necessary to be successful in life after high school. Transition is a process that involves an individual, the IEP team, and representatives of the agencies from which the individual requires services.

Research Questions

Specific questions about individuals with ASD addressed in the present study are:

1. Is the person/agency who refers an individual to Vocational Rehabilitation a predictor of employment?
2. Is the county, whether urban or rural, where the VR case originated a predictor of employment?
3. Is the amount of money spent on training an individual a predictor of employment?
4. Is the ethnicity of the applicant a predictor of employment?
5. Is the client's family income a predictor of employment?

Significance of the Study

The purpose of the present study is to determine if there are predictors of employment for individuals diagnosed with ASD in the state of Alabama. In Alabama, VRS has collected data from all applicants, including those individuals who have a diagnosis of ASD. From 1991 to the present, the data have been stored in a data base; however, the data regarding individuals with a diagnosis of ASD have not been analyzed. The present study is focused on whether money spent by VRS, client location, referral source, family income, and/or ethnicity have an effect on employment. Results of this study can be used as baseline data for future research on employment of individuals with a diagnosis of ASD.

As noted in Chapter Two of the present study, research has been focused primarily on two factors: (1) the personal characteristics of individuals (e.g., IQ and verbal skills) and (2) the level of support provided to individuals (i.e., sheltered workshops or supported employment). Due to the limited employment success of individuals diagnosed with ASD, the researcher chose to investigate other factors, focusing on whether agencies, location, or ethnicity have an effect on employment.

Purpose of the Study

Few individuals diagnosed with ASD are gaining employment. The NTLS-2 (Cameto et al., 2005) indicated that 15 % of individuals diagnosed with ASD in the United States gained employment. Data retrieved for the present study indicated that 4% of individuals diagnosed with ASD in the state of Alabama gained employment during the same time. The primary purpose of the present investigation is to discover factors that could be related to whether or not individuals diagnosed with ASD are successful in gaining employment.

After reviewing the literature, it is evident that further research is needed in studying the employment of individuals with ASD. As the number of individuals with

ASD increases and reaches the age of employment, it is critical that agencies such as school systems and VRS are prepared to assist these individuals in gaining employment. The amount of money spent on training, type/location of regional offices, ethnicity, family income, and the person/agency who refers individuals to VRS are starting points in determining what is significant in the employment of individuals with ASD.

II. LITERATURE REVIEW

The focus of this chapter is the employment of individuals with Autism Spectrum Disorder (ASD). The Literature Review includes definitions, legislation, and previous research related to the employment of individuals with ASD. A discussion of Transition is followed by Special Education legislation and Civil Rights legislation. The next topics discussed are philosophical beliefs concerning individuals with disabilities, transition models, and educational trends that reflect philosophical beliefs. The National Longitudinal Transition Studies are discussed in terms of employment outcomes of individuals with disabilities. Each category of ASD is defined and characteristics of each are provided. Finally, previous research focused on the employment of individuals with ASD is discussed.

Transition

The period of time during which an adolescent exits high school and enters the adult world is a time of major change. This important growing-up period is comprised of both physical and psychological changes involving self-discovery, exploration, and numerous new experiences such as moving away from home, post-secondary school, and/or employment.

‘Transition’ is the professionally accepted term when referring to this change process from adolescence to adulthood for people with disabilities. Halpern (1994) defined transition as:

> ... a change in status from behaving primarily as a student to assuming emergent adult roles in the community ... include(ing) employment, participating in post-secondary education, maintaining a home, becoming appropriately involved in the community, and experiencing satisfactory personal participation and coordination of school programs, adult agency services, and natural supports within the community. (p. 117)

As noted in Halpern’s definition, the transition process involves many aspects of a person’s life. Often, the process requires many people to help successfully transition an adolescent with a disability.

The American Association of Mental Retardation (AAMR, 2005) defined transition as

> Cooperative planning and preparation involving the student and family, school personnel, and community representatives, which extends beyond the student’s current educational setting.... Transition planning is an outcome oriented process which creates an important link between school and community and provides opportunities for students with disabilities to discuss their hopes and dreams for their future.

This definition, like Halpern’s definition, requires the assistance and support of many people in order for adolescents with disabilities to successfully transition. The AAMR’s definition states that transition is an outcome-oriented process that goes beyond a student’s educational setting. Logically, for the majority of adolescents without disabilities, the next step following high school is either post-secondary school or employment. There is no reason why transitioning from high school to adulthood should be any different for people with disabilities.

Temple Grandin (1996), an adult with autism, stressed that transition for individuals with disabilities, especially those with autism, is a gradual process that requires much support. Grandin, who is high functioning, began post-secondary school after exiting high school; however, her decisions on possible career choices were based on her fixations as a child and her visits to businesses that interested her. Academically, Grandin did not struggle; but, she did struggle with employment. Grandin discussed how support was essential in her transition from school to employment. In order for her to gain and maintain employment, her parents and educators had to find employers who were willing to work with her. Mentors played a significant role in her maintaining employment and gaining a career. Today, she is well known not only in the field of autism, but also in her professional field.

The National Longitudinal Transition Study (Blackorby & Wagner, 1996) and the National Longitudinal Study-2 (Cameto et al., 2003) indicated that adolescents with disabilities were less likely to gain employment than their typical peers. The authors of the 2003 study reported that adolescents with autism were one of two categories of disabilities that were the least likely to gain employment. Only 15% of adolescents with autism gain employment compared to 60% of adolescents with other disabilities (Blackorby & Wagner, 1996.).

Special Education Legislation

Beginning in the 1970s and 1980s, several laws were passed to help adolescents with disabilities transition to adulthood. These laws have affected individuals with disabilities educationally and civically. Educationally, federal laws mandate that special education services incorporate transition services to adolescents with disabilities. Civically, laws have mandated equal employment opportunities, accessibility, and nondiscrimination in all communities and work places.

The Education for All Handicapped Children Act

The Education for All Handicapped Children Act (20 U.S. C. § 1400 et seq.), PL 94-142, passed in 1975, was focused on the educational rights for students with disabilities. PL 94-142 mandated that individuals with disabilities receive a “free appropriate public education” (FAPE). In order to achieve a FAPE for each student, schools are required to develop an Individualized Education Plan (IEP). In addition to the IEP that allows for an appropriate education plan for each individual, PL 94-142 also included related services to insure an appropriate education. Related services might include speech-language pathology and audiology services, psychological services, physical and occupational therapy, recreational therapy, counseling, rehabilitation counseling, transportation, and parent counseling and training. Also, to ensure that the IEP is appropriate for an individual, PL 94-142 mandated that parents be allowed to participate in the IEP process. The Law also mandated that parents have procedural safe guards, such as due process, that ensure that their child receives an appropriate education. Lastly, the Education for All Handicapped Act mandated that students are to receive their education and/ or related services in the least restrictive environment (LRE). The purpose of the LRE was to ensure that students are educated in an environment that approximates as much as possible the environment of their typical peers.

1986 Amendments to PL 94-142

In 1986, amendments were made to extend services to children ages birth to five years. Children with disabilities ages 3-5 years have the right to receive a FAPE. Children with disabilities ages birth-2 years have the right to an Early Intervention Plan, which is known as an Individualized Family Service Plan (IFSP). The IFSP is required for children ages birth to 5 years. The IFSP is geared to meet the goals of the family, not necessarily those of the individual with the disability. The IFSP could include counseling, helping the family find assistance, helping the family to adjust, and assisting the family to function in the community.

Individuals with Disabilities Education Act

In 1990, The Individuals with Disabilities Education Act (IDEA, P.L. 101-476) was passed. IDEA was a reauthorization and renaming of PL 94-142. The IDEA required that transition services be included in students' Individual Educational Programs (IEPs) if the student was of transition age. According to IDEA, IEPs for students of transition age must have yearly goals that address the individual's specific transitional needs. The IDEA (1990) defines transition services as:

> A coordinated set of activities for a student, designed within an outcome oriented process, which promotes movement form school to post-school activities, including postsecondary education, vocational training, integrated employment (including supported employment), continuing adult education, adult services, independent living, or community participation. The coordinated set of activities

> shall be based upon the individual student’s needs, taking into account the student’s preferences and interests, and shall include instruction, community experiences, the development of employment and other post-school adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation. [IDEA, PL 101-476, 20 U.S.C. Chapter 33, Section 1401(a)(19)]

According to the IDEA, transition services are outcome oriented. Thus, while considering their preferences and interests, transition services allow adolescents with disabilities to move from school to post-school activities based on their needs. The Act mandated that students are to be active participants in the IEP process, including transition planning. Each student receiving services under the IDEA must have a transition plan in place by age 16 that is based on his/her needs, preferences, and interests. The law also gave parents the right to participate fully in the educational planning for their children. In addition, IDEA added two categories, Autism and Traumatic Brain Injury (TBI), to the existing categories of disabilities that are served. The legislation also placed greater emphasis on a least restrictive environment (LRE). At an IEP meeting, the IEP team must consider the most appropriate environment e.g., general education classroom, resource room, self-contained classroom) for the student in order for him/her to receive a FAPE. The LRE should be the environment that allows the student the greatest access to the general curriculum while still providing a FAPE. These amendments allowed students with disabilities to enjoy equal opportunities and curricula that their typical peers have been receiving. These amendments coupled with Assistive

Technology have allowed more students with disabilities opportunities to be with their typical peers throughout the school day.

Individuals with Disabilities Education Improvement Act

In 2004 the wording concerning transition changed with the passage of the Individuals with Disabilities Education Improvement Act (IDEIA). The IDEIA (2004) changed concepts, beliefs, and the transition process. Prior to this Act, transition services were considered to be outcome-oriented which means that the emphasis of education was simply exiting school rather than being successful in life. The IDEIA (2004) changed the language concerning transition**.** The Act defines transition services as:

> A coordinated set of activities for a child with a disability that (A) is designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation. (IDEA, Sec. 602, H.R. 1350)

In addition, goals in the transition years should be appropriate goals based on 'assessments that are related to training, education, employment, and ... independent living skills.' Academic and functional goals are to be addressed throughout the transition years. Under this amendment, IEPs can be created for multiple years. IDEIA (2004) no longer requires that IEPs be addressed annually, but the IEP can remain in place for only three years if the states so choose**.** In addition, if the IEP is altered during the dates on the IEP, the parents and special educator, if they jointly agree, can make adjustments to the

IEP without a meeting of the entire IEP team. With these amendments, the IEP appears to be less of a formal agreement between all parties concerned. The shift from outcome-oriented process to results-oriented process, as stated in the IDEIA (2004), places more emphasis on the student moving to the next phase of life, not just exiting school. The change to results-oriented puts more emphasis on the educator and his or her accountability.

No Child Left Behind

In 2002, President George Bush signed No Child Left Behind (NCLB, 20 U.S.C. 70 § 6301 *et seq*., 2002) into law. The emphasis of this law was accountability. Under this mandate, states and local school systems had to achieve adequate yearly progress (AYP) in order to retain their autonomy. Each state was required to submit their plan for meeting the 100% proficiency goal in reading and math by the 2013-2014 school year to the U.S. Department of Education. In addition to the AYP plan, states had to submit how schools would be held accountable if AYP was not met. Typically, if AYP were not met, then the state could take control of a school and/or school system, depending on the lack of AYP and the duration of time that AYP had not been achieved. NCLB is based on the premise that every person can learn to read and every student should be on grade level in reading and mathematics. In order to achieve this goal, teachers, both general educators and special educators, must be “highly qualified” in their areas. In addition, students should be assessed annually by assessments that are aligned with state curricula. Two percent of students with significant disabilities can be assessed through alternate assessments. These assessments are included in the AYP statistics, but are calculated on a different scale to avoid skewing the annual yearly progress statistics.

Civil Rights Legislation for Individuals with Disabilities

The Rehabilitation Act

The Rehabilitation Act (RA) of 1973 (P.L. 93-112) became the first federal civil rights law to protect the rights of individuals with disabilities. The RA provided a broad definition of disability, "as an impairment that significantly limits one or more major life activities," such as learning, walking, seeing. The RA contains several sections that deal with nondiscriminatory practices. Section 501 requires that all federal agencies of the executive branch practice nondiscrimination in employment. Section 503 requires that federal government contractors and/or subcontractors with contracts of more that $10,000 practice nondiscrimination in employment. Section 504 provides that any program that receives federal financial assistance, including public schools, cannot discriminate against individuals with disabilities. Public schools must ensure that students with disabilities have access to programs, activities, and services. Section 504 provides that "no otherwise qualified handicapped [*sic*] individual in the United States shall, solely by reason of his/her handicap [*sic*], be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance" [Section 7(6)]. This means that individuals with disabilities can fully participate in any school-related function or program that receives federal funding.

The Rehabilitation Act Amendment

The Rehabilitation Act Amendment of 1986, PL 99-506, was focused on improving independent living opportunities. This legislation defined independent living as, "... the ability of an individual with handicaps [*sic*] to live independently and function within his family and community and, if appropriate, secure and maintain appropriate employment" (Section 702b). This statement showed the relationship between independence, functioning, and employment. In order for a person to secure and maintain employment, he or she must have some semblance of independence and be able to function within his or her family and community.

The Americans with Disabilities Act

The Americans with Disabilities Act of 1990 (ADA, 42 U.S.C. § 12101) provided full civil rights to all individuals with disabilities. The ADA extended Section 504 by prohibiting discrimination in public and private sector employment, public accommodation, transportation, state and local government services and telecommunications. For students with disabilities, the ADA prohibits discrimination and extends the right of access to educational programs and services whether or not the school receives federal funding. The ADA provided a definition of a disability: "(i) a physical or mental impairment that substantially limits one or more of the major life activities of such individual; (ii) a record of such an impairment; or (iii) being regarded as having such an impairment" (ADA, 42 U.S.C. § 12101(2)).

The Rehabilitation Act Amendments of 1992

The Rehabilitation Act of 1992 (P.L. 102-569) provided support to persons with disabilities to attain and maintain employment outcomes while considering their interests and abilities. The amendment is focused on all individuals who have the ability to be employed. Assisting an individual with a disability to attain and maintain a job is the responsibility of rehabilitation programs. The amendment clearly indicates that the severity of the disability should not affect employment. According to the amendment, a person, regardless of the severity his or her disability, can attain and maintain employment with services and supports.

Prior to the passage of these educational and civil laws, individuals with disabilities were treated as second class citizens. In many instances, individuals with significant disabilities were placed in institutions or separate schools far from society. With the passage of civil and educational legislation, individuals with disabilities gained access to all aspects of life. Now all people, regardless of whether they have a disability, have the right to an appropriate education without bias or discrimination. Likewise, all people with disabilities have the right to access society (e.g., movie theaters, restaurants, hospitals, schools, and leisure activities). Presented in Tables 1 and 2 are summaries of the legislation described in the present section. While legislation was mandating that changes occur, the philosophy surrounding the treatment of individuals with disabilities was changing radically.

Table 1

Special Education Legislation

Law	Year	Implications
The Education for All Handicapped Act (PL 94-142)	1975	Educational Rights for students ages 5-18 years of age: Free Appropriate Education (FAPE) , Individualized Education Plan (IEP), Related Services, Least Restrictive Environment (LRE) and Due process for students.
Amendments (PL 99-372)	1986	FAPE extended to children ages 3-5 years old, Early intervention services for children birth to three years of age, Individualized Family Service Plan (IFSP).
Individuals with Disabilities Education Act (PL 101-476)	1990	Changed name from the Education for All Handicapped Act, Transition Plan by age 16 as part of IEP, student active participant in transitional planning, Assistive Technology (AT), greater access to general curriculum when considering LRE. In addition, Autism and Traumatic Brain Injury were added as disability categories.
No Child Left Behind	2002	Adequate Yearly Progress (AYP), highly qualified teachers, curriculum based assessments, and alternate assessments for individuals with significant disabilities.

(table continues)

Table 1 (continued)

Law	Year	Implications
Individuals with Disabilities Education Act	2004	Transition is a “results-oriented process,” multiple year IEP, and IEP meetings can occur without the entire team.

Table 2

Civil Rights Legislation

Law	Year	Implications
The Rehabilitation Act (PL 93-112)	1973	Defined ‘disability,’ Sections 501, 502, 503, and 504. Section 504 prohibits discrimination against individuals with disabilities from any agency that receives federal funding.
The Rehabilitation Act Amendment (PL 99-506)	1986	Defined ‘independent living’
The Americans with Disabilities Act	1992	Agencies receiving federal funding, private entities, and public entities cannot discriminate against individuals with disabilities whether in terms of employment and/or access.
The Rehabilitation Act Amendments (PL 102-569)	1992	Goal of Rehabilitation programs is employment including individuals with significant disabilities.

Philosophy Regarding Disability

Normalization

Bengt Nirje, Swedish founder of the Scandinavian movement of normalization, defined normalization as “making available to all persons with disabilities or other handicaps, patterns of life and conditions of everyday living which are as close as possible to or indeed the same as the regular circumstances and ways of life of society” (1969, p. 67). Normalization is a guiding principle for individuals with disabilities that revolutionized how people were treated. No longer were these individuals to be outcasts of society, but were seen as vital, active participants. The normalization principle applies to every area of life such as home, work, and activities in which individuals without disabilities are engaged. In addition, all age groups of individuals with disabilities should be as respected in their wishes, desires, and choices as those without disabilities.

Wolfensberger (1972) subsequently altered the normalization principle. He wanted to change societal attitudes that resulted in the institutionalization of individuals with disabilities. He wanted normalcy in the lives of these individuals. Wolfensberger defined normalization as the “utilization of means which are as culturally normative as possible in order to establish and/or maintain personal behaviors and characteristics which are as culturally normative as possible” (p. 28). The desired goal was that every individual with a disability should have a culturally valued life.

In 1980 Wolfensberger developed the Social Role Valorization Theory (SRV) which was focused more on the roles of individuals than on the individuals themselves. More recently, Wolfensberger (2000) recognized that identifying the social needs of an individual must be ascertained before understanding what social roles an individual with a disability can attain. SRV is meant to help design services for individuals with disabilities by addressing social and psychological aspects of their lives.

SRV was intended to raise awareness of individuals with disabilities. Wolfensberger (2000) understood that individuals with disabilities were seen as ‘devalued’, and he contended that individuals with disabilities are vulnerable relative to society as a whole. He posited that by coupling individuals with disabilities with individuals without disabilities, society will gain acceptance, understanding, and the belief that all people can work and live together. By supporting individuals with disabilities in roles that are socially valued, they are more likely to gain the positive or accepted aspects of what society has to offer.

Since the 1980s, a small number of arguments against aspects of normalization for individuals with developmental disabilities, including autism, have evolved. Mesibov (1990) argued that the sudden thrust of individuals into the community could be harmful for individuals with autism. Mesibov (1990) argued that individuals require individualized assistance in order to be successful. Schneider (2000) stated:

> Due to the strict guidelines as to what constitutes a normalized environment, many proponents avoid developing innovative programs, for fear they will violate some of the basic tenets of this ideal. This then, ultimately results in the lack of individualized programs suited to the unique needs of many individuals. Nowhere is this more true than in regard to individuals with autism. (p. 12)

Early Transition Models

After gaining the right to an appropriate education and civil rights, parents and professionals began focusing on life after high school. For adolescents without disabilities, adulthood typically consists of either post-secondary school and/or employment with the long-term goal of independence. Sadly, the goal of gaining independence was not considered a viable option for individuals with disabilities by the majority of society until the 1980s. In the 1960s, educators began to consider how to get adolescents with disabilities out into the community. Eventually, educational programs began to expand and included teaching individuals about careers and assisting these individuals with vocational training and other types of services that potentially enable adolescents with disabilities to gain employment.

Cooperative Work Study Programs

Cooperative work study programs were a joint effort between public schools and local Vocational Rehabilitation offices. In the 1960s, these programs were designed to help adolescents with disabilities adjust to adult life. Teachers would spend half of their time as teachers and the other half as work study supervisors. This allowed for students to move to the community work site while receiving supervision. The cooperative work study programs lasted until the passage of The Education for All Handicapped Children Act in 1975. Under this law, community work experience became part of students' educational program. As a result of the EAHCA, for the first time, public schools and vocational rehabilitation agencies worked together in order for students to receive community experiences as part of their education. Since both agencies, public schools under IDEA and Vocational Rehabilitation under the VR Act, receive federal funds for providing community experience, students could only receive services from one agency (Morningstar & Kleinhammer-Tramill, 1999). This situation became problematic because there was no guideline as to which agency was ultimately responsible for the adolescent with a disability.

Career Education

Career education began in the 1970s as a direct result of the high drop out rate for non-disabled students in secondary schools. Morningstar and Kleinhammer-Tramill (1999) stated that the failure of students to understand what secondary schools were teaching led to high drop out rates. Gardner et al. (1988) wrote that the purpose of career education is to help adolescents with career development. Career education is the development of career awareness by the interactions between the individual, his or her family, and the community. Adolescents gain knowledge of different careers, work skills, and social skills necessary for employment. The formation of the U.S. Office of Career Education in 1974 and the Education for All Handicapped Children Act of 1975 led to the inclusion of students with disabilities in career education in the mid to late 1970s. Career education was not necessarily the best intervention for individuals with disabilities for two reasons. The first reason was the lack of opportunity to practice new skills and the second was that learning about different careers often requires abstract concepts (Gardner et al., 1988). In the early 1980s, career education came to an end due to the withdrawal of federal funding and a shift in ideas concerning successful transition into adulthood.

“Bridges” Model

Madeline Will (1984), the Commissioner of the U.S. Department of Education, defined three bridges that must be considered in the school-to-work crossing for young people with disabilities. The three bridges are referred to as “no special services,” “time limited services”, and “on-going services.” The bridge that a given student will need to experience a successful transition is related to the nature and/or severity of his or her disability.

Students with mild disabilities may not need any special services as they cross into young adulthood (Will, 1984). These students will have sufficiently learned in the home, school, and through social settings the skills necessary for independence, post-school education and employment opportunities that are available to the general population. In some cases, however, students might require some type of time-limited assistance. One such assistance program known as vocational training is provided by state Vocational Rehabilitation Services, the purpose of which is to provide individuals with disabilities an array of services that lead to gainful employment. Those students with more severe disabilities may require ongoing services (e.g., supported employment and/or supported living) in order to maintain an acceptable quality of life.

Halpern’s Model

In 1985, Halpern extended the Bridges model to include community adjustment. He believed that in order to successfully transition, one must live successfully in the community. Halpern’s model had the same three levels of service as the Bridges model (“no special services,” “time limited services”, and “on-going services”); but, the outcome of the Bridges model was employment, whereas the outcome for Halpern’s model was community adjustment. Halpern’s model depicts three means of attaining community adjustment: (a) employment, (b) residential environment, and (c) social and interpersonal network. His model illustrated that there is a relationship between community adjustment and employment, residential environment, and social and interpersonal networks. In other words, according to Halpern, in order to achieve full community adjustment, progress must be made in all three areas.

Employment Outcomes for Persons with Disabilities

Types of employment and ideas concerning transition for individuals with disabilities have evolved over the years. Individuals with disabilities who began school under the original Education for All Handicapped Act in 1975 began exiting high school in the mid to late 1990s. It was during that time that researchers and professionals began to focus their interest on student outcomes. Researchers focused on employment outcomes to determine how successful individuals with disabilities were in transitioning into adulthood. Out of these different means of employment (e.g., sheltered workshops and supported employment) one factor that has remained constant is that individuals with disabilities are not gaining and/or maintaining employment compared to their non-disabled peers. In the past ten years, two longitudinal studies (Cameto, et al., 2003; Blackorby & Wagner, 1996) and several smaller studies revealed that individuals with disabilities have lower employment rates than their typical peers.

The National Longitudinal Transition Study

Beginning in 1985 and continuing through 1990, data were collected on 1,990 former students with disabilities. The results were published as The National

Longitudinal Transition Study (Blackorby & Wagner, 1996). The study revealed that only 57% of adolescents with disabilities were employed, compared to 69% of their typical peers, three to five years after exiting high school. Nearly one in five youths with disabilities was not employed nor was he/she looking for work. Out of these same subjects, 37% were enrolled in post-secondary education programs, compared to the general population that had 78% enrollment in post-secondary education. Two years after exiting high school, only 13% of adolescents with disabilities lived independently, compared to 33% of their typical peers. Three to five years after exiting high school, 37% of adolescents with disabilities lived independently, compared to 60% of their typical peers.

The National Longitudinal Transition Study-2

In 2003, The National Longitudinal Transition Study-2 (Cameto et al.) of more than 11,000 students who were 13 to 16 years of age on December 1, 2000, was published. The study indicated that 60% of adolescents with disabilities were employed during a one-year period of time. Of the 60%, some were employed at work-study jobs, but the majority found employment at non-school related jobs. Approximately 15% of adolescents with disabilities had work-study jobs that involved part-time work, either on or off campus, that was approved by the school. Students with mental retardation, autism, multiple disabilities, or deaf-blindness were 30% more likely to be employed in work-study jobs than individuals with learning disabilities and speech impairments. This means that the students were employed either at school or on a job that the school found, not traditional competitive employment.

Disability differences were also seen in regular employment. Adolescents with learning disabilities, emotional disturbances, other health impairments, or speech impairments were the most likely to be employed during a one-year period of time, with 50% to 60% being employed. This was comparable to their typical peers. Only 15% of adolescents with autism were employed and approximately one-third of adolescents with multiple disabilities, deaf-blindness, orthopedic impairments, mental retardation, and visual impairments were employed during the same one-year period (Cameto et al., 2003).

Wagner, Newman, Cameto, Garza, and Levine (2005) compared the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2). In 2003, 70% of adolescents with disabilities who had been out of school for two years had been employed with pay at some point since exiting high school. In 1987, 57% of adolescents with disabilities had been employed with pay in the two years after exiting high school. Individuals in the NLTS2 in the 1990s were less likely to work full time at their current jobs or most recent jobs than the individuals in the NLTS in the 1980s. The comparison study also revealed that students with disabilities were making limited gains in their earnings. Seventy percent of the adolescents in the NLTS earned above the federal minimum wage compared to 85% of the adolescents in the NLTS2. The wages earned did not increase from the NLTS to the NLTS2 if one controls for inflation.

The U.S. Department of Education and Rehabilitative Services conducted a longitudinal study (Hayward & Schmidt-Davis, 2003) revealing that 65% of applicants turned away or deemed ineligible for services by Vocational Rehabilitation fell under the classification of significant or most significant disabilities. Individuals with ASD are categorized as persons having “significant disabilities” or “most significant disabilities” by Vocational Rehabilitation Services.

In 1989, men without disabilities had a 96% employment rate and men with disabilities (ages 25-61) had a 44% employment rate. For the same age group in 2000, men without disabilities had a 95% employment rate and men with disabilities had a 33.1 % employment rate. For females in the same age group, those without disabilities in 1989 had a 77% employment rate, while females with disabilities had a 38 % employment rate. In 2000, females without disabilities had an 81 % employment rate and females with disabilities had a 33 % employment rate. Both men and women with disabilities had decreases in employment between 1989 and 2000 (Burkhauser & Stapleton, 2004).

Between 1978 and 1998, the number of people who were classified as rehabilitated by Vocational Rehabilitation remained constant (Walls et al., 2002). During the same time span, the number of people receiving public assistance increased from 22% to 39% (Walls et al., 2002). According to the Bureau of Labor Statistics (2006), the number of recipients of Supplemental Security Income (SSI) in Alabama in 2000 was 159,000. In 2003 the number of recipients grew to 164,000. In terms of money, recipients in Alabama received 659 million dollars in 2000, growing to 738 million dollars in 2003. Nationally, the number of recipients receiving SSI in 2000 was over 6.5 million growing to nearly 7 million in 2003. In 2000, SSI recipients received over 30.5 billion while in 2003 recipients received nearly 35 billion. If the number of individuals receiving VR services remains constant while the number of individuals who receive SSI continues to increase, American society will face a continuous increase in the number of people who are dependent on the government. This increase of dependency on government will have long lasting effects on society as a whole.

Yelin and Katz (1994) found that rates of employment varied for individuals with disabilities, depending on the labor market. Their study was focused on individuals with and without disabilities from the years 1970 to 1992. Yelin and Katz (1994) used the National Health Interview Survey that is given by the Census Bureau for the National Center for Health Statistics. The survey was a cross-sectional survey that focused on 110,000 individuals annually. The sample was derived from the United States population, excluding those who are institutionalized, military personal, and citizens who are living in other countries.

Yelin and Katz (1994) also found that individuals with disabilities are more likely to be hired during good economic times. During economic declines, individuals with disabilities are “displaced” faster than their non-disabled peers. The sample was grouped by gender, disabled /non-disabled, and age groups (18-44 years, 45-54 years, and 55-64 years). Non-disabled men’s employment rates varied slightly between the years 1970 to 1992; however, there was some fluctuation with economic trends, and men in the age group 55-64 showed the greatest decline among the three groups with a decrease of 29%. Men with disabilities in all three age groups saw a decrease in employment rates. Employment for men with disabilities from 15 to 44 years of age varied with the economic cycles between the years 1970 and 1992; but, with each cycle their employment rates dropped lower than the previous cycle, ending with a decline in employment of 13%. Men with disabilities, ages 45-54 years, saw a steady decline from 1970 and 1992 and a decreased employment rate of 13% between the years 1970 to 1992.

Men with disabilities, ages 55-64 years, saw the greatest decline. The employment rate for females, both disabled and non-disabled, fell 29%.

Women who had disabilities fared better overall than men with disabilities. Women with disabilities saw an increase in employment from 1970 to 1992, with the exception of the recession in the early 1980's. Women with disabilities between the ages of 18-44 years had a 50% increase in employment from 1970 to 1992. There was a 44% increase in employment for females with disabilities ages 45-54 years. Lastly, women with disabilities in the age group 55-64 years of age saw a 44% increase in employment (Yelin & Katz, 1994).

Yelin and Katz's (1994) results revealed that between the years 1970 to 1992, there was a 1% increase in the employment of men and women with disabilities, ages 18-64 years. For males and females without disabilities, ages 18-64 years, there was an 11% increase in employment during the same time frame. There was an increase in employment for individuals with disabilities; but, compared to their non-disabled peers, it was far below the norm.

Regardless of whether looking at a longitudinal study or a smaller study, the results are similar: Individuals with disabilities have poorer employment rates compared to their non-disabled peers. Individuals with disabilities work fewer hours and receive lower pay than their typical peers. In both the NLTS (1996, 2003) studies and the Yelin and Katz (1994) study, specific categories of disabilities and whether a person with a certain disability had a greater chance of employment was not the focus.

There have been studies on employment rates of persons with Mental Retardation and Learning Disabilities; but, there have been few, if any, studies concerning employment outcomes for individuals with more significant disabilities such as autism. Individuals with Autism Spectrum Disorder (ASD) are now reaching the transition age in growing numbers. In order to understand the outcomes of the few studies published, one must understand ASD.

Autism Spectrum Disorder

In 1943, Leo Kanner identified Early Infantile Autism, known today as autism. Kanner studied 11 children who exhibited delayed and/or impaired communication, behavior, and socialization skills. The children had an apparent lack of interest in people, were highly interested in inanimate aspects of their environment, and favored sameness in their routine and/or environment. In addition, the children exhibited impaired and/or delayed verbal skills and limited reciprocal socialization skills.

For clinicians, it was not until 1980 that Autism was first included in the Diagnostic and Statistical Manual of Mental Disorders, third edition (DSM-III), under the classification of The Pervasive Developmental Disorders. In 1994, revisions of the DSM-III were made and the DSM-IV was published. In 2000, the DSM-IV text was revised and the current manual is the DSM-IV-TR.

To complicate the matter further, for many professionals (e.g., educators), organizations (e.g., Autism Society of America), and parents, Autism is included under the title Autism Spectrum Disorder (ASD) to reflect the vast differences that each individual with autism demonstrates. Typically, individuals with ASD have deficits in communication, socialization, and behavior (Autism Society of America, 2006). The author of the present study will refer to people who have been diagnosed with Autism as people with ASD. These deficits can occur in any combination from mild to severe. The American Psychiatric Association (2000) in the Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition-Text Revision (DSM-IV-TR), which is consulted by professionals when diagnosing individuals with ASD, categorizes ASD under the broader heading of Pervasive Developmental Disorder (PDD). Because of the delayed development in individuals with PDD, they have varying characteristics. These characteristics, according to the DSM-IV-TR, are classified into five developmental disorders: Autism Disorder, Rhett's Disorder, Childhood Disintegrative Disorder, Asperger's Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS). The following section will describe the categories of PDD.

Categories of Pervasive Developmental Disorders

Autism Disorder

In order to receive a diagnosis of Autism Disorder, an individual must display a predetermined number of characteristics in three areas: social interaction, communication, and behavior (American Psychiatric Association, 2000). With regard to social interaction, an individual diagnosed with autism must demonstrate two or more of the following characteristics: limited eye contact, limited facial expressions, unusual body posturing and gestures, lack of social relationships, and lack of emotional and social reciprocal interactions. In more general terms, the individual might not look at people, might have limited, if any, facial expressions, might prefer to be isolated, might hold arms or hands in unusual positions, and might not display the ability to share with someone.

With regard to communication, an individual must demonstrate one or more of the following: lack of and/or delayed verbal communication with no gesturing, inability to initiate or have reciprocal conversation, echolalia or stereotyped language, and lack of make-believe play or imagination. Examples of these communication characteristics are failure to point to a desired object or to start a conversation, repeating certain words and/or phrases, and lacking pretend play.

With regard to behavior, an individual must demonstrate at least one of these characteristics: repetitive, stereotyped behavior, interest, and activities, i.e., preoccupation with restricted and stereotyped patterns of interest that can either be great in intensity or are abnormal. Examples of these behaviors include the individual always having to sit in the same place, insistence on wearing a certain clothing item or tantrums if not allowed, and persistent fascination with a certain part of an item such as a picture in a book. In addition, to receive a diagnosis of Autism Disorder, the individual must have one or more delays before he or she reaches his/her third birthday (American Psychiatric Association, 2000).

Rhett's Disorder

An individual who has received a diagnosis of Rhett's Disorder must have had normal prenatal and postnatal development, normal psychomotor development in the first five months of life, and a normal head circumference at birth. In other words, there could not have been an apparent physical problem with the individual prior to five months of age. Between the ages of five and 48 months, an individual with Rhett's Disorder will begin to have a decrease in head circumference. He or she will lose acquired hand skills between the ages of five and 30 months and will lack coordination in gait and/or body movements. The individual will lose socialization skills and have severe impairments of expressive and receptive language. Lastly, the individual will demonstrate psychomotor retardation, e.g. motor tics, loss of ability or inability of the following skills: sucking, drinking, and turning from side-to-side (American Psychiatric Association, 2000).

Childhood Disintegrative Disorder

Individuals with a diagnosis of Childhood Disintegrative Disorder (CDD) will have had a typical, normal development for the first two years of life in the areas of communication, social relationships, play, and adaptive behavior. Between the ages of two and ten years, individuals with Childhood Disintegrative Disorder have significant losses in the following skills: expressive or receptive language, social skills or adaptive behavior, bowel or bladder control, play, and motor skills. In general terms, these individuals lose their ability to communicate and to socialize with family and friends. Those with CDD will typically lose adaptive skills such as dressing, brushing teeth, and going from point A to point B. Also negatively affected will be motor skills such as walking, running, throwing, and picking up items. These individuals will begin to have bathroom accidents caused by loss of bladder control and, given impaired motor skills, will lose the ability to play. These children develop normally for two years; but, over the next several years they lose the ability to function normally like their typical peers (American Psychiatric Association, 2000).

Asperger's Disorder

To receive a diagnosis of Asperger's Disorder, an individual must have impairments in socialization and behavior. An individual must have two of the following symptoms: (a) limited and/or impairments in eye contact, facial expressions, body posturing, and gestures, (b) lack of peer relationships, (c) lack of spontaneous sharing of feelings, interests, or achievements with others and lack of reciprocal socialization and emotions with others. In addition, individuals with Asperger's Disorder have one or more symptoms of restricted repetitive and/or stereotyped behaviors, interest, and activities (i.e., preoccupation with interests that are abnormal or high intensity), strict adherence to routines or rituals that do not serve a function, repetitive and stereotyped mannerisms, and insistent preoccupation with parts of objects. Individuals with Asperger's Disorder also have significant impairments in social, occupational, or other areas of functioning. These individuals are often overlooked because they do not have significant delays in language, cognitive development, self-help skills, or adaptive behavior, and they are naturally curious about their environment (American Psychiatric Association, 2000).

Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS)

Individuals with PDD-NOS have severe impairments in reciprocal socialization associated with impairments in either verbal or nonverbal communication or stereotyped behavior, interests, and activities. Under this diagnosis, individuals do not meet the requirements of Pervasive Developmental Disorder; but, this can include “atypical autism,” the presentation of symptoms that do not meet the criteria of autistic disorder due to age of onset and/or differing symptoms (American Psychiatric Association, 2000).

Incidence of Autism

The incidence of autism (i.e., individuals with a diagnosis of any disorder under the category of PDD in the DSM-IV-TR) is growing at an alarming rate. According to Fight Autism Now (2005), the incidence rate in Alabama from 1992 to 2003 for individuals 6-21 years has increased 947%. In 1992, there were 126 individuals with autism ages 6-21 years in Alabama. In 2003 that number grew to 1,319 individuals with autism in Alabama. Figure 1 is a graph that illustrates the increase in percentages and the number of individuals with autism from 1992 to 2003 in Alabama.

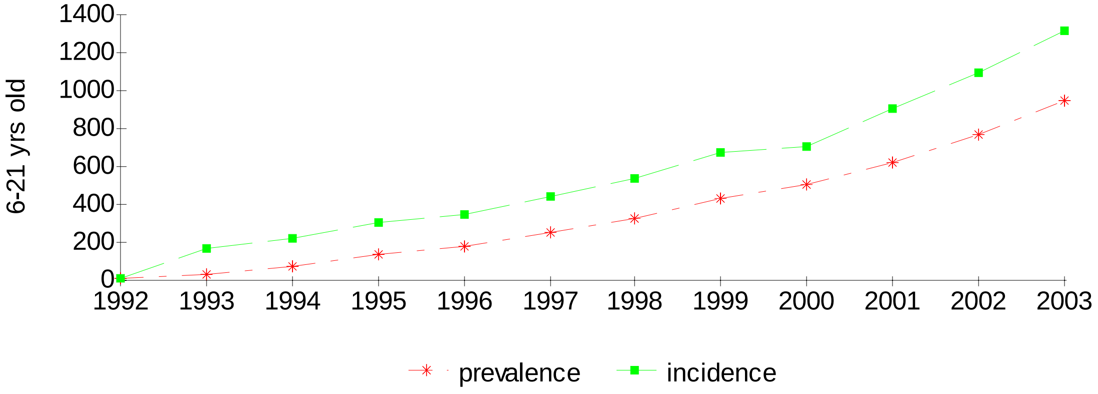

Figure 1. Incidence of Autism in Alabama

The incidence in the United States is increasing at a rampant rate, but not as fast as in Alabama. In 1992, the number of individuals in the United States with autism between the ages of 6 and 22 was 15,580. That number grew by 805% to 163,773 individuals with autism nationwide in 2003. Figure 2 is a graph that indicates the increase in the incidence of autism for the United States from 1992 to 2003. It should be noted that the United States collected data on individuals between the ages of six and 22 years of age until 2000 (U.S. Office of Special Education, 2006). In 2000, the United States extended the figures to include individuals between the ages of three and 22 years of age. In addition to the incidence of autism rapidly increasing, the number of students with autism who are exiting high school is increasing. Transition services for individuals diagnosed with autism begin to be considered at age fourteen. Figure 3 indicates the number of students 14 years or older served in Alabama under Part B of the IDEA under the category of autism and their method of exiting high school, i.e. dropped-out of school, received a standard diploma, or received a certificate of attendance.

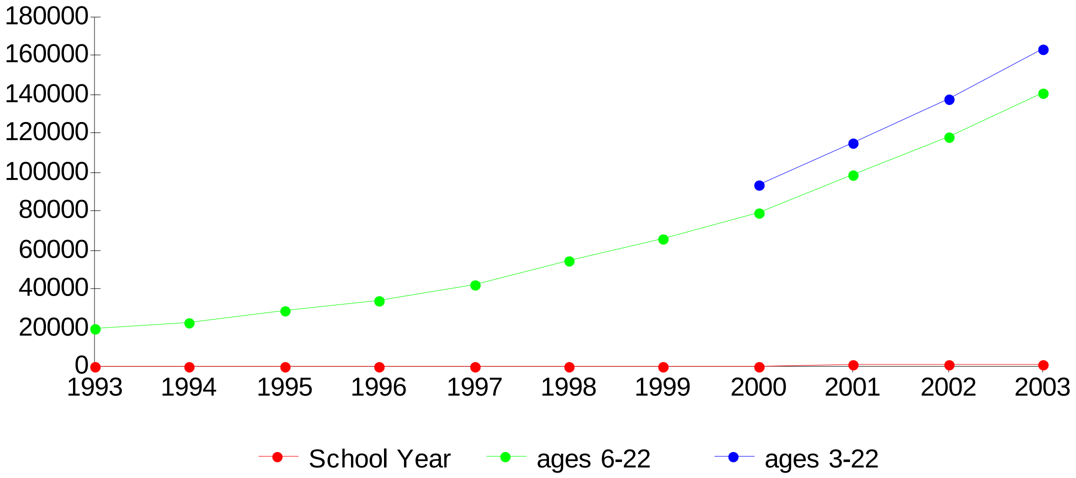

Figure 2. Incidence of Autism in the United States

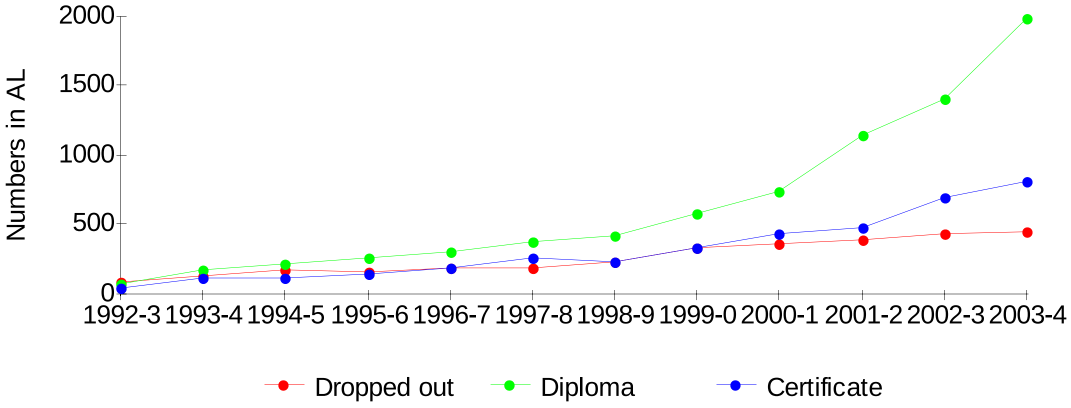

Figure 3. Method of Exiting High School

Figure 4 contains the percentages of students who are 14 years or older served in the United States under Part B of the IDEA under the category of autism.

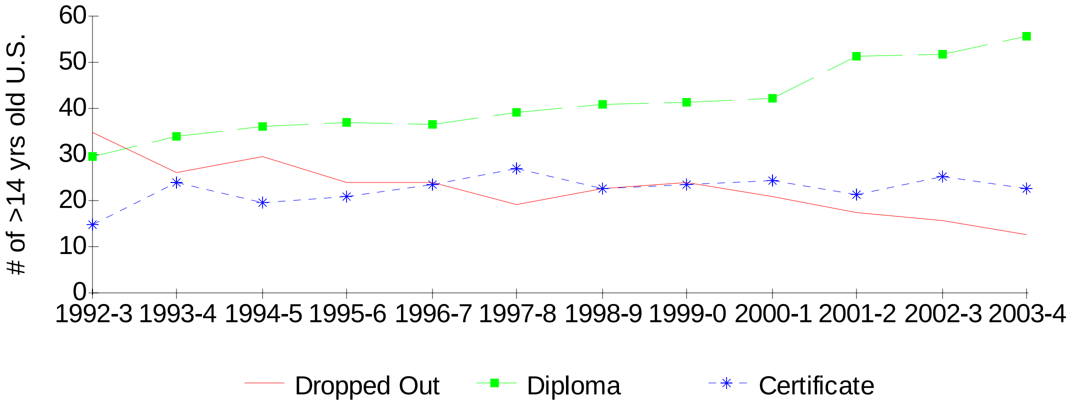

Figure 4. Method of Exiting High School Reported in Percentages

Without question, the number of individuals diagnosed with autism is increasing. In addition, the number of individuals reaching transition age is increasing yearly. The number of students with autism who dropped out of school has decreased in the past decade in the United States; but, in Alabama, the number of adolescents dropping out of school has increased over the past decade. The number of individuals who remain in school and receive either a standard diploma or a certificate of attendance has also increased in Alabama and in the total figures for the United States. The increase in both drop-outs and in those exiting high school regardless of the type of diploma is possible due to the increase in the numbers of individuals being served. In both the state of Alabama and in the United States, the numbers of individuals diagnosed with autism who are at the age of employment are increasing annually.

Employment of Individuals Diagnosed with Autism

Autism became a category under IDEA in 1990. Because of the newness of the disability as a category, there are fewer data for individuals diagnosed with autism than for those who receive services under other disability categories, excluding TBI (U.S. Office of Special Education, 2006). The initial attention to autism was on early intervention and education of school aged individuals. There are few studies on the employment of individuals diagnosed with autism. Two major themes involving outcomes have evolved through this review of the literature: individuals with autism are not gaining and maintaining employment and those who are employed need support to maintain their jobs.

Kanner, Rodriguez, and Ashenden (1972) completed one of the first studies on the outcomes of individuals diagnosed with autism. They followed 96 children who had a diagnosis of autism. When these 96 individuals were in their twenties and thirties the researchers found that only 11 were employed. Of these 11 individuals, their jobs ranged from an accountant to a dishwasher, and one was enrolled at a college. Seven from this group lived independently, owning their own home, and one was married and had a child. The remaining participants were dependent on their families

The next several studies group participating individuals diagnosed with ASD by IQ levels. Each study has a different criterion for participation in the study and report their findings based on IQ levels of the participants. Szatmari, Bartolucci, Bremner, Bond, and Rich (1989) focused on individuals with IQ > 65. Venter, Lord, and Schopler (1992) studied individuals who were considered high functioning (IQ > 60). Ballaban-Gill, Rapin, Tuchman, and Shinnar (1996) divided their participants into the following three groups: normal to near-normal intelligence, mild to moderate mental retardation (MMR) [*sic*], and severe to profound mental retardation (SMR) [*sic*]. Keogh, Bernheimer, and Guthrie (2004) investigated the effects of IQ on employment. The participants were divided into the following three groups: Low IQ = 25 to 49, Medium IQ = 57 to 74, and High IQ = 75 to 113. Howlin, Goode, Hutton, and Rutter (2004) focused on individuals who were 21 years or older and had a non-verbal IQ of 50 or higher. Mawhood and Howlin (1999) studied individuals who had a diagnosis of Asperger's Syndrome or higher functioning autism. Howlin, Alcock, and Burkin (2005) conducted a follow-up study on Mawhood and Howlin (1999); however, the authors focused on employment outcomes as they relate to IQ levels. The following is a more in-depth description of the studies that grouped participants by IQ levels.

Szatmari et al. (1989) conducted a study of 16 individuals diagnosed with autism. The authors followed the participants between 11 and 27 years after the initial assessments as children in an assessment center in Toronto. The participants consisted of 12 males and 4 females who had a mean age of 26 years and a mean IQ of 92. The requirements to be eligible for the study were: (a) born in 1970, (b) diagnosis of autism, childhood schizophrenia, or childhood psychosis, and (c) IQ of 65 or above. The average IQ at the initial assessment was 89.3 ± 14.6. Eleven individuals used words or phrases before the age of 5 years and all had a diagnosis of autism.

Szatmari et al. (1989) assessed participants with the Vineland Adaptive Behavior Scale (Sparrow, Balla, & Cicchetti, 1984), Diagnostic Interview for Children and Adolescents (DICA; Herjanic & Reich, 1982), and Rating Scale for Social Impairments (RSSI), developed by the authors of the study. The neuropsychological assessments consisted of the WAIS-R (Wechsler, 1981), Grooved Pegboard (Matthews & Klove, 1964), The Token Test (DiSimoni, 1978), Wisconsin Card Sorting Test (Grant & Beery, 1981), and Beery Visual Motor Integration Test (Beery, 1967).

Predictions of outcomes (e.g. unemployed, employed, and whether lived independently) were made based on composite scores from the Vineland Adaptive Behavior Scale and the scores when correlated with other assessment scores. The authors focused on three variable (a) social (the sum of the social impairments towards mother, other adults, and peers), (b) deviant language (the sum of echolalia, pronoun reversal, and repetitive speech), and (c) bizarre responses (the sum of insistence on sameness, rituals, stereotypes, and altered sensitivity to stimuli). Pearson correlations were made between six assessment summary scores (i.e., RSSI, WAIS-R, Grooved Pegboard, Token Test, Wisconsin Card Sorting Test, and Visual Motor Integration test) and the Vineland Adaptive Behavior composite scores. Two of the six correlations resulted in moderate to high coefficients: adaptive behavior (r = .60, Vineland Adaptive Behavior Scale) and the Wisconsin Card Sort Test that measures nonverbal problem solving (r = .68). Two of the six correlations resulted in low to moderate coefficients: Beery Test of Visual-Motor Integration (r = .28), and motor coordination (r = .31). The remaining two correlations resulted in low coefficients: the Token Test that measures receptive language (r = .14) and the Benton test of Facial Recognition (r = .20). The correlations indicate that IQ, when coupled with adaptive behavior and nonverbal problem solving, is a good predictor of employment outcomes. Receptive language, visual motor integration, facial recognition, and motor skills when paired with IQ are not good predictors of employment outcomes as an adult (Szatmari et al., 1989).

The outcomes (e.g. type employment and/or living) for students in the Szatmari et al. (1989) study were as follows: two participants were unemployed, four participants were working in sheltered workshops, six participants had full-time employment, three participants were students, and one participant was working in a family business. Ten of the participants were living at home with their families and one participant was living in a group home. The remaining five participants were living independently.

The history of the participants was taken in retrospect. In addition, the neuropsychological data (i.e. the participants were assessed by the above mentioned assessments) were obtained at the same time as the outcome data were collected (i.e., employment status, type of employment, and whether individuals lived independently, etc). The assessment scores were compared with the outcome data to determine whether there were any predictors of employment. The results of the study indicate that outcome cannot be predicted by the history of the subjects. Nonverbal problem solving and IQ account for a considerable amount of the variance when predicting the outcome of the subjects (r = .60, and r = .68 respectively). The authors stated that, because the nonverbal problem solving, which is assessed through the Wisconsin Card Sort Test and measures frontal lobe function, has such a high correlation with outcome, further research should be focused on assessments that are more cognitively specific than a composite IQ score. Specific assessments could lead to greater prediction in the outcomes for individuals diagnosed with autism.

The authors investigated possible predictors of employment outcomes for individuals diagnosed with autism. The study revealed that IQ and nonverbal problem solving were highly correlated with outcomes for the subjects. The subjects' IQ scores at the time of follow-up ranged from 68 to 110 with a mean IQ of 92.4 (SD = 14.2). Of these individuals, seven (44%) were employed in jobs with their typical peers, i.e., competitive employment. Four individuals (25%) were employed in sheltered workshops, two people (12%) were unemployed, and three subjects (19%) were students. The significance of this study is that these subjects were considered to be high-functioning individuals diagnosed with autism and only 44% were competitively employed. When considering transition outcomes with the goal being employment, this study has indicated that IQ and non-verbal problem solving are not good predictors; but, 44% employment is a greater percentage than those found in other studies (Ballaban-Gil et al., 1996; Szatmari et al., 1989; Venter et al., 1992).

Venter et al. (1992) studied 58 high functioning (IQ > 60) children with autism over an eight-year period. The researchers focused on behavioral and cognitive skills and their predictive nature in academics, social-adaptive skills (i.e., social skills), school placement, and employment outcomes. The sample consisted of 35 males and 23 females. At the time of the initial evaluations, the mean total group IQ was 80.24, with most being non-verbal scores. The mean male IQ was 82.3 and the mean female IQ was 76.3 (Raven's Standard Progressive Matrices, 1960; Wechsler Intelligence Scales for Children-Revised [WISC-R], 1974: and/or Wechsler Adult Intelligence Scale-Revised [WAIS-R], 1981). The ages of the subjects ranged from 10 to 37 years with a mean age of 14.69 years. Follow-up assessment occurred eight years after initial evaluations. Out of the 58 participants, 53 were able to obtain a full scale IQ score with either the WISC-R or the WAIS-R (mean IQ = 79.21) or an IQ score with the Raven's Standard Progressive Matrices (mean IQ = 89.02) (the Raven's has a mean standard score of 100).

By using multiple regression analyses, the authors assessed the measured variables (i.e., the assessment scores from both the initial and follow-up assessments) to evaluate if any of the variables predicted employment. The Vineland Adaptive Behavior Scales (VABS; Sparrow et al., 1984) composite score and the achievement scores were used as the outcome variables. The authors also ran correlations between the outcome measures (i.e., academic achievement and social-adaptive behavior) and the predictors.

Thirty-nine of the 58 subjects were reported to have useful speech before five years of age. All 58 subjects at follow-up met operationalized criteria on the DSM-IV and the Autism Diagnostic Interview (ADI; Le Couteur, et al., 1989). The ADI and the VABS were used to assess behavior. At follow-up, the VABS composite score mean was 41.64, SD = 22.12. The following assessments scores were analyzed to determine whether the scores could predict successful outcomes (e.g. academics, independence, and employment): The Raven's Progressive Matrices (Raven, 1960), Peabody Picture

Vocabulary Test (PPVT; Dunn & Dunn, 1981), Neale Analysis of Reading (Neale, 1958), Schonell Graded Spelling Test (Schonell & Schonell, 1960), and the Enright Diagnostic Math Test (Enright, 1983).

The following scores are a result of the follow-up assessments: PPVT mean = 65.24, SD = 31.98, Raven mean = 89.02, SD =20.43, Neale Analysis of Reading Comprehension (reported in age-equivalency in years) mean = 8.3, SD = 2.30. The follow-up assessment mean scores were not significantly different than the initial scores; however, the total IQ means (i.e. based on chronological age) remained between the test's mean score and one standard deviation below the mean on both the initial and follow-up assessments.

In addition to the comparisons of cognitive abilities, Venter et al. (1992) focused on individuals who were considered employable, those subjects who were 18 years or older. Out of the 22 subjects who were 18 years or older, six (27%) were competitively employed, 13 (59%) participated in sheltered workshops, supervised employment, and/or in special school programs. Three (13.6%) were unemployed and were not in school. One of the 22 subjects was a college graduate; but, he had been employed twice in a one-year period and terminated twice in that same year. All of those individuals who were competitively employed were in low-level jobs. Subjects were categorized to compare them as: "ever-competitively employed", "in sheltered or supervised employment or education", and "no employment or school." The authors used these three groupings to assess predictors to employment outcomes. When considering the 22 subjects over 18 years of age, the authors reported that verbal IQ and reading comprehension scores for the competitively employed group were all above the group median. In addition, the

PPVT, math, and oral comprehension scores were found to be statistically significantly higher for the competitively employed group than the scores for the other two groups. Though these results were found to be significant by the authors, they did not provide additional data to support their findings for the sub-group 18 years or older (Venter et al., 1992).

The authors stated that there was no significant difference between the three employment groupings relative to non-verbal IQ, reading accuracy, spelling, VABS, and the severity of social deviance; but, the investigators did not include data to support their findings**.** Of the employment age group, 19 out of the 22 subjects (86%) scored below 70 on the VABS, indicating that this group consisted of individuals with challenging behaviors. In addition, the authors reported that of the three individuals who were unemployed, two were females and all six of those who were competitively employed were males. Lastly, the researchers found that there was no significant relationship between employment and the type of educational services received in high school.

In addition, the authors stated that there were limitations concerning the sample size and the lack of randomization of job assignments. In terms of employment and what factors might predict employment, the authors should have provided more information concerning the 22 individuals who were 18 years or older. In addition, more information and data were necessary for making any assumptions and/or predictions for the subgroup, those 18 years or older, pertaining to outcomes of employment. The authors reported a 27% employment rate of those 18 years or older; but, with the lack of data to support the results, predictions concerning individuals diagnosed with autism and employment cannot be ascertained.

Ballaban-Gil et al. (1996) conducted a follow-up study of 102 individuals diagnosed with autism. Of the 102 subjects, 54 were adolescents (ages 12-18 years) and 45 were adults (18 years and older). Three had died between the initial evaluation and follow-up. The criteria for participating in the study consisted of having a diagnosis that was based on the DSM-IV and being 12 years of age by January 1, 1991. Initially the eligible subjects totaled 163. The authors were able to locate 106 individuals; but four refused to participate. The mean age at the initial evaluation was 6.8 years and the mean age at the time of follow-up was 18.1 years. The average length of time between the initial evaluation and the follow-up was 11.3 years.

Each family participated in a telephone interview that contained questions concerning the child's behavior, receptive and expressive language, education, academic performance, social skills, daily living, work, neuropsychological testing, hearing, vision, medical history, and psychiatric wellness, including seizures. Based on childhood cognitive estimates (Tuchman, Rapin, & Shinnar, 1991), the subjects were originally divided into three groups: normal to near-normal intelligence, mild to moderate mental retardation (MMR)[*sic*], and severe to profound mental retardation (SMR) [*sic*]. A fourth group was added, the indeterminate group that was composed of subjects for whom there was not enough information to determine which group was most suitable. Subjects were also placed into three groups based on social ability: “normal to near-normal social ability, pseudosocial or inappropriately interactive, and socially aloof or withdrawn.” Lastly, subjects were evaluated based on their behaviors (e.g., self-injurious behaviors, temper tantrums) (Zar, 1984).

At the initial evaluation of cognitive abilities, 22% were classified as normal or near-normal intelligence, 15% MMR [*sic*], 28% indeterminate, and 31% SMR [*sic*]. At follow-up, subjects were classified as 36% normal or near normal, 30% MMR [*sic*], 2% indeterminate, and 31% SMR [*sic*]. At the time of follow-up, 69% of both adolescents and adults had behavior difficulties. In addition, only 3% of the entire sample reported no social deficits. Assessments concerning language were conducted on everyone except those with hearing loss and those who were in the SMR [*sic*] group. Those individuals in the normal or near-normal language group at the initial evaluation made the most improvements in language (Tuchman et al., 1991).

The authors reported employment outcomes; but, they failed to report the employment rates based on the three classifications: near normal intelligence, MMR [*sic*], and SMR [*sic*]. The researchers reported that of the adults, 27% participated in some type of employment. Five adults (11%) were employed in the “open market” with all being “menial jobs”. Six adults (16%) participated in sheltered workshops. Of the adolescents, two were employed part-time, with one individual cutting lawns and one washing cars. Only five adults were employed in the “open market” while 34 of them had normal to near-normal cognitive levels.

One thing that can be gleaned from this study is that the sample had poor employment outcomes. The authors focused on cognitive, language, behavioral, and social skill/abilities. They stated that when assessing the sample’s language ability, they did not assess the 31% that comprised the SMR [*sic*] group and those who had a hearing loss. The fact that the study had an indeterminate cognitive group leaves room to question the validity of the study. The authors reported an employment rate of 27%; but, they did not provide data that could add to the scientific knowledge base concerning the employment of individuals diagnosed with autism. If the authors had provided data concerning employment rates as they relate to the different IQ groups discussed in the study, the information could have been used in further research to support predictive factors on employment.

Schaller and Yang (2005) studied 450 individuals diagnosed with autism who participated in competitive employment and 365 individuals diagnosed with autism who participated in supported employment. All 815 participants were in the national 2001 Rehabilitation Services Administration (RSA) 911 database. This data base is comprised of all individuals who receive rehabilitation services. There were 1,323 individuals diagnosed with autism in the database; however, only 815 received services for competitive employment and supported employment. Of the 815 participants, 55% participated in competitive employment. Males represented 84% of those in competitive employment. The ethnicity breakdown was 80 % White, 14% African-American, 3% Asian and/or Pacific Islands, and 3% Hispanic. The mean age was 25.3 years, 62% had 10 to 12 years of education, and 24% had received special education services.

Of the 815 participants in the study, 44% participated in supported employment. Of these participants, 88% were males. From this same group, 76% were White, 15% African-American, 5% Asian and/or Pacific Islands, and 4% Hispanic. The mean age of those receiving services of supported employment was 27.3 years, 61% had 10 to 12 years of education, and 26% had received special education services.

The results of the Schaller and Yang (2005) study were mixed when comparing supported employment and competitive employment. Of the 365 in supported employment, 275 (75%) had successful closure from Vocational Rehabilitation Services. Vocational Rehabilitation Services considers a case to be successfully closed when an individual is able to be independent via maintaining employment without further vocational rehabilitation services. Of the 450 participating in competitive employment, 263 (58%) were successfully closed cases. Those in supported employment worked 22.21 hours per week compared to 27.19 hours for those in competitive employment. The average weekly pay rate for the competitive employment group was $205.31 compared to $138.35 for the supported employment group. The mean cost of services for successful closure of a case resulting in competitive employment was $3,341.14. The mean cost of services for successful closure for those receiving supported employment was $6,882.46.

Higher closure rates for those in supported employment involve ongoing supports compared to time limited supports involved with competitive employment (Schaller & Yang, 2005). Often, individuals diagnosed with autism require on-going support in order to retain employment; therefore, supported employment had a higher closure rate than competitive employment for individuals diagnosed with autism. The higher pay rates for those in competitive employment were thought to be due to the nature of the job. Having a job coach is usually not deemed appropriate for higher paying jobs. Another possible reason for lower wages and fewer hours worked is the concern over losing Supplemental Security Income (SSI). The type of employment services must be based on the individual needs of each participant. The type and nature of support necessary to be successful in gaining and maintaining employment should determine the type of employment services received by individuals diagnosed with autism (Schaller & Yang, 2005).

Keogh et al. (2004) conducted a 20-year follow-up study for 30 individuals who had been diagnosed with a developmental disability by age 3 years. The researchers investigated whether IQ affected their employment outcomes. There were 18 males and 12 females with a mean chronological age of 21.5 years for males and 22.67 years for females. The participants were given five IQ tests between ages 3 through 12 years. The mean IQ for males was 64.43 and for females 63.23 at the initial evaluation. Each family of the participating individuals was sent a REACH Status Questionnaire for Parents (research began with Bernheimer and Keogh, 1986), Behavior and Emotional Scale (Epstein & Sharma, 1997), and Perceived Life Satisfaction Scales (Adelman, Taylor, & Nelson, 1989). Each individual and a parent or guardian was also interviewed separately.

Based on the results of the status of living, education, and employment, subjects were divided into three groups: Low IQ = 25 to 49, Medium IQ = 57 to 74, and High IQ =75-113 with 10 participants in each group. Of the 30 participants, 16 lived at home with their family, one lived in a relative’s home, seven lived in group homes, two had received supported living services, and four lived independently. Three of the four who lived independently were in the high IQ category and the fourth person was in the medium IQ category. This indicates that 13% of the participants lived independently. Participants in the study received educational services in a variety of ways: 22 received total special education services, two participated in both special education and general education settings, three received services in the resource room, and three were totally included in the general education classroom. All six individuals receiving services in the resource room and in the general education classroom were in the high IQ category. Of the sample, 73% received total special education services while 10% were in total general education classes. The remaining 17% received a mixture of educational services.

Based on their interviews, Keogh et al. (2004) also grouped the subjects into three groups that defined the relationships of the young adult to his/her parent: dependent, independent, and interdependent. The authors used ANOVA to compare the three groups (1) dependent (i.e., those participants with the lowest IQ scores), (2) interdependent (i.e., those participants with IQ scores in the middle range), and (3) independent (i.e., those participants with the highest IQ scores). Significant differences were found between groups on the REACH domain scores and the Behavioral and Emotional Scale (Epstein & Sharma, 1997).

After comparing the dependent, interdependent, and independent groups, the dependent group had statistically significant higher scores on the Behavior and Emotional Scales. Between the interdependent and independent groups, the interdependent group had significantly higher conduct problems and behavior problems. Likewise, the interdependent group had significantly lower scores on Behaviors and Emotional Scale than the independent group.

Of the 30 participants, six (20%) participants had competitive employment, five (16.6%) had assisted employment, five (16.6%) worked in sheltered workshops, two (6.6%) volunteered, and 12 (40%) were not employed. Those that were competitively employed consisted of the following groupings: four high IQ, two medium IQ, and zero low IQ. Of those who gained assisted employment, zero had high IQ, two had medium IQs, and three had low IQs. Those who were employed in sheltered workshops consisted of the following groupings: zero high IQ, two medium IQs, and three low IQs. Both one person from the low IQ group and the medium IQ group volunteered and there were no volunteers from the high IQ group. Of the 12 individuals who did not work, six were from the high IQ group, three were from the medium IQ group, and 3 were from the low IQ group.

The subjects in this study had a wide range of cognitive levels. There was a strong probability that the higher an individual's IQ, the better the outcome in terms of independent living, education and employment. Only 36.6% were either competitively employed or were receiving on-going assistance on a job. Intelligence cannot be the only variable when predicting employment. Four of the six individuals who were competitively employed were in the high IQ group, but the remaining two were in the middle IQ group. At the same time, the high IQ group had the most individuals unemployed as compared to the low and middle IQ groups. Individuals with developmental disabilities need support in adulthood regardless of their intellectual capabilities.

Howlin et al. (2004) focused on adult outcomes of individuals diagnosed with autism. The study followed 68 individuals who met the following criteria: diagnosed with autism before the age of 16 years, non-verbal IQ in childhood of 50 or higher, and 21 years old or older at the time of the follow-up. The investigators studied outcomes (e.g., employment, independent living, and socialization skills) based on three measures: cognitive, language, and socialization; however, the authors admit that the analysis focuses on the "consistency of patterns" in the data due to the sub-group sizes being small.

The participants had all been referred to the Children's Department of Maudsley Hospital in London. Of the participants, 19 were first seen between 1950 and 1959, 28 between the years 1960 and 1969, and the remaining 21 subjects were seen between 1970 and 1979. Of the group, 61 were males and 7 were females. At the time of the initial assessment, the mean age was seven years and the mean age at the time of follow-up was 29.33 years. Initial mean performance IQ was 80.21. Follow-up assessments and interviews were conducted between 1985 and 1991. The Autism Diagnostic Inventory (ADI) was administered, with parents, and in one case a sibling, providing the data. The ADI was used to assess behavior and socialization, while IQ was assessed using the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981), Raven's Progressive Matrices (Raven, 1976), the Leiter Scale (Levine, 1982) or Merrill Palmer Scale (Stutsman, 1948), and the British Picture Vocabulary Scale (Dunn, Dunn, Whetton, & Pintillie, 1982).

At the time of follow-up, examiners were able to obtain a Full Scale IQ for 44 subjects. Examiners obtained Performances IQs only for two subjects and Verbal IQs only for one subject. IQs for all subjects were obtained using the WAIS-R. Of the remaining 21 participants, 15 were assessed using the Raven's, five were assessed using the Leiter, and one was assessed using the Merrill Palmer. The overall mean IQ was 75 with a standard deviation of 21.52. The mean group IQ scores for the individuals assessed with each of the respective tests were as follows: WAIS-R = 84.48 (S.D. = 16.06), Raven's = 61.53 (S.D. = 17.94), and Merrill Palmer of Leiter = 39.67 (S.D. = 4.59).

Language was assessed for 45 of the subjects using the WAIS-R Verbal Scale. The mean Verbal IQ for this group was 79.78 with a standard deviation of 18.86. All subjects were given the British Picture Vocabulary Scale (Dunn et al., 1982) with four subjects scoring below the basal. For many subjects, determining a standard score was impossible because they were older than the test allowed; therefore, the authors calculated their age equivalent scores. Due to the manipulation of the age equivalents, the authors suggested that the language scores be used with caution. Of the 68 subjects, 33 had a language age of 6 years, while 24 subjects had language ages from 6 to 15 years, and the remaining 11 had ages above the 15-year old level. By using ADI norms, seven subjects were rated as having good language, 21 subjects had mild impairments, six subjects had moderately impaired language, 27 subjects had severely impaired language, and six subjects had no language. Abnormal language was also rated using the ADI. Based on ADI categories, 23 subjects had no or few abnormalities, 21 showed occasional /mild problems, and nine had moderate/severe problems.

There was a statistically significant difference between mean Performance IQ scores obtained during childhood (mean PIQ = 80.21, SD = 19.28) and mean Performance IQ scores obtained for the same subjects as adults (mean PIQ = 75, SD = 21.52). There was not a significant difference between the initial and follow-up Verbal IQ scores. The initial Verbal IQ mean score was 61.49 (SD = 21.26) and the adult mean verbal IQ score was 69.64 (SD = 27.16).

The participants were divided into two groups. One group contained individuals with IQs of 70 or above (n = 45) while the second group consisted of individuals whose IQ ranged from 50 to 69 (n = 23). The higher IQ group had statistically significant higher scores on the following outcomes measures than the lower IQ group: residential status, $p < .001$, quality of friendships, $p < .006$, educational level, $p < .004$, level of work, p <

.033, and total socialization, p < .002. Overall, the individuals in the higher IQ group had higher performance outcomes than individuals with lower IQs. In addition, mean levels were used when comparing employment levels of the groups. Most of the individuals who were involved in employment (i.e., paid, sheltered, or voluntary) came from the higher IQ group. Only one person in the lower IQ group was independently employed.

Of the participants, 23 individuals (33.8%) were employed, eight were independently working, one was self-employed, 14 participated in supported employment, sheltered workshops, or volunteered, and one was unemployed. Ten participants worked in jobs arranged through their residential program i.e. “weaving, gardening, bakery, etc.” (p. 216). An additional five participants worked in activities at their residential program. One person at the time of follow-up had lost his job due to residential placement changes. The remaining participants were involved in work/leisure activities within their residential and/or day programs, e.g. sheltered “schemes”/ assembly.

Overall the results indicated that approximately one-third of the participants were involved in some type of employment. The jobs that the majority of these individuals held were low paying and did not allow the participants to be financially independent. The authors concluded that out of the 68 participants, 57% were rated as having a ‘Poor’ or ‘Very Poor” outcome. The authors stated that in the 1970s and 1980s there was only a 10% rate of participation in sheltered workshops; but, at the time of follow-up that rate had increased to 34%. Also, at the time of follow-up, only 10% were able to live semi/independently. The participants who had a Performance IQ of 70 or greater on their initial assessment fared better in outcome performance than those who had lower Performance IQ scores.

This study is one of the most detailed studies focused on individuals diagnosed with autism and employment. The authors thoroughly assessed the subjects by assessing cognitive, language and outcome measures. The data from this study indicated that only 33.8% of individuals diagnosed with autism gained employment. The types of jobs attained by the subjects did not allow for financial independence. In addition, the numbers of individuals participating in sheltered workshops increased by 24% during the time period when the trend in employment for individuals with significant disabilities was moving away from sheltered workshops toward supported employment. There is one significant threat to the validity of the study’s results. When the authors correlated high and low IQs with outcomes, some of the scores were manipulated due to either a test not being age appropriate or to not being able to obtain a score for some subjects. Nevertheless, results from the study indicate that the majority of adults with autism are dependent on their families and others for support.

Mawhood and Howlin (1999) focused on the outcomes for individuals diagnosed with higher functioning autism and Asperger’s Syndrome. The study was a follow-up study of 30 individuals, 27 males and three females, who had a diagnosis of autism or Asperger’s Syndrome and whose IQ was 70 or higher. Participants in the study had to be actively seeking employment and had to have the ability to work in London, travel independently, and maintain employment with minimal support. In addition, participants could have no psychiatric or physical problems that would interfere with their employment. There were 20 males in the control group. All met the criteria for the sample; but, not all of the individuals in the control group lived in London.

The study was conducted over two years and the mean length of time that the participants were involved was 17.03 months. Initially, subjects were given a battery of assessments to measure cognitive ability, language skills, academics and 'social understanding'. The sample group, also called the support group, consisted of 23 individuals diagnosed with Asperger's syndrome, five diagnosed with autism, and two diagnosed with autism spectrum disorder (ASD). The mean age of this group was 31.1 years. Administering the WAIS-R to the support group yielded a mean full scale IQ of 98.9, a mean Performance IQ of 91.6 and a mean Verbal IQ of 104.1. The mean score on the British Picture Vocabulary Scales (BPVS: Dunn et al., 1982) was 94.7, and the group mean for the Expressive One-Word Picture Vocabulary Test (EOWPVT; Gardner, 1979) was 99.3. The control group consisted of 18 individuals diagnosed with Asperger's Syndrome, one person diagnosed with autism and one person diagnosed with ASD. The mean age of the control group was 28.0 years. The mean WAIS-R full scale IQ for the control group was 99.7, with a verbal IQ of 101.6, and a Performance IQ of 92.2. The group mean for the British Picture Vocabulary Scales (BPVS; Dunn et al., 1982) was 91.8, while the group mean for the Expressive One-Word Picture Vocabulary Test (EOWPVT; Gardner, 1979) was 98.6. Of the support group, six people had a Bachelor's degree or higher and five from the control group had a Bachelor's degree or higher.

After the initial assessments, the support personnel (i.e., a collaborative effort between The National Autistic Society and the Department of Employment funding a full-time coordinator, one part-time and two full-time specialists in the area of employment, and a part-time administrator) were to find appropriate jobs for the individuals in the sample group. The support personnel were to complete all work preparation, and teach the employers and future colleagues how to work successfully with individuals diagnosed with autism. Support personnel would support each individual involved in the study for 2-4 weeks on a full time basis. After that, support personnel would appear either once or twice weekly as needed. By the fourth month, support personnel would make announced visits and meet with the individual and his/her superiors and colleagues. In addition, the support personnel were on call at all times in case of an emergency.

At the end of the study, 19 people (63%) in the sample group had acquired paid employment, three of which had two jobs during the study for a total of 22 jobs for the sample group. Only 5 people in the control group found paid employment during the study. The authors used different non-parametric techniques (i.e., Yates’ correction, Mann-Whitney or Wilcox). For the sample group, there was a statistically significant increase in the number of individuals in supported employment from the beginning to the end of the study. For the control group, there was not a significant difference in the number of individuals in supported employment from the beginning to the end of the study. In addition, the number of individuals employed in the sample group was significantly higher than the number of individuals employed in the control group at the study’s end.

The findings indicate that individuals diagnosed with high functioning autism and Asperger’s Syndrome can gain and maintain employment if they have support. Because jobs had been carefully matched to the individuals in the experimental sample and because full-time support was provided initially, then slowly decreased, the sample was successful in gaining and maintaining employment. Support was also provided to employers, colleagues, etc. The control group, or those without support, had a much more difficult time gaining and maintaining employment, as they had a 43% lower employment rate than those with support. The results support the conclusion that individuals diagnosed with Asperger’s Syndrome, or high functioning autism, need support in order to gain and maintain employment.

Howlin et al. (2005) focused on supported employment outcomes for 89 individuals diagnosed with high functioning autism and Asperger’s Syndrome (i.e., IQ > 60) from April 1995 to March 2003. This study was a follow-up to the Mawhood and Howlin (1999) study in which outcomes for 30 individuals diagnosed with autism were examined. The employment program that originated in London and was described in the Mawhood and Howlin (1999) study changed its name to ‘Prospects’ and increased in size by expanding its programs to Glasgow, Sheffield, and Manchester. All of the programs followed the original model, providing job preparation, finding jobs that were appropriate for the individual, and offering support on the job.

To determine whether the clientele had changed from the original model to the later model, people who were clients between 2002 and 2003 were asked to participate in the study. Of the 117 invited clients, 89 (76%) agreed to participate. These individuals were assessed using the same assessments as in the original model, assessing non-verbal IQ, receptive language, and expressive language. In addition, the clientele were asked questions regarding education, living arrangements, job satisfaction and satisfaction with the program. The results indicated that the 2002-03 group of 89 clients was similar to the original sample, which consisted of 30 clients in the Mawhood and Howlin (1999) study. There was a statistically significant difference between the two groups in language comprehension with the 2002-03 groups being higher. In terms of IQ and expressive language there was not a statistically significant difference ($p = 0.28$) between the group in London and the groups in Glasgow, Sheffield, and Manchester.

A total of 192 jobs were found between 1995 and 2003. Of the 192 jobs, 134 (70%) met the Department for Work and Pensions' two criteria: work more than sixteen hours per week and hold a job for over thirteen weeks. The jobs fell into three categories: permanent, short-term, and temporary. When comparing the number of permanent jobs in 1999 to the number of permanent jobs at the end of the study, permanent jobs grew, but not at a statistically significant rate.

Salaries and benefits were also compared in the follow-up study. Due to the inability to gather data on income, expenditures, and sources of funding, data from the National Autistic Society Accounts Department were assessed. Between the periods of April 1, 2000 and March 31, 2003, data were obtained from 136 clients who found work during the same time period as the study. Of the 136 clients, 114 provided data concerning their salaries and benefits. There was a significant difference in the reduction of paid benefits received from the government prior to being employed and after finding employment, $p < 0.001$. Salaries increased significantly from before becoming a client of Prospects to finding employment. The median salary prior to becoming a client was zero compared to £9,281 (i.e., $16,155.44 as of 4/8/06) after gaining employment.

The overall results reveal a rise in employment from 63% to 67% over the eight-year study. The majority of jobs were permanent. Salaries increased while benefits received from the government decreased. The authors stated that successful outcomes were due to the vocational preparation, finding employment that is appropriate to the individual and on-the-job support. Finding employment for individuals is time consuming and the support can be costly, especially during the initial stages; but, the Prospects program has demonstrated that, with support, individuals diagnosed with autism can gain and maintain employment.

Results of the follow-up study support the conclusion by Mawhood and Howlin (1999) that individuals diagnosed with Asperger’s Syndrome, or high functioning individuals diagnosed with autism, can gain and maintain employment if they have support. Without support, these individuals do not have successful rates of employment.

The results from Mawhood and Howlin (1999) and Howlin et al. (2005) divided the participants into IQ levels; however, the outcomes were reported in terms of employment. The outcomes of the studies revealed that individuals with higher IQ levels need support if they are to gain and maintain employment. Garcia-Villamisar, Ross, and Wehman (2000) and Garcia-Villamisar, Wehman, and Navarro (2002) grouped their participants in terms of employment, e.g. sheltered workshops and supported employment. The two studies focus on the effects of different types of employment on individuals diagnosed with ASD.

Garcia-Villamisar et al. (2000) focused on the effects of sheltered workshops and supported employment on individuals diagnosed with autism. There were 55 subjects in their study that was conducted in Spain and Germany. In order to collect the needed data, families, guardians and/or caretakers, and therapists were interviewed. The Childhood Autism Rating Scale (CARS) was used to assess all participants. The 55 participants were divided into two groups, those who worked in sheltered workshops and those who were involved in supported employment. The sheltered workshop participants' mean age was 21.07 years and the mean IQ was 55.52. The sample was composed of 31% females and 69% males. The supported employment participants' mean age was 21.64 years and the mean IQ was 57.41. The sample consisted of 84% males and 16% females.

Twenty-one participants were placed in the supported employment group. The jobs were mainly community jobs such as food services, retail, gardening, agriculture, etc. At each job site, no more than two persons with autism were employed and everyone worked between 15 and 30 hours per week while earning competitive pay rates. Each participant was assigned a job coach. The average length of employment was 30 months between 1996 and 1999.

Through repeated measures analysis of variance, there was no statistically significant difference in the total CARS scores for the two groups at the beginning of the study in 1996. When comparing behaviors within the groups, there was a significant difference in the sheltered workshop group. The sheltered workshop group demonstrated a statistically significant increase in symptoms of autism between the years 1996-1999. The supported employment participants had no change in their "pathology" between the beginning and ending of the study, 1996-1999. The sheltered workshop participants did have a significant difference in their demonstrating greater "pathological severity" (Garcia-Villamisar et al., 2000, p. 185).

The results indicate that individuals diagnosed with autism are more likely to develop greater autistic tendencies when employed in a sheltered workshop environment. The majority of workers in sheltered workshops are individuals with significant disabilities; therefore, typical peer interactions are between individuals with significant disabilities. Individuals in sheltered workshops are not exposed to appropriate social skills by their typical peers; therefore, it is not surprising that the participants should have increases in autistic tendencies. Supported employment guarantees that an individual with a disability will have direct contact with at least one non-disabled person, the one offering the support. In addition, supported employment occurs in settings that include non-disabled individuals. As a result, the individual with autism is seeing appropriate behaviors demonstrated on the worksite.

Garcia-Villamisar et al. (2002) extended the Garcia-Villamisar et al. (2000) study by using the same participants, but with a different focus. Garcia-Villamisar et al. (2002) studied the impact of sheltered workshops versus supported employment on the quality of life of individuals diagnosed with autism between 1996 and 2000. The same 55 participants were involved; but the authors chose to extend the study for one year.

Quality of Life Surveys (QLS; Sinnot-Oswald, Gliner, & Spencer, 1991) were conducted in 1996 and 2000. The data for QLSs were collected through interview of the participants or the job coach if the participant was non-verbal. The survey results were analyzed through multiple analyses of variance comparing the sheltered work group to the supported employment group. At the beginning of the study, in 1996, there was no significant difference between the two groups on the QLS. By 2000, the supported employment group had statistically significant higher mean scores than the sheltered work group on the QLS.

The individuals participating in sheltered workshops did not have significant increases in their quality of life global scores. At the same time, those individuals participating in supported employment had a statistically significant increase in quality of life global scores. The quality of life for individuals diagnosed with autism can increase or decrease depending on their type of employment. Sheltered workshops are typically isolated from the community. Therefore, it can be surmised that individuals diagnosed with autism have a greater quality of life if they are part of their community through supported employment.

West, Wehman, and Wehman (2005) conducted research in Los Angeles and Miami with individuals with intellectual disabilities. The participants were not just individuals diagnosed with ASD; however, the studies focused on people with significant intellectual disabilities and supported employment. These two studies were included in the present study because of the subject matter.

West et al. (2005) focused on the Best Buddies Job Program that finds competitive employment for individuals with intellectual disabilities. The Best Buddies Job Program is an extension of supported employment. The program helps individuals find, gain, and maintain employment and provides training and support in order to have competitive employment. Best Buddy Job Program evolved out of the Best Buddies Program in colleges. The Best Buddies Program in colleges is designed to provide one-on-one relationships for individuals with intellectual disabilities. By forming these relationships, individuals with disabilities are integrated into the college community. The Best Buddy Job Program is based on the idea that people gain employment through networking. The relationships that these individuals with disabilities form while in college can become their network system that leads to competitive employment.

The West et al. (2005) study was focused on two Best Buddy Job Programs, one in Los Angeles and the other in Miami. The Los Angeles program had 49 participants who were served for approximately 36 months, beginning in the summer of 1999. Lengths of placement and percentages of employment rates were assessed based on the initial placement date. The authors reported that the subjects were able to maintain employment for varying increments of time; but, the percentages reported by the authors do not make logical sense. The results for the Los Angeles program had high employment rates from the time of placement: 94% remained employed 3 months out; 83% remained employed six months out; 88% remained employed 9 months out; and 89% retained their employment from their initial placement date. There is a discrepancy of how individuals' abilities to maintain employment increased over time instead of decreasing over time. With regard to salaries, the pay rate for the participants was higher than the national average for individuals with supported employment. The average monthly salaries for participants who worked full-time ranged from $1,300 to $1,500 a month, compared to the national average salary for supported employment that typically pays $800 to $900 per month. The participants also gained fringe benefits, which are typically not offered to those who are engaged in supported employment. Twelve months after gaining employment 65% had sick leave, 50% had medical/health benefits, 54% had annual leave, 31% had dental benefits, 27% had employee discounts, 13% had free/or reduced meals and 19% received no benefits.

The Best Buddies Job Program in Miami had 59 participants over a period of 7.5 years, from 1994 to 2002. Length of placement and percentage of employment rates were assessed based on the initial placement date; but, the percentages reported by the authors again do not make logical sense. The Miami program also had high employment rates from the initial employment date: 89.8% remained employed after three months, 91.3% remained employed after six months, 91.3% remained employed after nine months, 97.8% remained employed after 12 months, 90.9% remained employed after 15 months, 93% remained employed after 18 months, 94.3% remained employed after 21 months, and 93.3% were still employed 24 months after the initial placement date. There is uncertainty as to how percentages can increase over time with regard to individuals maintaining employment. The pay rate and benefits for the Miami program were lower than those for the Los Angeles program; but, the pay rate was slightly higher than those for the average supported employee, and fringe benefits were better than those that the average supported employee receives. Twelve months from the initial employment date, 48.9% received no benefits; however, 4.4% had sick leave, 6.7% had medical/health benefits, 8.9% had annual leave, 4.4% had dental benefits, 20% had employee discounts, and 2.6% received free or reduced meals.

The results of the study reveal that Best Buddy Job Programs can increase the length of employment, pay rate, and benefits compared to the typical supported employment program. The concept of having a buddy, either working with an individual with a disability or recommending that person, seems to have a positive impact on the individual and his or her ability to gain and maintain employment. In addition, the employers reported that they were pleased with the program. Over 98.2% of the employers reported that they would recommend supported employment programs to other businesses. The Best Buddy Job Program is relatively new; but it has had documented success in helping individuals with intellectual disabilities become more involved in the community. This study indicates that gaining a network of friends in college can assist individuals with disabilities to have greater employment success. Table 3 summarizes the studies discussed in this chapter by year and providing the authors samples, and outcomes of each study.

Table 3

Summaries of Research Studies with Participants grouped by IQ Level

Authors	Sample	Outcome
Kanner, Rodriguez, & Ashenden (1972)	96 adults with autism	11 employed and seven lived independently
Szatmari, Bartolucci, Bremner, & Bond (1989)	16 individuals diagnosed with autism with IQs > 65	Seven (44%) were competitively employed. Non-verbal problem solving skills and IQ highly correlated with outcome.
Venter, Lord, & Schopler (1992	58 individuals with IQs > 60; 22 individuals from sample were 18 years or older	27% employment rate of those 18 years or older. Verbal IQ and reading comprehension were above median scores for those competitively employed, but not statistically significant.
Ballaban-Gill, Rapin, Tuchman, & Shinnar (1996)	102 individuals diagnosed with autism	27% gained employment
Schaller & Yang (2005)	815 individuals; 450 in competitive employment and 365 in supported employment.	Supported employment or competitive employment is dependent on amount of support needed by individual.

(table continues)

Table 3 (continued)

Authors	Sample	Outcome
Koegh, Bernheimer, & Guthrie (2004)	20-year follow-up study of 30 adults who had been diagnosed with developmental disabilities by age three.	The higher an individual’s IQ the better the outcomes in terms of living independently, employment, and education; however, IQ is not only predictor of employment. 53.4% were involved in some type of employment.
Howlin, Goode, Hutton, & Rutter (2004)	Follow-up study of individuals who had been diagnosed with autism prior to 16 years of age and who had a non-verbal IQ >50 at initial evaluation.	Focused on cognitive, language, and socialization. The sample was divided into two groups; IQ > 70 and IQ < 70. Twenty-three (33.8%) gained employment. The higher IQ group had better outcomes.
Mawhood & Howlin (1999)	30 individuals diagnosed with autism who had an IQ > 70.	Individuals who had support in gaining and maintaining employment had a 43.4% greater employment rate than those without support.
Howlin, Alcock, & Burkin (2005)	Follow-up study of the Mawhood & Howlin study. The study grew to include 89 subjects.	Individuals diagnosed with autism who had an IQ > 60 or Aspergers’s were able to gain and maintain employment if they had support in gaining and maintaining employment.

Table 4

Summaries of Research Studies with Participants Grouped by Type of Employment

Authors	Sample	Outcome
Garcia-Villamisar, Ross, and Wehman (2000)	55 individuals diagnosed with autism in either sheltered workshops or supported employment	The results indicate that individuals diagnosed with autism are more likely to develop greater autistic tendencies when employed in a sheltered workshop environment.
Garcia-Villamisar, Wehman, and Navarro (2002)	55 individuals diagnosed with autism. The same sample as in the Garcia-Villamisar, Ross, & Wehman study.	55 individuals diagnosed with autism. The same sample as in the Garcia-Villamisar, Ross, & Wehman study.

Table 5

Summaries of Research Studies for Best Buddy Program

Authors	Sample	Outcome
West, Wehman, & Wehman (2005)	49 subjects over 36 months	87.5% of individuals with disabilities involved in Best Buddies remained employed nine months after gaining employment.
West, Wehman, & Wehman (2005)	59 subjects over 7.5 years	93.3% of individuals with disabilities involved in Best Buddies remained employed 24 months after gaining employment.

Future Research

The future is uncertain for individuals diagnosed with autism. Research has revealed several factors concerning autism and/or individuals diagnosed with autism: (a) the incidence of autism is increasing, (b) fewer individuals diagnosed with autism are dropping out of school, and (c) more individuals diagnosed with autism are exiting high school with certificates of attendance and standard diplomas (U.S. Office of Special Education, 2006). Concerning employment, individuals diagnosed with autism are one of two categories of disabilities that are the least likely to gain employment (Cameto, et al., 2003). Those that are successful finding employment need support in order to maintain their jobs, regardless of whether they are high or low functioning. Researchers must shift their focus in other directions if individuals diagnosed with autism are to have greater success in employment.

Previous research concerning individuals diagnosed with ASD and employment has compared types of employment (Garcia-Villamisar et al., 2000), the effect of IQ on employment (Howlin et al., 2005; Mawhood & Howlin, 1999), and how support affects employment (Howlin et al., 2005; Mawhood & Howlin, 1999). Both National Longitudinal Transition studies reported data based on surveys. Currently, there is no research focused on what possible predictors of employment outcomes occur naturally as a direct result of applying to receive services from Vocational Rehabilitation and/or as a result of Vocational Rehabilitation's subjectivism (e.g. rural v. urban counties and VRS expenditures) on applicants' employment outcomes. This need is met in the present study through multiple regression analysis of data that were collected upon the intake of applicants with ASD to Vocational Rehabilitation in the state of Alabama.

III. METHOD

The investigator evaluated the predictive effects of the following variables on employment: whether the referral to Vocational Rehabilitative Services (VRS), VRS was made from an urban or rural county, money spent on training by VRS, ethnicity, and whether the referral to VRS was made by an educational agency or any other agency and/or person. In addition, the researcher provided demographic information regarding the total sample, those individuals who gained employment and those who did not gain employment. The present chapter contains a discussion of the participants, demographic data, variables, measures, null hypotheses, and data analysis.

Participants

The participants of the present study were selected based on their disability and their application for VR services. The first criterion for being included in the study was having a diagnosis of Autism. The applicants either had a diagnosis of Autism prior to their applying for VRS (e.g., diagnosis by a physician, psychiatrist, or neurologist) or received a diagnosis after applying to receive Vocational Rehabilitation services. Currently, VRS does not separate the five different disorders found under the category PDD as defined in the DSM-IV-TR; therefore, any applicant with one of the five disorders is placed in the category titled Autism. The second criterion required of subjects to be included in the study was to have applied for services from VRS. Between May 1991 and September 2006, 361 individuals diagnosed with Autism applied for services from VRS.

Of the 361 participants, 68 (19%) gained employment, while 293 (81%) did not. Of the total participants, regardless of employment status, the majority were Caucasian males. The second largest ethnicity group was African American. Of the participants, the employed participants were older, had higher mean family income, and VRS spent more money on them. Table 6 provides a detailed description of information regarding demographic information, family income, and VRS expenditures for the total participants, the participants who gained employment, and the non-employed participants.

Table 6

Demographic Characteristics of Participants

Participant Demographics	Total	Employed	Non-Employed
Females	54 (15%)	7 (10%)	47 (16%)
Males	307 (85%)	61 (90%)	246 (84%)
Total	361	68	293

(table continues)

Table 6 (continued)

Participant Demographics	Total	Employed	Non-Employed
White	290 (80%)	57 (84%)	233 (80%)
African-American	66 (18%)	11 (16%)	55 (19%)
Asian	4 (1%)	0	4 (1%)
Missing information	1 (<.01%)	0	1(<.01%)
Total	361	68	293
Mean Age at Application (SD)	20 (6.6)	23 (9.0)	20 (5.7)
Mean Age at Closure	24 (7.5)	25 (8.7)	23 (6.5)
Mean Age as of 9/2006	24 (7.4)	29 (8.6)	23 (6.6)
Total Mean Expenditure by VRS	$4,920	$7,569	$4,305
Mean Family Income	$2,245	$2,461	$2,195

Data

Participants responded to a predetermined set of questions that comprise the intake application form in the VRS computer system. Participants answered many questions asked by their intake VRS representative relative to the following information: (1) residence, (2) age, (3) ethnicity, (4) gender; (5) source of referral, (6) number of people in family, (6) annual household earnings, and (7) date of initial application.

In addition to the initial intake data, other pieces of data were collected by VRS personnel at the time the client exited the VRS system with one of the following outcomes: (1) rehabilitated, (2) other than rehabilitated, (3) not completed, (4) goals met, and (5) goals not met (see Appendix). Other pieces of data that were collected revolve around client outcomes. If a client has gained employment, VRS personnel collect the following information: (1) type of employment, (2) type of job, (3) hours worked, (4) annual wage, (5) amount of money spent on training and/or rehabilitation, and (6) date that case was closed by VRS (see Appendix).

Measures and Outcomes

The data analyzed were collected by VRS counselors between May 1991 and September 2006 as part of the intake application process of new clients to the VRS. In addition, VRS counselors followed up with the consumer and collected data relative to what rehabilitation services the consumer received from VRS. The author of the present study requested the data that were collected during the intake process and the data collected after the consumer received VRS services. The researcher was granted permission in September 2006 to access the VRS data.

Demographic Variables

Demographic variables included client age at application, age at case closure, age as of September 2006, ethnicity, gender, type of county (i.e., rural or urban) where case originated, person/agency who referred client, type of job, type of employment, and family income. The rural and urban classifications were determined in 2003 by the Alabama Rural Health Association, which classified 55 Alabama counties as rural and 12 counties as urban. Of the 361 participants in the study, 262 (73%) were from urban counties and 99 (27%) were from rural counties.

Another demographic variable that the investigator chose to investigate was how the participants were referred to VRS. The referral source of the client to VRS was divided into two categories, Education and Other. The Education category consisted of elementary schools, high schools, and universities. The second category, Other, consisted of private and public institutions, VRS programs, hospitals, self, peers, Developmental Disability Council, legislator, Social Security, Mental Health, physicians, and other people. Of the 361 participants in the current study, 196 (46%) were referred by those previously identified as Education and 165 (54%) were referred by those previously identified as Other.

Data Analysis

Because the criterion variable was dichotomous (employed or not employed), logistic regression was used to model the individual's gaining employment. The predictor variables in this study were (a) case expenditure, (b) ethnicity, (c) location of case (coded 0 = Rural, 1 = Urban), (d) family income, and (e) referral source (coded 0 = Education, 1 = Other). To determine the unique contribution of each set of predictor variables, each was systematically entered relative to all other predictors. The change in variance indicated the unique contribution of each predictor. This procedure was used to evaluate the unique contribution of the main effects prior to any interaction effects.

Null Hypotheses

H1. The ethnicity of the individuals who receive VRS services is not a significant predictor of employment.

The outcome variable is employment and the independent variable is ethnicity. The ethnicity of the individual should not have any effect on whether an individual with ASD gains employment. Individuals with ASD are distributed across ethnic groups; therefore, employment should not be affected by ethnicity.

H2. The referral source (i.e., Education or Other), is not a significant predictor of employment.

The outcome variable is employment and the independent variable is the source of referral (i.e., an educational agency or another person and/or agency). The transition best practices set forth in literature recommend collaboration between agencies such as school systems and VRS. With this collaboration, schools (i.e., the educational category in this investigation) should be the referral source for the participants because the participants are the responsibility of the schools before they are old enough to qualify for VR services.

H3. Whether the case was opened in a rural or urban county is not a significant predictor of employment.

The outcome variable is employment and the independent variable is the county, whether urban or rural, where the case was opened. Counties in Alabama were identified as rural or urban. The investigator wanted to determine whether individuals who live in urban counties have greater success in gaining employment than those who live in rural counties.

H4. The amount of money spent on training the client is not a significant predictor of employment.

The outcome variable is employment and the independent variable is the amount of money spent on the individual by Vocational Rehabilitation. Money spent on clients in numerous ways (e.g., training, materials, and equipment). Therefore, one would expect that the more money that is spent on an individual in terms of vocational rehabilitation, the greater his/her chances of gaining employment.

H5. Annual family income is not a significant predictor of employment.

The outcome variable is employment and the independent variable is annual family income. The amount of family income should not have any effect on whether the individual gains employment.

The data analyzed included family income, referral source (either educational agency or other), county of referral (either rural or urban), ethnicity, and case expenditures. All data were analyzed using SPSS 15.0 for Windows.

Logistic Regression was used to test the null hypotheses related to the success of gaining employment. The Nagelkerke pseudo R^2 was conducted on the independent variables to determine the predictive measure of each variable on employment. The significance level of $p < .05$ was used for the Chi-square on the individual items.

Summary

The investigator of the present study used logistic regression to determine whether there are predictors of employment for individuals with ASD. The independent variables chosen for the study were pieces of information that VRS collects from clients as part of current procedures, e.g., application and evaluation. All but one of the independent variables are either dependent on the decisions made by others regarding the client or are variables in which the client has no input, (e.g., ethnicity). The source of referral is the only independent variable in which the client could be an active participant (e.g., if the client referred himself/herself to VRS). As indicated in Chapter Two of the present study, individuals with ASD have poor employment success. The investigator wanted to explore the possibility that variables not directly related to the client's individual abilities and skills (e.g., family income and ethnicity) could be used to predict employment.

IV. RESULTS

Overview

Results of the present study are presented in this chapter. The purpose of the study was to determine if there are any predictors of employment for individuals diagnosed with Autism Spectrum Disorder (ASD). Logistic regression analysis was completed to determine whether there were predictors of employment.

Three hundred sixty-eight individuals with ASD received services from the Alabama Department of Rehabilitation Services between May 1991 and September 2006. Of those individuals who received services, 68 gained employment. The data in the present study were collected during the application process to receive services from VRS and/or throughout the period of time that the individuals received VR services.

Measures

One criterion variable was used in the study. The variable, success in employment, is a dichotomous variable. The participants either were successful in gaining employment or not successful in gaining employment. Five potential predictor variables were analyzed. The five predictor variables included the following: money spent on the individuals (called case expenditure), ethnicity, type of county where the individuals applied for services (i.e., rural or urban), family income, and the referral source (i.e., educational source or other person/agency).

Data Analysis

Because the criterion variable was dichotomous (employed or not employed), logistic regression was used to model the individual's gaining employment. The predictor variables in this study were (a) case expenditure, (b) ethnicity (coded 0 = , 1=) (c) location of case (coded 0 = Rural, 1 = Urban), (d) family income, and (e) referral source (coded 0 = Education, 1 = Other). Results of the logistic analysis indicate that the five-predictor model provides a statistically significant improvement over the constant-only model, $\chi 2$ (5, N = 361) = 17.15. The Nagelkerke pseudo R^2 indicates that the model accounted for 7.6% of the total variance. This indicates that the set of predictors (i.e., the independent variables) did not discriminate between those gaining employment and those who did not gain employment**.** Prediction success for the cases in the model was moderately high, with an overall prediction success rate of 81.2% and correct prediction rates of 4.4% for individuals gaining employment and 99.3% for those individuals not gaining employment. This means that the analysis successfully predicted the employment of individuals with an 81% accuracy rate for the total sample. Of those who gained employment, the analysis successfully predicted those who gained employment with 4% rate and those who did not with a 99% success rate. Table 7 presents the regression coefficients (B, the Wald statistics, significance level, odds ratio [Exp(B)], and the 95% confidence intervals (CI) for odds ratios (OR) for each predictor.

Table 7

Logistic Regression Results for Predicting Whether Employment is Gained Using Case Expenditure, Ethnicity, County of Referral, Family Income, and Referral Source as Independent Variables

						95.0% CI For Exp (B)	
Step	Variable Entered	B	Wald	Significance	Exp(B)	Lower	Upper
1	Expenditure	.000	6.445	.011	1.000	1.000	1.000
	Ethnicity	-.131	.369	.544	.877	.574	1.340
	County	-.478	2.546	.111	.620	.345	1.115
	Fam. Income	.000	1.693	.193	1.000	1.000	1.000
	Referral	.670	5.402	.020	1.955	1.111	3.441

Significant at .05 level

In the present investigation, the Wald test indicated that the predictor variable "Expenditure" was statistically significant in terms of employment controlling for the other predictor variables; however, expenditure does not predict employment. For one participant, VRS spent $70,000; however, the client did not gain employment. The money spent was different for the two groups, but higher expenditures by VRS do not indicate an individual's chances of gaining employment. Ethnicity, Family Income, and County were not statistically significant. The predictor variable "Referral Source" was statistically significant, exclusive of the other predictor variables, and was also the only predictor of employment.

The Exp(B) provides the odds ratio. The Odds Ratio (OR) for Referral was 1.955 which indicated that individuals who were referred by the Other grouping were two times (CI= 1.11, 3.44) more likely to gain employment than those referred to VRS by an educational source. Referral source data are presented in Table 8.

Table 8

Referral Source

Agency	Non-employed	Employed	Total
Educational	169 (86%)	27 (14%)	196
Other	124 (75%)	41 (25%)	165
Total	293	68	361

Both the mean family income and the amount of money spent by VRS were higher for the employed participants. The means for the predictor variables Family Income and VRS Expenditure for both groups are presented in Table 9.

Table 9

Means and Standard Deviation for the Predictor Variable for the Two Groups

	Employed		Non-Employed	
	M	SD	M	SD
Family Income	2,461	5,242	2,195	3,683
VRS Expenditure	7,569	7,915	4,305	8,080

Amounts are rounded to the nearest dollar

Of the total sample, the non-employed sample, and the employed sample, the majority of individuals were white. The ethnicity data are presented in Table 10.

Table 10

Ethnicity of Sample

Ethnicity	Non-employed	Employed	Total
	N = 293	N = 68	N = 361
White	233 (79.5%)	57 (84%)	290 (80.3%)
African-American	55 (18.8%)	11 (16%)	66 (18.2%)
Asian	4 (1.4%)	n/a	4 (0.01%)
Not collected	1 (0.3%)	n/a	1 (0.002%)

Summary

The results of statistical analyses conducted in the present study were reported in this chapter. The logistic regression results revealed that the only variable that was found to predict employment was the source of referral. Individuals diagnosed with ASD who were referred by a source other than an educational source were twice as likely to gain employment. Family income, ethnicity, amount of money spent by VRS, and county (rural or urban) were not found to predict employment for the sample.

V. DISCUSSION

Overview

In the present study, predictors of the employment for individuals diagnosed with ASD were investigated. The predictor variables, ethnicity, family income, type of county where the individuals lived (i.e., urban or rural), source of referral, and amount of money spent on training were investigated as possible predictors of employment. Logistic regression was used to analyze data of individuals diagnosed with ASD who applied for VRS between May 1991 and September 2006 in the state of Alabama. Of the predictor variables analyzed, the only variable found to predict the employment of individuals diagnosed with ASD was the source of referral.

Three hundred sixty-one individuals diagnosed with ASD who had applied for VRS in Alabama between May 1991 and September 2006 were the participants. Of the participants, 68 individuals gained employment while 293 remained unemployed during the fifteen-year span that was investigated. The National Longitudinal Transition Study-2 (NLTS-2; Cameto et al., 2003) results indicated that only 15% of individuals diagnosed with ASD gain employment. Using the same criterion as the NLTS-2 (i.e., people who were 13 to 16 years of age on December 1, 2000), only 4% of individuals who applied for VRS gained employment in Alabama.

Research investigating the employment of individuals diagnosed with ASD has primarily been focused on personal traits and/or characteristics of the individual or on the type of employment. Researchers have studied the relationship between different levels of IQ for individuals diagnosed with ASD and employment (Keogh et al., 2004; Szatmari et al., 1989; Venter et al., 1992). In addition, research has been focused on the different types of employment, such as supported, sheltered, and competitive (Garcia-Villamisar et al., 2002; Howlin et al., 2005; Mawhood & Howlin, 1999; Schaller & Yang, 2005). Due to the low rates of employment in the state of Alabama, the investigator of the present study investigated whether other variables might affect employment outcomes of individuals diagnosed with ASD.

The investigator of the present study selected five pieces of information that are collected during the above mentioned process. Ethnicity, family income, source of referral to VRS, type of county where the client lives, and amount of money spent on the individual by VRS were selected as possible predictors of employment. These variables were selected because, whether a person with ASD gained employment or not, data were collected for all participants regarding the five variables. By focusing on these variables, the investigator studied whether variables that are not directly affected by traits or characteristics (e.g., IQ and verbal skills) of the individual predict employment.

The present study's results indicated that ethnicity is not a predictor of employment for the sample. ASD is not unique to one ethnic group; therefore, the findings of the study in terms of ethnicity are consistent with the total population of individuals diagnosed with ASD. The total participants consisted of 290 (80%) Caucasian participants and 66 (18%) African Americans. The remaining two percent was comprised of four Asians and one individual for whom the ethnicity was not reported.

The second predictor variable investigated was family income. ASD can be found in all Socio-Economic Status (SES) levels; therefore, the investigator wanted to evaluate family income in terms of employment of individuals diagnosed with ASD in Alabama. The sample's participants who were employed had a mean family income of $2,461 (SD = $5,242), and the non-employed group's mean family income was $2,195 (SD = $3,683). While there is a difference in the means, it is neither statistically significant nor a predictor of employment for individuals diagnosed with ASD.

The type of county (rural or urban) where the individual lived was also analyzed. As stated previously, ASD can be found in all SES groups; however, that does not mean that a difference cannot occur in terms of whether the individual lives in a rural or urban county. The investigator of the present study used the Alabama Rural Health Association (2003) classification of 67 counties that identified 55 counties as rural and 12 counties as urban. Of the 361 participants in the study, 262 (73%) were from urban counties and 99 (27%) were from rural counties. The statistical analysis results indicated that the type of county was not a predictor of employment for the sample.

Another variable analyzed in the present study was the amount of money that VRS spent on each individual. Once each person applies to VRS, the amount of money spent on each individual is based on the individual's needs as determined by the information collected, evaluation results, and what the VR counselor determines to be needed. The amount of money spent by VRS on the total sample ranged from $71,164 to zero dollars with a mean expenditure of $4,920 (SD = $8,140). The amount of money spent by VRS on the employed sample ranged from $41,412 to zero dollars with a mean expenditure of $7,569 (SD = $7,915). For the non-employed sample, the money spent by VRS ranged from $71,164 to zero dollars with a mean expenditure of $4,305 (SD = $8,080). The statistical analysis results indicated that the amount of money spent by VRS on the participants was not a predictor of employment.

The fifth variable that was statistically analyzed was the source of referral. VRS has classified the referral source of individuals to VRS into 18 different categories. For the purpose of the present study, the investigator grouped the 18 categories of the referral sources into two categories, Educational and Other. The Educational referral sources consisted of the following: Elementary or High School, College or University, School for Physically and Mentally Disabled, and Other Education Agency. The Other category consisted of the following referral sources as identified by VRS: Community Rehabilitation Program (CRP), Other Public Organization or agency, Self-referred Peers, Other individual, Legislator, Physician, Social Security, One-stop Center, Mental Health, ADRS, Other Private Organization and Agency, Developmental Disabilities Council, Other Hospital or Clinic, and Children’s Rehabilitation Services.

Of the total sample (n = 361), 196 (54%) were referred by an Education source and 165 (46%) were referred by an Other source. Of the employed sample, 27 (40%) were referred by an Education source and 41 (60%) were referred by an Other source. In contrast, from the non-employed group 169 (58%) were referred by an Education source and 124 (42%) were referred by an Other source. After statistically analyzing the data, the source of referral to VRS was found to be a predictor of employment for individuals diagnosed with ASD.

Conclusions

The results of the present study indicate that the only predictor of employment among the variables studied is the referral source. For this sample, ethnicity, family income, amount of money spent by VRS, and county type did not predict employment. Individuals diagnosed with ASD who are referred by a source other than any educational source are twice as likely to gain employment. This finding is directly contradictory to interagency collaboration, which is crucial for successful transition outcomes (Johnson, Stodden, Emanuel, Luecking, & Mack, 2002; Kohler, 1993; Simpson & Myles, 1998). During the transition process, a seamless move for students when exiting school and entering the adult world is the goal, whether that means post-secondary education or employment. According to IDEA (2004) in order to achieve a smooth transition, transitional services should be addressed in the Individualized Education Plan (IEP) beginning no later than the student's 16th birthday. Results of the present study indicate that students diagnosed with ASD who are referred to VRS by educational agencies are significantly less successful in gaining employment than students referred by another type of agency or source. This global result suggests the need for further detailed investigation to determine what specific aspects of the referral process should be improved in order to obtain better employment results.

The source of referral is the variable that appears to have the greatest chance of being affected by the disability. Out of the employed sample, fewer referrals were made by educational sources than other types of sources. In contrast, of the non-employed sample, more referrals were from educational sources. In fact, from those who gained employment, 27 (40%) were referred by an educational source and 41 (60%) were referred by sources other than educational. Of those who did not gain employment, 169 (58%) were referred by an educational source and 124 (42%) were referred by sources other than educational.

Often, the source of referral is an agency or person with whom the individual and/or parent/guardian have currently been in contact. Because individuals diagnosed with ASD can attend school until the age of 21, the employed sample's mean age was 23, and the non-employed sample's mean age was 20, the employed sample was referred by a non-educational source, save universities and/or colleges.

When focusing on the total sample, three people (< .01) were referred by a university or college. Of the employed group, 2 (3%) were referred by a college and/or university compared to the non-employed sample, which had 1 (0.3%) referred by a university and/or college. Because of this breakdown, the investigator chose to use referral source as a variable instead of age.

Implications

Results of the study indicate that interagency collaboration, a crucial area of Transition (Johnson, et al, 2002; Kohler, 1993; Simpson & Myles, 1998), between secondary schools and VRS should be substantially strengthened in an effort to improve the employment outcomes for individuals diagnosed with ASD in Alabama. According to federal law, the age at which an IEP must address transitional services is sixteen. The IEP team decides what constitutes transitional services for the individual; therefore, the decisions concerning transition services are specific to the individual and subjective in terms of who is on the team. In the State of Alabama, there are no clear specific guidelines as to whether VRS will be invited to IEP meetings or when VRS should become involved in the transition process.

Research (Johnson, et al., 2002; Kohler, 1993; Simpson & Myles, 1998) indicated that interagency collaboration is essential for successful transitions. For individuals with mild disabilities, VRS typically does not get involved until the senior year; however, for individuals diagnosed with ASD, typically, transition is a lengthy process if individuals are to have successful outcomes (Grandin & Duffy, 2004). To increase successful outcomes, both schools and VRS should recognize that interagency collaboration is necessary in order to successfully serve individuals diagnosed with ASD. A place to begin would be to establish procedures regarding when schools should make initial contact with VRS and who should be contacted. Until greater collaboration and consistent, successful interactions occur, individuals diagnosed with ASD will continue having poor employment rates.

The social importance of the present study is not relevant only to individuals diagnosed with ASD; but, society as a whole should understand the social implications of people diagnosed with ASD not gaining employment. As stated in Chapter Two, individuals diagnosed with ASD are increasing in numbers annually (Autism Society of America, 2006; U.S. Office of Special Education, 2006). This increase in the number of people with ASD has been seen in the school systems; however, adult agencies, such as VRS, are just beginning to see the increase in the number of clients they serve. The Department of Education recognized the increase in the number of individuals diagnosed with ASD with the passage of IDEA in 1990. The individuals who were born in 1990 are now 17 years old; therefore, they are at the age when they are transitioning from high school to adulthood. The number of individuals diagnosed with ASD who have applied for VRS in the past 15 years is small compared to the number of individuals who will apply for VRS in the coming years if VRS sees the same increase in numbers of individuals diagnosed with ASD that the Department of Education has witnessed.

The Department of Education reported an 805% increase in the number of individuals diagnosed with ASD between 1992 and 2003. In Alabama, 361 individuals diagnosed with ASD applied for VR services between 1991 and 2006. If the number of individuals applying for services were to increase by 805%, then VRS would have 3,267 new individuals diagnosed with ASD applying for services. This estimate is probably low because the number of individuals diagnosed with ASD is increasing annually. If the rate of employment of individuals diagnosed with ASD continues at the cumulative rate of employment as reported in the present study (i.e. 19% over 15 years), 3,266 individuals would not gain employment; therefore, the individuals who do not gain employment will become dependent on either their families and/or public assistance.

The Bureau of Labor Statistics (2006) reported that the number of recipients of Supplemental Security Income (SSI) in Alabama in 2000 was 159,000 and in 2003 the number of recipients grew to 164,000. In terms of money, recipients in Alabama received 659 million dollars in 2000, growing to 738 million dollars in 2003. At this rate, if 3,266 individuals diagnosed with ASD were to receive SSI, the amount would increase by $14,697,000. SSI funding is derived from taxes; therefore, society as a whole would benefit if individuals diagnosed with ASD gain employment. Again, this estimate is low because the incidence of ASD has increased annually.

Limitations

Data indicating the intellectual ability of subjects in the present study were not available to the researcher. The data were based on the limited information obtained during the VRS intake process. Due to the nature of ASD, valid scores on formal assessments for individuals diagnosed with ASD are often difficult to obtain (Simpson & Myles, 1998). Since many individuals diagnosed with ASD have communication deficits, the validity of IQ scores is usually questionable because most IQ assessments require verbal responses. In addition, the majority of formal assessments are not normed on individuals who are non-verbal or on those who have limited verbal skills (Simpson & Myles, 1998). Achievement tests and other types of assessments have similar problems in terms of providing valid scores. Because of this, baseline data in terms of levels of ability are difficult to ascertain. The data collected during the intake process do not include assessment data.

Results of the present study indicate that people who were referred to VRS by an educational agency are 50% less likely to gain employment than those who were referred by other sources. This finding is important; however, it does not indicate what school systems are doing well and where the breakdown occurs. Some individuals diagnosed with ASD who are referred by an educational agency have gained employment. The researcher did not investigate within-group differences with regard to all who were referred to VRS by an educational source.

Another limitation of the study is the small number of individuals diagnosed with ASD who applied for VRS and gained employment. Nevertheless, the fact that so few people diagnosed with ASD have gained employment is the major reason for conducting the study. Though 68- the total number of individuals diagnosed with ASD who gained employment after applying for VRS- is a relatively small sample size, the investigator hopes that results of the present study will be considered baseline data for future studies.

The author also recognizes that the present study did not use the age of the participants as a variable when analyzing the data for possible predictors of employment. Logically, the participants who were referred by an educational source (e.g., high school) would be younger than those referred by other sources (e.g., public and/or private agencies). After determining that the source of referral was statistically significant in predicting employment, age should be considered in any future studies that focus on the source of referral and the employment of individuals diagnosed with ASD. However, VRS is not currently required to identify age as a factor in the assessment used to determine an individual's disability.

Another limitation of the study is the lack of information concerning the formal diagnosis of the individuals diagnosed with ASD (i.e., the Diagnostic and Statistical Manual of Mental Disorders [DSM]) and the assessment tools used and/or the date in which the participants were diagnosed. Between 1991 and 2006 (i.e. the time span covered in the present study) the American Psychiatric Association has had three different versions of the DSM. In 1991 the DSM-III-R (1987) was used. Under the DSM-III-R, PDD was coded as an Axis II disability (i.e. typically long-term and unresponsive to treatment). In 1994, the DSM-IV was published. Under the DSM-IV, PDD began to be coded as Axis I disability. Axis I implies that the symptoms either improve with intervention/treatment or are episodic. In addition, the following five disorders were listed as subcategories: Autistic Disorder, Rett's Disorder, Childhood Disintegrative

Disorder, Asperger’s Disorder, and Pervasive Developmental Disability Not Otherwise Specified (PDDNOS). In 2000, the DSM-IV-TR was published and still recognizes the five subcategories under PDD. During the 15 year time span the Department of Rehabilitation Services database categorized everyone with a diagnosis of any of the subcategories of PDD in the category of autism.

Another limitation is the lack of knowledge concerning the means used to diagnose the participants. As of 2006 a professional using assessments specifically intended to identify PDD must give the diagnosis of PDD; however, before 2006 not every person who received a diagnosis of PDD/ASD was assessed with instruments recognized by professionals. Some of the most common assessments for diagnosing PDD are the Autism Behavior Checklist (ABC; Krug, Arick, & Almond, 1980), Autism Diagnostic Interview-Revised (ADI-R; Lord, Rutter, & LeCouteur (1994), Childhood Autism Rating Scale (CARS; Schopler, Reichler, & Renner, 1988), and the Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, & Good, 1989) . These assessments use historical information about the student, direct observations, and information gleaned from people familiar with the student.

In terms of limitations, the author would be remiss if the lack of comparison in economics between 1991 and 2006 was not mentioned. One of the possible predictor variables in the study is the amount of money spent by VRS on the clients. VRS’s data base spans a fifteen year period; therefore, the amount of money spent on clients does not reveal the adjustments in the value of the dollar. In terms of dollar value, a thousand dollars in 1991 had more purchasing power than it did in 2006; therefore, the comparison of the amount of money spent over the 15 year time span is just that, a comparison in terms of dollars not dollar value.

Future Directions

In 1990, The Individuals with Disabilities Education Act (IDEA, P.L. 101-476) was the first legislation that specifically identified ASD as a disability category and mandated transition services as part of the IEP by the age of 16. By 2007, seventeen years after the passage of IDEA, VRS is beginning to receive applications from students who are exiting school systems and who were born in 1990, the year in which the federal government first recognized autism. Because these individuals are reaching the age in which transition services are addressed in the IEP, VRS is receiving more applications from individuals diagnosed with ASD. Prior to 1990, the majority of educators received no formal training concerning how to teach individuals diagnosed with ASD. Even though relatively unprepared, educators began to have students in their classrooms with the disability. Seventeen years after the passage of IDEA, VRS is facing a situation similar to the one that educators faced in 1990, i.e., VRS personnel have not received training concerning how to work with individuals diagnosed with ASD.

Due to the lack of knowledge regarding ASD, trainings should occur for VR personnel. Interagency collaboration is necessary for successful transitions; therefore, in addition to training VRS personnel, the investigator of the present study recommends having secondary educators and VRS personnel receive training jointly (Kohler, 1993; Sitlington & Clark, 2006). If VRS personnel and secondary educators receive training jointly they could enhance a collaborative atmosphere between the two agencies.

Results of the present study indicate that individuals who were referred to VRS by non-educational agencies were twice as likely to gain employment as those individuals who were referred by educational sources. This is directly opposite to the best practice of interagency collaboration; therefore, in addition to providing training for individuals in both secondary education and VRS, the state should also encourage a cooperative campaign between the two agencies. By training both groups simultaneously, they will learn from one another. The investigator proposes training at two levels.

The first level of training should occur prior to graduation from college. In most instances, secondary educators and VR personnel are educated in separate departments with totally different curricula/goals, providing little opportunity for cooperation. If change is to occur, both groups should begin building a collaborative relationship during their pre-service educational career. The curriculum itself should consist of courses and materials that contain the best practices in transition, including collaboration between agencies, assessment of individuals with significant disabilities, vocational exploration, and strategies to smooth the client's entrance into a work environment.

The second level of training would apply to those professionals already in the field. They should receive professional development training regarding how the characteristics of individuals diagnosed with ASD relate to potential employment (Grandin & Duffy, 2004). The results of the present study indicate that individuals who are referred by any educational agency are less likely to gain employment; therefore, educators and VR personnel should work together to help individuals diagnosed with ASD gain employment. Typically, secondary special educators ask VR personnel to attend the meeting for the exit IEP; or the 12th grade IEP, but individuals diagnosed with

ASD usually require a lengthier transition process that should begin years earlier (Grandin & Duffy, 2004; Simpson & Myles, 1998).

Another area of need that became evident during the current project concerns the evaluation of individuals diagnosed with ASD. Currently, if an individual receives special education services during high school, VRS does not have to conduct a formal evaluation of the individual; but, can use the assessment results from the individual's high school. After receiving assessment scores from the individual's high school, VRS personnel would often determine whether the individual was employable. Typically, assessments used to evaluate an individual were either IQ tests or achievement tests. As stated previously, IQ assessments for individuals diagnosed with ASD often result in inaccurate, invalid scores (Simpson & Myles 1998); therefore, if the only means of evaluating individuals diagnosed with ASD is with these types of assessments, one should not be surprised that individuals diagnosed with ASD continue to be viewed as non-employable. By changing how and what assessments are used to evaluate individuals diagnosed with ASD, the investigator believes that individuals diagnosed with ASD will begin to be viewed as employable, thereby increasing the number of employment outcomes.

The nature of ASD involves deficits in communication, socialization, and behavior. As stated earlier in the chapter, valid IQ assessments are difficult to obtain; therefore, further attempted assessment of intellectual ability and achievement probably would be of limited value in assisting an individual diagnosed with ASD to gain employment. Assessment of individuals diagnosed with ASD should pertain primarily to what is necessary for the individuals to be successful. Obviously, one must acknowledge personal skill deficits; however, determining an individual’s strengths is crucial to future employment. Information gleaned from the evaluation would allow VR personnel and secondary educators to match the individual’s strengths to the skills needed for success in potential employment environments. Determination of skill deficits would indicate what supports are necessary for successful employment.

Another issue that should be addressed if individuals diagnosed with ASD are going to gain employment is how VRS personnel are paid. The Rehabilitation Act of 1992 (P.L. 102-569) clearly indicates that the severity of the disability should not affect employment. A person, regardless of the severity of his disability, can attain and maintain employment with services and supports. Currently, VRS counselors are paid based on successful closures, i.e., the ability of a client to maintain employment. Individuals diagnosed with ASD typically require longer periods of training to gain employment and require support for longer periods of time in order to maintain employment. Individuals with milder disabilities often require less time for training in order to gain and maintain employment; therefore, VR personnel can close more cases successfully, and in a shorter amount of time, when assisting individuals who have milder disabilities. This is directly contradictory to what the Rehabilitation Act of 1992 mandates. If individuals with significant disabilities, more specifically individuals diagnosed with ASD, are to receive first priority, then VRS counselors should not be penalized for serving these populations.

Both educational and vocational rehabilitation agencies should expedite efforts to enhance interagency collaboration in an effort to serve more successfully individuals diagnosed with ASD. In addition, a systematic procedure should be established by both agencies regarding when the collaboration should begin and the responsibilities of each.

For individuals with mild disabilities, VRS typically does not get involved until a student’s senior year; however, for individuals diagnosed with ASD who typically require lengthier transitional periods, waiting until a student’s senior year does not make sense. Until both agencies work collaboratively, individuals diagnosed with ASD will not gain employment at the rate of their typical peers or of those with less significant disabilities.

Another possibility for future research concerning the employment of individuals diagnosed with ASD is increasing the data collected during the intake process. Currently, anyone with a type of PDD diagnosis is categorized as having autism by VRS. The different disorders associated with ASD vary greatly in ability levels; therefore, in terms of research concerning the employment of individuals diagnosed with ASD, the differences in diagnosis could be significant.

In terms of future research, the results of the present study indicate that the source of referral is a predictor of employment for individuals diagnosed with ASD; therefore, the logical follow-up study to the present study should focus on the variable, the referral source.

Of the 361 participants, 196 participants were referred by an educational source, and 175 participants were referred by the “other” source of referral. The participants in the “other” category were older than those referred by the educational source of referral. The author would like to compare the group referred by an educational source to the group referred by the “other” source of referral in order to factor out the age of the participants and determine if there are any significant differences between the two groups in terms of employment.

In terms of future studies, the age of the participants should be considered as a possible factor in the employment of individuals diagnosed with ASD. The employed sample's mean age was 23 years and the non-employed mean age was 20 years; therefore, it makes logical sense that the individuals who were employed were referred by individuals other than an educational source because the mean age is of those who have exited high school. If the individuals have exited school, they would be referred by someone other than an educational source, unless referred by a university and/or college.

In other future studies, the differences in those who gained employment and those who did not, both of whom were referred by educational sources, should be investigated. Some of those who were referred by an educational source had successful outcomes, but not the majority; therefore, future researcher should focus on what is occurring in the situations where individuals gain employment.

Conclusion

The investigator of the present study focused on the variables family income, ethnicity, type of county (i.e., rural vs. urban), amount of money spent on training, and the referral source as possible predictors of the employment of individuals diagnosed with ASD. Logistic regression used to analyze the data of 361 participants indicated that the only predictor of employment is the source of referral. Individuals diagnosed with ASD are twice as likely to gain employment if they are referred by any source other than an educational source. Family income, ethnicity, type of county, and money spent on training did not predict employment.

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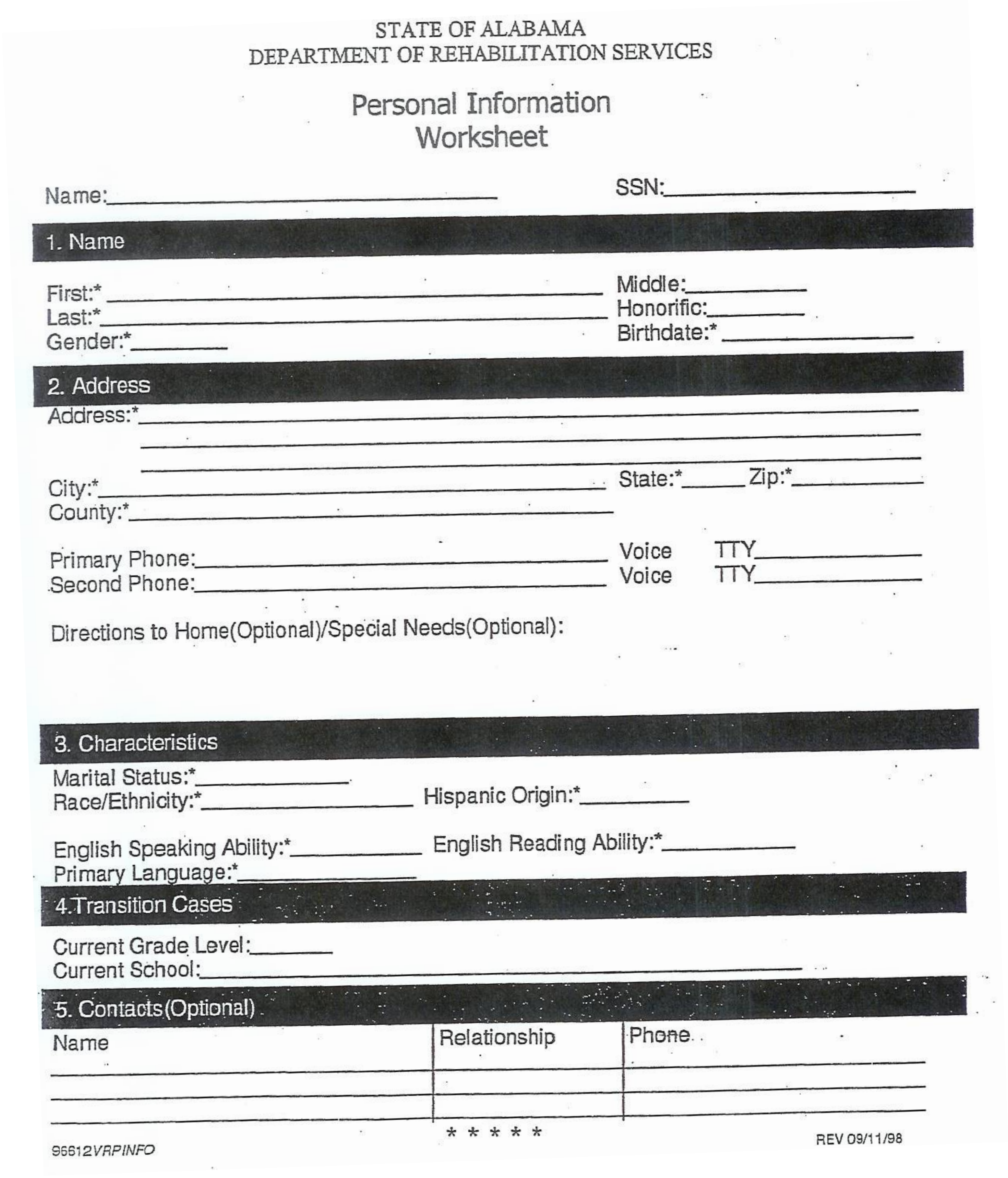
APPENDIX A

STATE REHABILITATION FORMS



STATE OF ALABAMA
DEPARTMENT OF REHABILITATION SERVICES

Personal Information Worksheet

Name:______________________________ SSN:____________________

1. Name

First:* ______________________________ Middle:__________
Last:* ______________________________ Honorific:__________
Gender:* __________ Birthdate:* ______________

2. Address

Address:* ______________________________
____
____
City:* ____________________ State:* _____ Zip:* __________
County:* ____________________

Primary Phone:____________________ Voice TTY__________
Second Phone:____________________ Voice TTY__________

Directions to Home(Optional)/Special Needs(Optional):

3. Characteristics

Marital Status:* ____________
Race/Ethnicity:* ______________ Hispanic Origin:* __________

English Speaking Ability:* __________ English Reading Ability:* __________
Primary Language:* ______________

4.Transition Cases

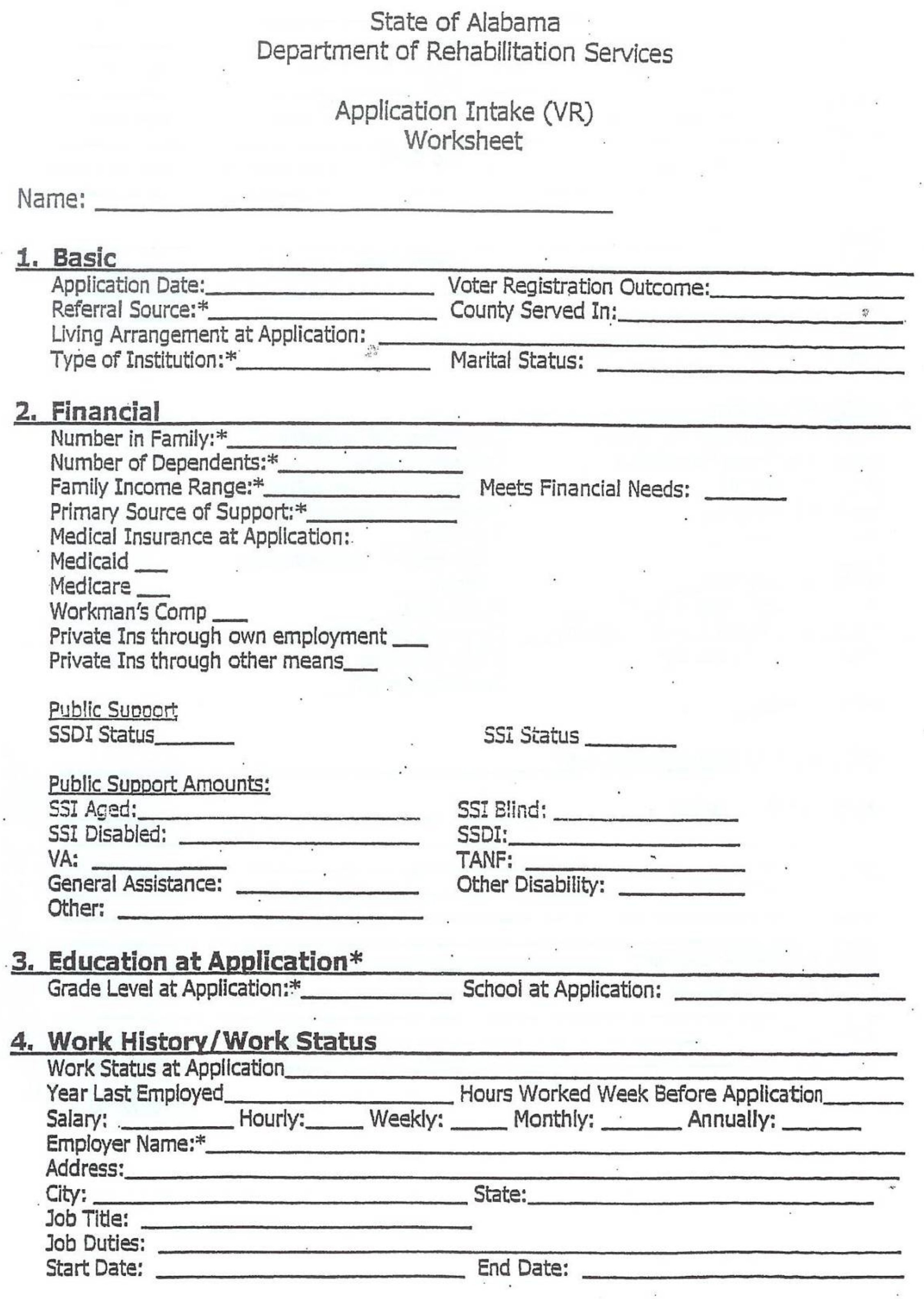
Current Grade Level:________
Current School:______________________________

5. Contacts(Optional)

Name	Relationship	Phone

* * * * *

96612VRPINFO REV 09/11/98



State of Alabama
Department of Rehabilitation Services

Application Intake (VR)
Worksheet

Name: ________________________________

1. Basic

Application Date: ____________ Voter Registration Outcome: ____________
Referral Source:* ____________ County Served In: ____________
Living Arrangement at Application: ____________
Type of Institution:* ____________ Marital Status: ____________

2. Financial

Number in Family:* ____________
Number of Dependents:* ____________
Family Income Range:* ____________ Meets Financial Needs: ______
Primary Source of Support:* ____________
Medical Insurance at Application:
Medicaid ___
Medicare ___
Workman's Comp ___
Private Ins through own employment ___
Private Ins through other means ___

Public Support
SSDI Status ______ SSI Status ______

Public Support Amounts:
SSI Aged: ____________ SSI Blind: ____________
SSI Disabled: ____________ SSDI: ____________
VA: ________ TANF: ____________
General Assistance: ____________ Other Disability: ________
Other: ____________

3. Education at Application*

Grade Level at Application:* ________ School at Application: ____________

4. Work History/Work Status

Work Status at Application ____________
Year Last Employed ____________ Hours Worked Week Before Application ______
Salary: ______ Hourly: _____ Weekly: _____ Monthly: ______ Annually: ______
Employer Name:* ____________
Address: ____________
City: ____________ State: ____________
Job Title: ____________
Job Duties: ____________
Start Date: ____________ End Date: ____________

Reason for Leaving: ______________________________

Employer Name:*______________________________
Address: ______________________________
City: ____________________ State: ____________
Job Title:*____________________ Hours Per Week: ____________
Job Duties: ______________________________
Start Date: ____________________ End Date: ____________
Reason for Leaving:______________________________

5. Disability

Order:*____________________ Onset Date: ____________
Disability:*______________________________
Due to: ______________________________
Disability Code: ______________
Specific Disability: ______________

6. Special Program

Alcohol & Substance abuse (DASA)___
Alabama Head Injury Foundation___
Employment Service___
Mental Health (MHD) ___
Project with Industry ___
SAIL___
Supported Employment___
Youth Employment Program (YEP)___
DHR Economic, Social & Med Programs___
Job Training Partnership Act___
(None)___
Probation/ Parole___

Developmental Disability ___
Epilepsy Foundation___
Workman's Compensation ___
Migratory Agricultural Worker ___
Transition___
Social Security Administration__
Veteran ___
Hemophilia___
Children's Rehabilitation Service___
JOBS/ One-Stop___
One-Stop Center___

7. Application Documentation*

A. Participant Expectation: ______________________________

B. Employment Needs: ______________________________

C. Steps to Establish Eligibility: ______________________________

D. Other Comments: ______________________________

* * * *

REV 08/2000

Alabama Department of
REHABILITATION SERVICES

MEDICAL HISTORY AND QUESTIONNAIRE

NAME:______________________ AGE:____ WT:____HT:___SS#________________

I. Do you or have you ever had problems with (please circle yes or no):

YES NO 1. Heart
YES NO 2. Blood Pressure
YES NO 3. Kidney/Bladder Urinary Tract
YES NO 4. Stomach/Intestines
YES NO 5. Anemia/Blood Disorder
YES NO 6. Stroke
YES NO 7. Diabetes
YES NO 8. Asthma/Allergies
YES NO 9. Seizures
YES NO 10. Lungs/TB
YES NO 11. HIV Infection
YES NO 12. Venereal Disease

YES NO 13. Eyes
YES NO 14. Ears
YES NO 15. Cancer
YES NO 16. Bones/Joints
YES NO 17. Nerves/Anxiety
YES NO 18. Central Nervous System
YES NO 19. Head Injury
YES NO 20. Back Injury
YES NO 21. Skin
YES NO 22. Frequent Headaches
YES NO 23. Genital
YES NO 24. Teeth/Mouth
YES NO 25. Other ______________

Explain fully each item circled YES; indicate item number/s: ______________________________

II. Have you seen a doctor or therapist in the past three years? YES NO

If YES, explain: ____

III. Have you been treated for emotional problems? YES NO

If YES, please indicate name and address of doctor and date/s of treatment: ______________

IV. List current medications/dosage/doctor:

V. Have you been hospitalized? YES NO

Dates	Hospital	Reason

VI. Have you ever had a problem with alcohol or drugs: YES NO

If YES, please explain: ______________________________

____

____

VII. I certify that the above information is true and correct to the best of my knowledge:

____
Signature Date

____
Parent or Guardian Date
(If appropriate)

Comments: ______________________________

____

____

____

____

____

____

APPLICATION FOR SERVICES (VR)

First:____ Middle:____________

Last:____

Gender:______________________________ Birthday:_________________________

Social Security Number:____

I hereby agree to the gathering, use, and release of nay information relating to me when necessary for rehabilitation purposes. I understand that failure to provide this information may result in a denial of services. I acknowledge that I have received information about the Client Assistance Program, its purposes, and means by which it may be contacted. If I am dissatisfied with a decision concerning the furnishing of services or the denial of services, I understand the right of due process described in the Rights and Responsibility Statement, which I read, understand and singed. I have received a copy of the Consumer Guide. I have received the ADRS Notice of Privacy Practices and agree to the contents.

I do ___ or do not ___ agree to the release of information regarding my vocational rehabilitation program to Alabama’s Interagency Electronic Linkage System partner agencies, which include the Alabama Department of Rehabilitation Services, Department of Economic and Community Affairs for the purpose of enhancing my employment opportunities.

______________________________ Applicant Signature	______________________________ Counselor Signature
______________________________ Parent Signature	______________________________ Date

96612VRAPSVC * * * REV 04/04/03