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## Transportation: The Obstacle that Impacts Employment, Postsecondary Education, and independent Living for People with Disabilities

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## ABSTRACT

### TRANSPORTATION: THE OBSTACLE THAT IMPACTS EMPLOYMENT, POSTSECONDARY EDUCATION, AND INDEPENDENT LIVING FOR PEOPLE WITH DISABILITIES

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The journey to support people with disabilities began nearly 70 years ago when federal laws began to inform educational practices and ensured accountability that people with disabilities should be able to live a full life. Transportation is one skill that people with disabilities need in order to reach their goals. Transportation impacts nearly every aspect of daily life for people with disabilities and continues to be an obstacle to the attainment of employment, postsecondary education, and independent living unless changes are made.

This study addressed the fears and the barriers of using transportation and then identified changes that could be put into place to decrease fears and barriers. The purpose was to uncover how the identified fears and barriers may lead to transportation improvements, affording people with disabilities the opportunity to work, learn, and live in their community.

A mixed-methodology research design was used in this study. The data collected centered on two critical areas of research in relation to transportation: understanding fears and barriers and recommendations for improvement. A survey was emailed to practitioners and caregivers residing in Illinois to identify fears and barriers related to transportation and to obtain ideas for strengthening transportation for people with disabilities. All collected data were self-reported by practitioners or caregivers of people with disabilities. Caregivers and practitioners believed that

the inability to use executive functioning skills, the safety of the rider, and the fear of getting off at the incorrect stop most impede the utilization and success of transportation for people with disabilities. As a result, people with disabilities turn to their immediate family members to provide transportation to get to their jobs, engage in postsecondary educational opportunities, and interact within their communities.

The data collected on the improvements needed with respect to transportation showed that if enhancements include flexible and dependable schedules and stops, improved safety, cost efficiencies, additional support persons on transportation, and more options for transportation, people with disabilities would access and utilize transportation.

At the beginning of the journey, the greater community advocated so that people with disabilities were included in public schools alongside their same-aged peers. This study demonstrated that although the path toward safe and successful utilization of transportation for people with disabilities has begun, there is a great deal of work ahead.

NORTHERN ILLINOIS UNIVERSITY  
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TRANSPORTATION: THE OBSTACLE THAT IMPACTS EMPLOYMENT,  
POSTSECONDARY EDUCATION, AND INDEPENDENT LIVING  
FOR PEOPLE WITH DISABILITIES

BY DANIELLE CARTER  
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# CHAPTER 1

## INTRODUCTION

The ability to get from one location within the community to the next in order to work, learn, and live is critical for achieving life's goals. People with disabilities have worse outcomes when compared to people without disabilities in the areas of employment, postsecondary education, and independent living (Kohler & Field, 2003). For people with disabilities, transportation is a critical issue that stands in the way of meeting lifegoals. Data on adult outcomes indicate that 85% of people with disabilities are not working or living in the communities they would choose, struggle to pursue postsecondary education, have limited access to social opportunities, and even fewer live independently (Test et al., 2009). This dissertation connects the dots between the life domains and the major role transportation plays in the success of people with disabilities.

A gap exists within the existing research related to the interconnectedness of the post-school outcomes of employment, postsecondary education, and independent living, particularly as they relate to transportation. This study sought to better understand what transportation options exist and to unpack the specific barriers, concerns, and fears associated with utilizing transportation as well as to outline enhancements that will improve the narrative on transportation.

Nearly 50 years ago, the Education for All Handicapped Act (EAHCA) of 1975, PL 94-142, forever changed the way children with disabilities were educated in schools. It was the first

federal legislation that set the stage for children with disabilities to have rights, achieve, and live out their postschool dreams (Keogh, 2007). Reauthorizations of this law, as well as others, contained language that guaranteed many things for children with disabilities such as a free and appropriate public education (FAPE), educating students with disabilities alongside their non-disabled peers, individualized assessment practices, and an Individualized Educational Plan (IEP) for every child with a disability (Keogh, 2007).

In the last few decades, educational mandates have shifted from a focus on access to educational opportunities to a focus on transition planning and preparing individuals with disabilities for life beyond school. Specific strategies and research-based practices have been shown to improve postschool outcomes in employment, postsecondary, and independent living domains for people with disabilities. The critical barrier to achieving postschool outcomes is safe, efficient, and reliable transportation options. Existing research is lacking on the connection between successful postschool outcomes and the utilization of transportation. This research will explore ways to improve outcomes for people with disabilities.

Research related to the three postschool outcomes – employment, postsecondary education, and independent living – will be summarized. A key researcher in this work, Dr. Paula Kohler (Kohler et al., 2016), identified the growing need to focus on transition services, adult planning, and programming for young adults with disabilities and referred to this as transition-focused education. Transition-focused education is aimed directly toward achieving successful adult outcomes in the areas of employment, postsecondary education, and independent living. Each domain is broken down to delineate the evidence-based practices that have been shown to lead to improved outcomes for people with disabilities, beginning with employment.

Data from the U.S. Department of Labor shows the employment rate for people with disabilities is 30%. Only about 25% of young adults with significant disabilities were working two years after graduation from high school, which is in stark contrast to the nearly 76% of people working who do not have a disability (Carter et al., 2012). An early focus on instruction in employment has been identified as the most important predictor of postschool employment success for students with disabilities (Test et al., 2005). Specific best practices and strategies grounded in research have been shown to lead to an increase in the success in employment if they were included in general education when they were in high school, had work experience and paid employment opportunities, had opportunities for vocational education, and were involved in a work-study program (NTACT, n.d.). An additional best practice that is successful for people with disabilities after high school is the chance to experience pre-employment opportunities. Skills such as on-the-job and technical training, interpersonal skills, self-advocacy, and accepting feedback from their supervisors, all lead to greater success for people with disabilities (Carter et al., 2012).

As it relates to the second adult outcome, postsecondary education, disparate outcomes exist for people with disabilities in this domain as well. Approximately 30% of individuals with disabilities graduated from a four-year institution compared to nearly 60% of students without disabilities (Kena et al., 2014). When a person without a disability enters a postsecondary environment, the experience is filled with opportunity and support. A person with a disability, however, faces a new set of challenges when entering a postsecondary environment related to self-advocacy and communication skills. They become solely responsible for requesting their own services, supports, and accommodations in the postsecondary environment. Colleges and universities are not required to follow the same federal mandates as public pre-K-12 schools

(NTACT, n.d.). Self-awareness and self-advocacy skills are critical in a postsecondary education setting because colleges and universities provide less individualization to students with disabilities. A deep dive into this domain is summarized and best practices are revealed in the upcoming literature review.

The third adult domain highlighted in this dissertation was independent living. The three broad areas of independent living are functional academics and life skills, caring for self and home, and self-determination and communication. Critical components that lead to greater success in this domain include possessing functional reading skills, the ability to apply math concepts via functional skills such as paying for items, and telling time as well as critical skills to support building relationships and communicating with others. These key skills are correlated to a higher rate of success within the independent living domain (Rowe & Test, 2013).

Transportation is the glue that holds the three life domains together for people with disabilities. Until transportation becomes the focus of research and practice, it is reasonable to believe that outcomes will remain discrepant (Field & Jette, 2007). This study is a descriptive exploratory study that addresses the fears and the barriers of transportation and then identifies changes that can be put into place to decrease fears and barriers so that people with disabilities achieve their goals in employment, postsecondary education, and independent living.

This study explored the available research on this topic to understand the fears and barriers associated with transportation for people with disabilities. This study was guided by the following research questions:

1. What are the fears and barriers associated with transportation for people with disabilities across Illinois?
2. Which transportation mode is most often utilized by people with disabilities?

3. What type of transportation is most available?
4. What enhancements or improvements are needed with transportation?

The dissertation concludes with a summary of the results of the survey completed by caregivers and practitioners related to transportation utilization, barriers, and recommendations for improvement.

## CHAPTER 2

### LITERATURE REVIEW

Current adult outcome research recognized 85% of people with disabilities were not working (Test et al., 2009). Additionally, they are less likely than others to attend postsecondary education, live alone, or see friends on a regular basis (Newman et al., 2011). Data from the U.S. Department of Labor (n.d.) research found the employment rate for people with disabilities was at 30% in comparison to 76% of people without disabilities. Furthermore, nearly 65% of individuals living in poverty are persons with disabilities. Most people with disabilities face substantial barriers in regard to transportation, which affects their ability to have meaningful participation and engagement in postsecondary education and employment opportunities (Field & Jette, 2007). One major issue contributing to these disparate outcomes for people with disabilities is a national crisis related to the lack of transportation.

The purpose of this literature review is to provide a historical overview of landmark legislation related to students with disabilities in public education and how the laws have evolved over time. The study outlined the critical research in the field that focuses on outcomes for people with disabilities as well as described best practices in the field of education, employment, and independent living for helping people with disabilities achieve a full life. The final purpose was to highlight the lack of transportation options available and the associated barriers for people with disabilities that makes reaching life goals more challenging.

## History and Evolution of Special Education Rights and Legislation

Education for students with disabilities and the legislation created to support and protect their rights have evolved over the last 70 years. Conversations related to the education of students with disabilities came about during the national political upheaval related to the civil rights movement (Keogh, 2007). In May of 1954, the U.S. Supreme Court ruled in *Brown v. Board of Education*, forever changing and ensuring an equal opportunity for all in education.

Historically speaking, Keogh (2007) stated:

This monumental change hit during turbulent times. A President was assassinated, a war in Vietnam, thousands of citizens marched in the streets in protest. The first African American students entered newly integrated schools under the protection of armed soldiers. Rosa Parks made her quiet but powerful statement on a bus in Montgomery, Alabama, and Martin Luther King Junior became the spokesman for equality for all. The interest in mental retardation by President Kennedy and the “War on Poverty” under President Johnson led to Federal funding for research focused on young “at-risk” children, particularly children in poverty. (p.66)

This backdrop set the stage for educational reform for students with disabilities, with reforms that first focused on equal opportunity and access, then shifted to focus on improved adult outcomes and preparing students with disabilities for life beyond school. “The notion of equal educational opportunity for all students, including those with disabilities, is now part of our national culture” (Keogh, 2007, p. 66). The journey ahead was unclear but as research, legislation, and mandates on schools came into clearer focus, the opportunity for students with disabilities in public schools improved. The bar was raised over time to hold districts more and more accountable for the growth and successful futures of students with disabilities.

### Historical Overview of Legislation for Children with Disabilities

Prior to landmark court cases related to education for all children in the 1950s and 1960s



and modifications to legal mandates in the 1970s, millions of children with disabilities were not educated in public schools, as they were thought to be “uneducable” (Martin et al., 1996): “Persons with physical and mental disabilities have been the target of discrimination across cultures for thousands of years. On virtually every continent there are records of isolation, exclusion, and even destruction of persons with disabilities” (p. 25). Students who did not fit in schools because of their disabilities were often excluded from public education completely (Keogh, 2007). Cases dating back as far as the late 1800s excluded students with disabilities from public education. Only within the last 70 years have the laws been changed in favor of allowing all students access to education, regardless of race and ability.

*Watson v. City of Cambridge*, 1893, was a case in which the Massachusetts Supreme Judicial Court ruled a child “weak in mind” and deemed not to benefit from education or was “troublesome to other children” and was unable to take “ordinary, decent, physical care of himself” could be expelled from public school” (Yell et al., 2006, p. 220). Nearly 30 years later, in 1919, the Wisconsin Supreme Court ruled that public schools could exclude students who had been attending school until the fifth grade in the *Beattie v. Board of Education* decision. The *Beattie* case involved a child with multiple disabilities that caused him to drool, contort his face in an involuntary manner, and have difficulties with his speech. The child was excluded from school (Yell et al., 2006). The *Brown v. Board of Education* decision in 1954 was a “major victory for the Civil Rights Movement and has been the underpinning for further civil rights action” (Yell et al., 2006, p. 220). The precedents set in *Brown* and other landmark court decisions resulted in sweeping changes in public schools' policies and practices for students with disabilities and paved the way for educational opportunities for students with disabilities.

The Elementary and Secondary Education Act (ESEA) of 1965 was the earliest effort to

provide funding at the federal level for education. This was the first law enacted by the U.S. government that offered direct aid to states for educational purposes and provided federal money to help states educate students whose families were below the poverty line (Katsiyannis et al., 2001). For the first time, federal dollars were available to improve the educational services and support provided to students who were blind, deaf, and/or cognitively impaired. ESEA was the first of its kind to highlight that students with disabilities needed additional support and individualized planning. Soon after, more laws were enacted that exclusively addressed students with disabilities.

The Education of the Handicapped Act (EHA) of 1970 expanded the federal grant programs of the Elementary and Secondary Education Act of 1965. A major outcome of the 1970 EHA was grant offerings to higher education institutions to support the development of teacher training programs to prepare teachers to educate students with disabilities after they earned their teaching degree, equipping future special education teachers with the tools they needed to be more successful with their complex learners.

As more court cases related to students with disabilities were heard, the laws shaped the protections for students with disabilities in public schools. *PARC v. Commonwealth of Pennsylvania* of 1972 was brought to the courts because students with disabilities in Pennsylvania were not provided a public education which was in violation of the Equal Protection Clause under the Fourteenth Amendment. “The ruling declared that all children with ‘mental retardation’ between the ages of 6 and 21 years be provided a free public education and that it was most desirable to educate children with mental retardation in a program most like the programs provided for their nondisabled peers” (Yell et al., 2006, p. 222). Soon after the *PARC* decision, a class-action suit was filed in the Federal District Court of the District of Columbia

against the Board of Education on the grounds that the educational rights of seven students with disabilities were violated under the Fourteenth amendment.

*Mills v. Board of Education* of 1972 charged that students with disabilities were excluded from school without proper due process (Yell et al., 2006). The outcome of *Mills* resulted in a judgment against the School Board which mandated the Board to provide all children with disabilities a publicly supported education. The landmark ruling in *Mills* defined due process procedural safeguards which included “the right to a hearing with representation, a record, and an impartial hearing officer; the right to appeal; the right to have access to records; and the requirement of written notice at all stages of the process” (Yell, et al., 2006, p. 223).

Education for students with disabilities began with students being granted the basic right to access public schools alongside their non-disabled peers. Over time, the emphasis in court cases shifted to planning based on individualized assessments which were then memorialized in a process called transition planning. The focus of transition planning was to support students with disabilities to achieve their individual postsecondary outcomes in the areas of employment, postsecondary education, and independent living. The significant cases outlined above set the stage and forever changed education for students with disabilities.

The Education for All Handicapped Act (EAHCA) of 1975 became Part B of the EHA, which promised federal incentives to states who opted to accept the funds connected to the mandates of special education. “PL 94-142 contained specific language guaranteeing many things we now take for granted: an Individual Educational Plan (IEP), education in the least restrictive environment (LRE), a free and appropriate public education (FAPE), and procedural due process” (Keogh, 2007, p. 67). EAHCA protected students with disabilities in several ways: provisions for the location of service delivery, requirements to show proof of growth, and

guarantees for a free, appropriate public education (FAPE).

The most monumental change in PL 94-142 was the implementation of the Individualized Education Plan (IEP) for every child identified with a disability. A team of educational staff, the child's family, and the child, when appropriate, annually gather to determine the child's present levels of performance, identify short-and long-term goals, and outline accommodations and modifications needed within the learning environment for the child to make adequate progress toward the agreed-upon goals. An IEP is created when a team deems that a student who qualifies for special education undergoes an extensive evaluation process by a team of multidisciplinary educational professionals. The team includes a special education teacher, general education teacher, school psychologist, school nurse, and related service providers who may include a speech and language pathologist and occupational and/or physical therapist. Once services and needs are identified through the evaluation process, those services and supports live within the legally binding document, the IEP. The IEP represents an individualized plan outlining the student's needs, strengths, and goals related to educational opportunity, access, resource allocation, and service delivery within a collaborative approach between school staff, families, and the community (Blackwell & Rosetti, 2014). A critical consideration in a student's IEP identifies where within the learning environment of school the services can be delivered. Previously the decisions were made in isolation based on what the team wanted or thought; however, because of PL 94-142, a least restrictive environment (LRE) was now a required discussion for IEP teams.

The LRE requires school districts to place students with disabilities in educational settings that allow them to be educated with their non-disabled peers to the greatest extent possible. Placement discussion is reviewed by the IEP team and must be considered on behalf of

the student. The continuum of options is broad and begins with services provided full time in the general education setting and moves through options to the most restrictive, separate programming in a separate special education school. The language in the Individuals with Disabilities Act (IDEA) “requires the school to consider modifications in the regular classroom before moving the child to a more restrictive placement” (Martin et al., 1996, p. 35). Legislators set additional mandates to ensure expanded educational services were available for students with disabilities in their public education experience (Keogh, 2007).

PL 94-142 made certain that all children with disabilities between the ages of 3 and 21 received a free and appropriate public education (FAPE). The four components of FAPE assured that students with disabilities are provided education at public expense; the educational experience meets the standards of the state education agency; an appropriate preschool, elementary, and secondary level of education is made available in the state in which the child’s family resides; and the educational team has partnered with the family and designed an Individualized Education Plan (Katsiyannis et al., 2001). This Act also provided a funding stream for school districts to assist with the additional costs associated with educating a child with a disability (Martin et al., 1996). With the various changes outlined in PL 94-142, additional laws were modified based on the new mandates and guidance.

The Individuals with Disabilities Education Act (IDEA) of 1990 protected the educational rights of students whose needs ranged broadly from requiring academic intervention and support for specific learning disabilities to students with cognitive impairments who required support to complete many of their daily activities (Martin et al., 1996). The 1990 amendments further supported the transition services and instituted requirements to ensure students’ interests, preferences, and self-identified needs are incorporated into the development of their IEP (Kohler

& Field, 2003). It included, for the first time, statutory provisions intended to guide the transition planning and use of age-appropriate, individualized assessments to map out a plan for the transition from high school to adult life. This involved more of a focus on student-centered planning, young adults having a say in their plans, and transition planning incorporated into their IEP by the time the student was 16 years of age (Yell et al., 1998).

Transition services are defined by IDEA as a set of outcome-focused activities that steer toward the achievement of postschool goals for a student with a disability (Field et al., 1998). In essence, this legislation's goal according to Hasazi et al. (1999) was to promote

effective transition planning and programming by (a) providing a definition of transition services, (b) listing the set of coordinated activities that comprised transition services and detailing the basis for determining which activities are appropriate for an individual student, (c) specifying the process by which a statement of needed transition services is to be included in the student's IEP, and (d) determining agency responsibilities in the monitoring and provision of transition services. (p. 555)

The mandate stated that all students with an IEP aged 16 and older were guaranteed specific transition services. Transition services were identified to meet the needs of the student in order for them to achieve said goals and may include direct support provided by educational professionals such as speech and language services or specific activities to be completed in order for the student to reach their transition goals in the outcome areas of postsecondary education, employment, and independent living (Gartin & Murdick, 2016). An interesting gap in transition planning was the lack of attention given to the topic of transportation. If a person with a disability obtained employment, it is reasonable to inquire about how they will get there. If the team was planning for a student to attend college, a natural question would be about transportation, yet transportation oftentimes is an afterthought and leads to barriers related to postschool goals and outcomes.

Key researchers such as Dr. Paula Kohler have influenced the continuing changes in the federal law to shift the focus directly to transition planning. Kohler's (1996) landmark research highlighted that transition planning must be a major component of the IEP document because it reflects activities, services, and supports aligned to achieve postschool outcomes. "There is a fundamental relationship between the IEP content as reflected in the document, assessment data on student abilities and interests, the educational activities in which a student participates, and student outcomes. However, research indicated that all too often, one or more of these variables are missing in the IEP document" (p. 36). As more research was shared, new laws were created and previous laws were reauthorized, and there was a notable shift from procedural access in education to transition planning for adult outcomes.

The Individuals with Disabilities Education Act (IDEA) of 1997 was reauthorized less than a decade later in 1997 and expanded transition service requirements, transition planning and timelines, mandates within the IEP document, parent voice, choice and rights, and student discipline. Highlighted below are the key language changes related to transition planning, IEPs, and parental rights within the IEP process.

### Transition Planning

In earlier iterations of the law, transition services and planning were mandated to begin when the student with a disability was 16 and then each year after. In 1997, the statement shifted to begin when the student with a disability is 14.5 years of age and every year after to ensure the plan is on track to meet the goals outlined in the student's transition plan. The federal language communicated that a child's IEP should be focused on postschool outcomes beginning at the age of 14 and that the preferences and interests of the student should be expressed within the IEP

(Kohler & Field, 2003).

The linchpin IDEA 2004 reauthorization was an emphasis on future planning for students with disabilities to shift from process to outcomes. The new additions required that a student turning 16 (or younger if determined by the IEP team) have appropriate, specific, and measurable postsecondary goals based on individualized transition assessments. The assessments had to be connected to employment, education, training, and when appropriate, independent living skills. The second prong included the need to outline the courses of study needed to reach the goals in the above-mentioned goals. Transition planning was the essential element to prepare students with disabilities to achieve their goals in the three major life domains of postsecondary education, employment, and independent living. There was an uptick in language related to the involvement of students in the transition planning process to ensure their outcomes are based on their interests and desires and that information to be gleaned from individualized transition assessments and increased accountability to postschool planning efforts are captured. Annually, the U.S. Department of Education, Office of Special Education Programs (OSEP), assesses the effectiveness of every state's transition services provided through measurable indications that address the postsecondary outcomes and transition goals/services for graduates with disabilities (Vitelli, 2013). These mechanisms of accountability are Indicator 13 and Indicator 14.

#### Individualized Education Plan (IEP)

Changes to the IEP included the requirement that a statement of measurable annual goals, including benchmarks or short-term objectives, that would enable parents and educators to accurately determine a student's progress be specified in the IEP. The primary difference in the statement of goals from that of the original IDEA was the emphasis on accurately measuring and



reporting a student's progress toward the annual goals (Yell, 1998). The IEP team was mandated to review the student's planned courses of study and determine whether those courses of study are leading to the postschool outcomes delineated within the transition plan (Hasazi et al., 1999). For the first time through this reauthorization, members of the IEP team must make reasonable efforts to include the student at the IEP meeting along with the student's family. The newest reauthorization also mandated that a member from an adult agency be present to speak to how the agency will carry out the transition goals and services outlined in the transition plan when the student exits the school system. This mandate was an effort to ensure that postschool goals and plans are carried out through identified goals and documented within the IEP.

An outcome of the IDEA 2004 reauthorization was an assurance by law that there was a greater focus on the monitoring and tracking of student progress and comparison of progress and skills to students without disabilities. Prior to this reauthorization, the requirement existed to measure and track short-term objectives or benchmarks for each area of need identified in the present levels of the performance section of the IEP. In 2004, short-term objectives or benchmarks were removed and replaced with annual goals. Annual goals were further defined to mean academic and functional goals that allowed a student with a disability to be involved and make adequate progress in the general education curriculum as well as meet the other educational needs a student has as identified in their IEP (Gartin & Murdick, 2016).

### Parent Voice, Choice, and Rights

In the 1997 reauthorization, IDEA outlined the importance of parent voice and choice at the IEP table. Parents were included in the IEP team throughout the entire planning process to show collaboration and partnership with the key stakeholders in the life of a student with

disabilities. In the 1997 mandate, Congress strengthened language related to adversarial interactions during the IEP process which included encouragement to use more collaborative approaches to problem solving and moving toward a mutual agreement. The 1997 amendments specifically required states to offer mediation when members of the team could not come to an agreement about a specific facet of the IEP (Yell, 2006).

Another substantive change in the 1997 reauthorization provided benefits to students with disabilities placed into private school settings by their parents. While IDEA mandates do not extend to private schools, language regarding Local Educational Agencies (LEA) was added into this iteration of the law. The language stated that an LEA from the public school the child would attend if the parent did not otherwise privately place was required to consult with the private school to offer the opportunity for the child with a disability to participate within the public school special education program. Each year the LEA was to collaborate with the private school team at the annual IEP meeting to discuss placement options, while keeping in mind the least restrictive environment. It was also the role of the LEA to represent the school district and connect with the private schools to identify students with disabilities in the private sector as public schools are not held to the same standards of providing the mandates under IDEA (Yell, 2006). From 1975 through its reauthorization in 2004, IDEA continued to ratchet up the protections for students with disabilities with an increased emphasis on transition planning and accountability measures for school districts related to postschool outcomes for students with disabilities.

The lens shifted from process-oriented to outcome-based (Erickson et al., 2014). Early IDEA emphasized the importance of paperwork completion and told educational staff what processes needed to be followed to educate students with disabilities (Erickson et al., 2014).

IDEA 2004 shifted its emphasis to “preparing students with disabilities for further education, employment, and independent living to ensure equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities” (Public Law 108-442). This was achieved through Indicators 13 and 14. Several other changes were made in the 2004 reauthorization which included requirements for “highly qualified” special education teachers; due process requirements; changes in funding that positively impacted the dollars earmarked for special education; changes in the IEP document and process, accommodations, expulsion and suspension of students with disabilities; eligibility for students with learning disabilities; and transition planning and mandates for accountability to postschool outcomes (Smith, 2004). The following components highlight the critical changes related to the IEP, postschool outcomes transition planning, and Indicators 13 and 14. An emphasis on the critical components related to transition planning is outlined below.

#### Accommodations

Accommodations for students with an identified disability allowed them to most adequately access the general education curriculum. Accommodations are individualized for each student based on their specific learning and behavioral needs. Examples of accommodations included extended time on exams or tests, someone to verbally read the exam, or a specific type of keyboard or writing utensil. In the 2004 reauthorization, a statement related to the accommodations on state and districtwide assessments was included for the first time. This statement ensured “individual appropriate accommodations that are necessary to measure the academic achievement and functional performance of a child on state and districtwide assessments” be provided to students with disabilities (Gartin & Murdick, 2016, p. 329). Some

students were unable to show their learning and skills through state and districtwide assessments, so IDEA 2004 created an alternative means of assessment. For those students, a statement must be added into the IEP that qualifies a child to complete the alternative assessment and explains the rationale for that decision (Gartin & Murdick, 2016).

#### Focus on Accountability: Indicators 13 and 14

The first mechanism Congress outlined in this iteration was the guiding document to capture the goals and postschool outcomes for a student with a disability. This process was known as Indicator 13, which requires school teams to address transition goals and track the progress of goals within the student's IEP beginning when the child is at least 16 years of age and every year thereafter until graduation. The major life domains targeted within Indicator 13 are postsecondary education, employment, and independent living (if deemed appropriate by the IEP team) and each must be addressed on the student's IEP.

The process guided teams through eight domains that required answers to specific questions about how each transition goal will be achieved. Indicator 13 included documentation of service(s), curriculum, and individualized transition assessments that addressed each of the student's postsecondary goals. Indicator 13 was designed with the assumption that if students had a more compliant IEP, postschool outcomes would improve (Erickson et al., 2014). Indicator 14 was the quintessential accountability measure for postschool outcomes because it assessed the achievement of and progress toward adult outcomes for graduates.

Each year the Illinois State Board of Education selected school districts to complete the Indicator 14 audit requirement focused specifically on higher education, postsecondary training, and competitive employment outcomes (Vitelli, 2013). Correspondence was sent to graduates

that included a summary of the Indicator 14 process along with survey questions that targeted the status of postsecondary education and employment information. Details of the survey questions included the frequency and duration of attendance in a postsecondary learning environment and specifics related to educational opportunities at a two- or four-year university the person entered one year after leaving high school. In the area of employment, questions focused on whether graduates held a job one year after exiting high school. Employment was defined as the person with a disability having secured employment for at least 20 hours per week for a total of 90 days. Indicator 14 assessed where students were one-year postgraduation and for the system to reflect and pivot to improve outcomes for the next set of graduates (Vitelli, 2013).

As outlined above, IDEA legislation has gone through many iterations over the last four decades, but the core mission has remained: to provide students with disabilities the same opportunities as their peers without disabilities. As the reauthorizations occurred, a greater emphasis on accountability measures was added. Transition planning and accountability through achieved outcomes (Indicators 13 and 14) became forward facing in IDEA. Every authorization narrowed the focus on postschool and the responsibility put on the school district to set students with disabilities up for success and help them achieve postschool goals. Mandates were put on school districts to ensure the planning, implementation, and assessment of transition planning, and adult outcomes remained at the forefront within every annual review of a student's IEP.

Transition planning became integral to the success of people with disabilities after they exited the school system. Much of this understanding came about through researchers who dedicated their careers to outlining the best practices that led to successful postschool outcomes. According to the research of Kohler and Field (2003):

In response to information regarding students' postschool outcomes, the past 15 years

have reflected an increased focus on improving transition education and services for youth with disabilities. Three specific initiatives characterize this development: (a) federal special education and disability legislation; (b) federal, state, and local investment in transition services development; and (c) effective transition practices research. (p. 174)

Research focused on special education, transition planning, and best practices for people with disabilities played a key role in the reauthorizations in the field of special education over time. The research below highlights strategies and best practices that, when implemented, are more likely to lead to more successful outcomes in the areas of postsecondary education, employment, and daily living for students with disabilities when they exit high school.

### Research Contributing to Changes in Laws

Over the last thirty years, researchers have explored transition practices that connected to the three postschool outcome domains of postsecondary education, employment, and daily living and have identified successful strategies associated with improving these outcomes. Findings from studies such as those by Kohler (1996), Kohler and Field (2003), Field and Jette (2007), Carter et al. (2012), and Wehman et al. (2003), along with others, are summarized.

Kohler's (1996) work served as a strong backdrop for other researchers in transition planning and transition services. Kohler and Field (2003) divided transition practices into five areas: student-focused planning, student development, interagency collaboration, family involvement, and program structures. Their promising practices revealed ways to improve post-school outcomes for people with disabilities.

The cornerstone for providing meaningful and impactful transition services that set the stage for the attainment of postschool outcomes was through intentional transition planning. IEP development, student participation, and planning strategies are the three key areas in student-focused transition planning (Kohler & Field, 2003). Student-focused practices begin with student

involvement throughout the entire IEP process. These practices are developed from relevant assessments used as the basis for planning for a student with a disability within their IEP and utilized the data from the assessments to make decisions and evaluate progress toward their goals. Educational goals and decisions were based upon the student's individual goals, abilities, and strengths which further supported the importance of the development of a student's ability to be self-aware and to know and be able to communicate to provide a collaborative effort for developing a plan focused on the roles, responsibilities, and actions members of the community commit to in order to enhance curriculum and service delivery (Kohler & Field, 2003). The impact of transition-focused education was significantly improved when families, service agencies, and programs connect and collaborate on the planning, implementation, and continual refinement of the plan (Kohler, 1996). Once the team is identified, each member receives specific roles and responsibilities as well as specific training related to their area of focus (Rowe & Test, 2013). Promising predictors of positive postsecondary educational outcomes include interagency collaboration and parental expectations.

Practices of meaningful family engagement were defined in three ways: participation and roles, empowerment, and training and family involvement (P.L. 105-17, Section 300.345). Family empowerment focused on strategies that articulate meaningful ways families engage in transition-focused activities and methods (Kohler & Field, 2003).

Successful program structures included pedagogy, planning, policy, resource allocation, human capital development, and assessment of how resources are developed and utilized (Kohler & Field, 2003). A recipe for success in a transition program was highly qualified and trained staff and administration with clearly articulated essential job functions which supported the success and goal acquisition of students. Individualized training focused on student-centered

objectives taught within the natural environment was a promising practice underscored in research (Rowe & Test, 2013). Finally, research suggested that the use of strength-based assessments implemented throughout various points in the learning cycles allowed data and growth to be tracked and monitored. If anticipated growth was not being achieved, an intervention of support or additional training could be provided to the student (Rowe & Test, 2013).

### Strategies That Address Adult Life Domains

Employment, postsecondary education, and independent living are the three life domains that people with disabilities and their support networks plan to achieve once the individual exits school; however, significant discrepancies related to employment, postsecondary education, and independent living exist between people with and without disabilities (Vitelli, 2013). Research-based best practices and strategies along with relevant information related to each domain are unpacked in the following. Implemented best practices in each domain may lead to improved outcomes in isolation, but if there is not a way for a person with a disability to navigate safely in their community, the outcomes are less likely to improve overall. Therefore, it is reasonable to believe that finding transportation alternatives and solutions may positively impact outcomes and a person's life.

#### Employment

Over 33 million people of working age in the United States have a disability. The employment rate for people with disabilities compared to people without disabilities is 36 versus 77% (Vitelli, 2013). The data dropped even lower, to eight percent of individuals working, for



those with a more significant disability (Test et al., 2009). “Although entry into the world of work is a prominent marker of postschool success in the United States, students with severe disabilities often leave high school without the skills, experiences, and support that lead to meaningful employment” (Carter et al., 2012, p. 50).

The employment domain is an area in which the gap between people with disabilities and people without disabilities has widened over the last 25 years (Carter et al., 2012). To change the landscape of employment outcomes, research showed several strategies that prove successful for people with disabilities, strategies including specific pre-employment and employment training and opportunities to engage in prevocational experiences as well as work experiences within various settings.

Preparing a person with a disability to be successful in a work environment begins with the explicit teaching of essential job readiness skills while the student is in high school. Goals related to employment are outlined in the IEP and the Transition Plan (Indicator 13). A foundational step of the pre-employment process is finding the right working environment and role. An interest inventory is one strategy that can glean important employment information about a student and identify which opportunities could be an optimal match (Carter et al., 2012). This gives the team a good gauge of positive job matches and a point from which to begin to build opportunities. There are many options and environments for people with disabilities to work and gain experience. Often a person with a disability experienced more than one employment opportunity prior to landing in their long-term employment position (Carter et al., 2012).

There are technical aspects of a job – skills, knowledge, and abilities – as well as the soft skills of employment – effective communication, collaboration, problem solving, and asking for

help. It has been shown that people with disabilities lose their jobs based on their deficits in interpersonal skills rather than technical skill deficit (Rowe & Test, 2013). To offer a range of experiences in the employment domain, they must have options for employment based upon the person's individual goals, skills, interests, and abilities. The continuum spans from a most restrictive to the least restrictive range of employment options. A more restrictive employment environment has less frequent interactions with people without disabilities and wages and benefits are significantly diminished. The least restrictive employment environment is defined as working alongside people without disabilities as well as equal compensation and benefits compared to employees without disabilities. A range of opportunities exists to give people with disabilities a choice when it comes to employment. The options vary based on the essential job functions and the specific level of support provided to the person with a disability while on the job.

Sheltered workshops are a segregated work environment in which people with disabilities work exclusively with people with disabilities. This setting typically consists of predictable jobs with little interaction with others. The work can be full or part time and the compensation is usually at a wage that is less than the minimum and often without benefits.

Supportive employment is work in an authentic environment with support provided by another individual not hired by the employer but instead hired by the person with the disability. Supportive employment allows for the person with a disability to work full or part time and have access to the pay and benefits equal to employees without disabilities.

Another option is customized employment. This approach provides the individual with a disability with authentic and meaningful ways to obtain and retain a competitively paid job. The job is personalized to align with the person's individual strengths, knowledge, and skills.

Customized employment offers people with disabilities opportunities for advancement as well as pay and benefits similar to their coworkers without disabilities (NTACT, n.d.).

Providing a range of opportunities for people with disabilities to explore various work environments and options is critical for finding the right job match and attaining long-term employment. Predictors of success in the employment domain included opportunities to participate in experiences both paid and unpaid to understand the options (Rowe et al., 2013). In each setting, situational vocational assessments are administered and monitored to determine the appropriate job matches and the progress made on the job (Rowe et al., 2013). Authentic opportunities provide opportunities for people with disabilities to obtain the skills needed to maintain competitive employment (Carter et al., 2011).

Research recognized that if people with disabilities participate in pre-employment and employment experiences, they are more likely to be employed (Benz et al., 2000). However, several barriers exist for people with disabilities, such as the lack of education or training, transportation, and/or additional support on the job (U.S. Department of Labor, 2018). The transportation barrier is such that it leads to forfeiting employment opportunities because the obstacles outweigh the benefits of employment.

### Postsecondary Education

The National Center on Education Statistics (2014) revealed 29% of individuals with disabilities graduated from a four-year institution compared to 59% of students without disabilities. Data from the Bureau of Labor Statistics (2019) indicated roughly 15% of individuals with a disability earned a bachelor's degree or higher compared to approximately 35% of those without a disability. A study from 2007 revealed that less than eight percent of youth with

disabilities were attending a four-year university or college while about 13% of people with disabilities were attending a two-year community college (Test et al., 2009). One in five students with disabilities enrolled in a four-year university, making the disparate participation levels apparent (Vitelli, 2013).

Two of the key strategies that lead to more successful outcomes in postsecondary education are to provide teachers and staff with an understanding of disabilities and research-based instructional strategies. An essential characteristic that supports a successful postsecondary learning environment for people with disabilities is one that provides professional development for teachers and other classroom staff as it relates to supporting individuals with disabilities. Instructional strategies that are differentiated, meaning individualized for each student's skills and abilities, support student achievement and success. Learning and study strategies are essential in order to be successful in a postsecondary education environment so students understand what they need to do to succeed (Rowe & Test, 2013). Postsecondary education goals outlined in a student's IEP and Transition Plan (Indicator 13) while in high school could make a stronger foundation of the prerequisite skills needed to be successful in their next educational environment. Classes and skills taught in high school focused on executive functioning and study strategies on how to synthesize information needed for an exam are two examples of high school activities that could reasonably lead to more success in the next educational environment (Indicator 14).

Existing research supports that people with disabilities view postsecondary education as “a means to enhance their chances of obtaining and maintaining employment, earning a higher annual income and creating a pathway to lifelong independence and a greater quality of life” (Finn et al., 2008). These life goals are in conflict with the current data related to postsecondary

education due to three significant barriers when it comes to adapting to college: lack of acceptance by peers, lack of proper services and support provided by the postsecondary educational facility, and poor self-advocacy skills. The barriers aligned to the critical prerequisites a person with a disability needs prior to engaging in a postsecondary learning environment. Core attributes of a successful postsecondary experience are the ability to have meaningful peer relationships, the availability of support and resources, and the ability to ask for help and outline what is needed for success (Finn et al., 2008). Another critical barrier identified was how people with disabilities get to their place of learning. Obstacles related to transportation may contribute to the low enrollment in postsecondary educational environments. Until additional research and solutions in the field of transportation exist, critical issues remain for people with disabilities and it is reasonable to believe outcomes will remain disparate to people without disabilities.

### Independent Living

The 2007 National Longitudinal Transition Study 2 showed 76% of people with disabilities were living at home after high school while only 10% lived alone. Evidence-based practices related to independent living exist in the research and are divided into several categories: functional academics, life skills, personal-social, and self-determination. Key skills associated with stronger outcomes are functional reading, math, writing, problem solving, self-care, maintaining a home, social skills, recreation and leisure, participation in the community, self-advocacy, and goal-setting skills (Alwell & Cobb, 2009; Benz et al., 2000). The following breaks down the key elements regarding the independent living domain.

## Functional Academics and Life Skills

Research stated that developing basic reading, functional math, writing, and problem-solving skills is foundational for people with disabilities to achieve success in independent living (Rowe & Test, 2013). Functional academics are essential literacy and numeracy skills that allow a person to engage in the day-to-day functions within their community, such as reading street signs and paying for items in the community. Functional skills are applied and required across the other domains (postsecondary education and employment). The functional use of money is a skill that may transcend from the grocery store to paying bills or paying for a meal at a restaurant (Rowe & Test, 2013). The skill of telling time helps a person with a disability plan a schedule for their day and understand when one must leave one location to arrive at the next location on time. Time is also critical for a person who needs to take medication, attend a doctor's appointment, or know when a visitor will arrive (Berry et al., 2012). Caring for a home and the associated life skills are crucial for a person with a disability to live alone. A person needs to know basic housekeeping skills, cooking and meal preparation and laundry skills as well as personal hygiene, including dressing (Alwell & Cobb, 2009).

It is reasonable to believe people with disabilities will be able to live more independently when they graduate high school if the areas of need within the independent living domain are identified in the student's IEP and transition plan. Outlining the skills lays the groundwork to develop the skills they need to be successful postschool in the functional academics and life skills areas. Financial planning, money skills, meal preparations, home care/maintenance, and executive functioning skills such as time management are critical for increasing the likelihood of improved outcomes for people with disabilities (Rowe & Test, 2013).

## Personal/Social

Explicitly taught and practiced social interactions and personal relationships lead to more positive outcomes for people with disabilities (Benz et al., 2000). Research shows personal and social interactions are more impactful when performed in small or large groups because they foster social opportunities and interactions, social connections, and relationships (Benz et al., 2000). Social interactions open the door to recreation and leisure activities within the community. Being engaged in the activities allows people with disabilities to participate in events such as leisure skills, exercise, sports participation, games, or other activities (Alwell & Cobb, 2009).

## Self-Determination/Communication

Transition-focused education changed the lens through which others viewed people with disabilities – from a deficit approach, focused on what one cannot do, to the person’s skills, interests, and self-determination (Kohler & Field, 2003). Teaching people with disabilities to be self-aware can afford them the ability to communicate their own strengths, weaknesses, and what they need to succeed. Self-awareness skills allow the person with a disability to receive feedback and constructive criticism in a way they can accept and learn from. The ability to be self-aware is being able to understand oneself, including strengths, challenges or limitations, and accommodations necessary to foster success. An emphasis on self-advocacy is a large indicator of success postschool, which involves asking for help and knowing how to share information regarding their disability (Rowe & Test, 2013). Self-awareness, self-advocacy, and self-determination skills are strong predictors of the rate of success for a person with a disability (Test et al., 2009).

Critical issues related to transportation exist and additional research should be conducted in order to uncover the options, specific concerns, areas for opportunity, and next steps. Transportation options that exist are perceived by people with disabilities to be complex, expensive, unsafe, and intimidating, yet little to no research exists related to the future of transportation. Transportation barriers and the lack of proper and safe transportation are outlined below. The lack of trusted, safe, and reliable transportation negatively impacts the three life domains of education, employment, and daily living with more research and recommendations necessary.

Independent living evidence-based practices taught to youth with disabilities support a positive shift from high school to adult life. When these evidence-based practices are outlined within a student's transition plan while in high school, it is more likely the skills will be applied in the independent living domain when they exit school (Rowe & Test, 2013). Looking at each domain in isolation without incorporating transportation is a critical issue. Until additional research is conducted, a person with a disability may struggle to work, learn, and engage in their community because they simply do not have a safe, efficient, and reliable way to get from one place to another.

#### Transportation: The Barrier to Adult Outcomes

For a person with a disability to be employed, attend postsecondary education, and live independently, predictable, safe, and efficient transportation options may lead to stronger outcomes (Carmien et al., 2005). A critical issue for a person with a disability is the barriers they face related to transportation. They may struggle to get from one location within the community to the next, hold a job, and enroll in educational opportunities. Lefler and Castillo (2019)



revealed that 13.4 million people with disabilities report having travel-limiting disabilities; 31% have inadequate transportation as compared to 13% of community members without disabilities (Friedman & Rizzolo, 2016). Even with the dismal statistics related to transportation, a gap remains in the research. This section summarizes the existing data and research as well as highlights the barriers and lays out potential enhancements and the impact transportation challenges have on one's ability to reach their goal.

### Transportation Options

The transportation options that do exist for people with disabilities pose logistic hurdles to navigate and are at times too cumbersome and complex to manage, resulting in underutilization. Public transportation, paratransit, individualized transportation such as cabs and Uber, ride-shares, and family-provided transportation exist, with each bringing its own set of barriers and challenges.

The Regional Transportation Authority (RTA) in Chicago was created in 1983 by the RTA Act which provided funding for PACE, Metra, and the Chicago Transit Authority (CTA). PACE is a service that provides predictable public bus transportation for all community members. The PACE bus line offers consistent schedules and routes located in numerous locations in many urban and suburban neighborhoods. However, one barrier to PACE is the complexity of the system, the routes, and the stops. The location of the PACE stops in proximity to a person's home can be another barrier because the bus stop may be too far away to walk to independently. The independence required by the rider to use this option is another critical issue. If a person with a disability forgets to inform the driver of their stop, they could remain on the bus for too long, causing them to be late to their job, their medical appointment, or to get lost

within the community if they exit the bus at the wrong location (Carmien et al., 2005).

An alternative mode of transportation they may access is public paratransit. Paratransit is provided solely to people with disabilities and the elderly who need a more direct and individualized route to get to their destination within the community. Paratransit offers a window of time in which to expect the transportation vehicle to arrive. The time range versus a specific pick-up time proves to be a critical issue for this option because a person may need to be at a specific destination at a specific time such as a doctor's appointment or a job (Carmien et al., 2005). Uncertainty and unpredictability of drivers, routes, and schedules also prove to be challenging for people with disabilities related to paratransit.

Cabs and private transportation are other options for people with disabilities, yet often they are not feasible due to the cost of one-to-one transportation. Alternatively, families have partnered together to create ride-share programs and routes, which shifts the burden from one family to several, similar to a carpool set up for school-aged students. The final option, and one that is the most utilized, is to rely on family members (Carmien et al., 2005). This option may bring ease and potential convenience but should not be the default option. People with disabilities deserve more safe and efficient transportation options and while public transportation may be viewed as the most preferred mode of transportation by people outside of the disability community, it is one of the most complex to navigate (Friedman & Rizzolo, 2016). Millions of people in this country have an intellectual disability and are asked to navigate one of the most complex systems in existence for their transportation needs (Friedman & Rizzolo, 2016).

Challenges related to transportation for people with disabilities are multifaceted and include the logistics of transportation such as cost, environmental concerns, the complexity of the system, lack of individualized options, and or accessibility issues that exist; the lack of

executive functioning skills necessary to navigate complex systems (Carmien et al., 2005); and the psychological barriers that may impact the user's success and participation in the transportation (Koppa et al., 1998).

The logistics, environmental, and physical aspects of navigating a system are sometimes the reasons people with disabilities do not utilize public transportation (Koppa et al., 1998). Environmental issues such as the height of the bus compared to the height of the curb, especially for those with physical disabilities, make boarding the vehicle challenging. Curb cutouts and improper clearing of the onboarding access points to the transportation vehicle make utilization of the vehicle impossible. Physically getting to the bus stop presents its own set of challenges, especially when presented with independently crossing busy streets or the lack of sidewalks (Zang et al., 2016). Ensuring the vehicle is safe and comfortable for a person with a disability is another critical component for people with disabilities to consider when selecting transportation (Koppa et al., 1998).

Physically arriving at the stop and getting onto the bus could prove challenging enough for people with disabilities, yet when executive functioning competence becomes another skill set to be successful in transportation, the challenges exponentially increase (Carmien et al., 2005). Executive functioning impedes a person's ability to effectively utilize transportation. Skills such as reading a map and the ability to follow schedules are essential in order to be successful on transportation. The rider's ability to recognize landmarks that signal it is time to disembark is another skill needed in executive functioning competency. Misreading signs, failing to signal the driver to get off at the next stop, or riding on the incorrect bus are common errors displayed by riders with disabilities (Carmien et al., 2005). From time to time, people with disabilities struggle to adapt to unfamiliar and/or novel situations that may cause them to panic and make rash

decisions (Koppa et al., 1998). The lack of ability to generalize from one transportation situation the next essentially requires or forces a person with a disability to “re-learn” the experience the very next time they access transportation (Carmien et al., 2005). Critical errors could be made such as getting lost within the community, which could lead to long-term fears connected with transportation (Carmien et al., 2005).

Psychological barriers include the fears that may impact a rider’s ability to perceive transportation as safe or reliable. These fears could be caused by the rider’s trepidation of new places, people, and/or experiences. People with disabilities who struggle with psychological impairments may have anxiety over getting lost, fear of public places, or worry about not being in control of their situation. Some fears are internal, such as the fear of falling, being hurt by someone, becoming stranded or lost, or feeling vulnerable, as well as the fear of what could go wrong with transportation (Koppa et al., 1998).

### Transportation Enhancements

To change the negative undercurrent related to transportation, collaborative groups and researchers made recommendations for transportation enhancements. These improvements may lead to a more positive experience for riders with a range of ability levels. People with disabilities require options with minimal complexity and offer a positive user experience. Research-based enhancements such as trip planning services, destination cards, fare simplification, and driver notification may improve the user experience (Koppa et al., 1998).

Trip planning services provide a customized approach to transportation. Trip planning allows the user with a disability to develop a personalized schedule. Paying for transportation is also an important component to the process. Fare simplification includes the use of transportation

passes, ID cards, voucher systems, and other fare collection alternatives rather than the more traditional exchange of money (Koppa et al., 1998).

People with disabilities who struggle to alert the driver when they need to exit the bus as their appropriate stop approaches find destination card programs successful. These programs allow the person with a disability to provide the driver with information about their disability, accommodations, and other relevant details related to their transportation needs (Koppa et al., 1998). Technological enhancements increase the success rate of people with disabilities utilizing transportation (Koppa et al., 1998). SmartMaps is a GPS navigator tool that helps a person with a disability understand the complexities of maps and the bus schedule. SmartMaps also has the capability to read maps and the bus schedule information aloud from a device of their choice (Endeavor Business Media, LLC, 2020).

It is reasonable to believe that transportation enhancements open the door to more riders with disabilities. Transportation impacts employment, postsecondary education, and independent living facets of a person's life. Without transportation, a person with a disability will struggle to get to their job, will be challenged to find regular ways to get to the grocery store, or will not have reliable means to participate in activities within the community. While some transportation options exist, each has its own list of challenges. Transportation for people with disabilities is a critical issue. Until additional options and solutions to the transportation challenges are solved, individuals will continue to be segregated from their community. People with disabilities will continue to struggle to maintain jobs, attend social events or postsecondary education, access the community to put food on their table, or care for their home. The ultimate goal is to make transportation more attractive so they can live a full and connected life, the same as community members without disabilities (Carmien et al., 2005; Zhou et al., 2012).

## Conclusion

When a person with a disability exits public education, the school bus stops coming. The reliable, free, and safe transportation once provided by the school ends. Their families are then faced with many challenges related to affordable, efficient, effective, and safe transportation. Nearly 73% of people with disabilities are not working, not living in the community in which they choose, and have limited access to social opportunities (Test et al., 2009). Effective, safe, and reliable transportation is the “gateway for participation in community activities, socialization, and independence” (Carmien et al., 2005, p. 233). Individuals with disabilities want the same things from life as everyone else: to have a job, meaningful relationships, a place to live, and education as well as fulfilling involvement in their community (Carter et al., 2011).

The journey to support people with disabilities began nearly 70 years ago when federal laws started to inform educational practices and ensured accountability that people with disabilities should be able to live full lives. The literature recognized that practitioners and caregivers must support people with disabilities, develop skills, and support and enhance their abilities as well as develop opportunities for people to apply those skills (Kohler & Field, 2003). Transportation is the skill that people with disabilities need in order to reach their goals.

Transportation impacts nearly every aspect of daily life for people with disabilities and will continue to be an obstacle to the attainment of employment, postsecondary education, and independent living unless changes are made. This study addressed the fears and the barriers of using transportation and then identified changes that can be put into place to decrease fears and barriers. The purpose was to uncover how the identified fears and barriers will lead to transportation improvements, affording people with disabilities the opportunity to work, learn and live in their community.

## CHAPTER 3

### METHODOLOGY

#### Research Design

A mixed-methodology research design was used in this study. The data collected centered on two critical areas of research in relation to transportation: understanding fears and barriers and recommendations for improvement. The 24-item survey included 16 rating-scale items for quantitative analysis and two open-ended questions to identify what practitioners and caregivers think could improve the transportation issues. All collected data were self-reported by practitioners or caregivers of people with disabilities.

#### Participants

The target population for this study was practitioners and caregivers over the age of 18 who support or care for people with disabilities whose ages ranged from 14 and above. A practitioner was defined as an educational staff member and a caregiver was defined as a family member or a person paid to support the person with a disability. Purposeful sampling was used in this study. Surveys were sent via email to practitioners from a number of public school districts, including special education cooperatives, and adult agencies, across the North, Northwest, South, and Southwest suburbs of Chicago, Illinois. This population was selected to comprehend the current utilization of transportation to identify the fears and barriers and to understand the improvements that could be made to transportation for teenagers and young

adults with disabilities. The survey remained open for eight weeks and in that time 118 total respondents completed the survey; 68 practitioners and 50 caregivers completed the 24 questions of the Qualtrics survey.

The caregivers and practitioners participated on a voluntary basis and were recruited through emails that provided the purpose of the research, the time commitment required, protection of identity, and access to results of the research sent to directors of special education as well as adult services providers.

One hundred and eighteen participants completed the survey. Of those respondents, 50 identified as caregivers and 68 identified as practitioners, for a total of 118 participants. Participants, both caregivers and practitioners, were asked to indicate the age of the person they identified with while completing the survey. The three age bands were 14-17 years of age, 18-21 years of age, and 22 years of age and older. This information was analyzed to see if fears and barriers changed, either increased or decreased, as the person with the disability grew older. Specific survey results and how they relate to research questions and predictions are presented below.

### Instrumentation

All data were collected electronically using Qualtrics, an online survey tool. The survey was set to collect anonymous data and informed consent was obtained via a checkbox stating, "I agree," at the beginning of the survey following a question ensuring the participant was over the age of 18. The questions focused on three separate themes: understanding what modes of transportation people with disabilities currently utilize and are available, identifying perceived fears and barriers related to transportation, and understanding transportation enhancements.



Simple multiple-choice questions asked about the mode of transportation that the person with a disability utilizes most often and the mode of transportation most available to the person. A Likert-type scale was used for the 16 quantitative questions that asked respondents to indicate their fears and the perceived barriers related to transportation. A 4-point Likert-type scale was used to eliminate neutral answers, as they were not important to the study (Patton, 2008). Finally, two open-ended qualitative questions allowed the respondents to provide short answers related to transportation enhancements. The survey questions are shown in Appendix A.

### Demographic Questions

The participants completed three demographic questions at the beginning of the survey. Demographic questions identified their role (i.e., caregiver, which is either a parent, family member, or someone paid to provide support to a person with a disability, or a practitioner, a teacher, case manager, transition specialist, or another educational staff member) relative to the person with a disability. The second question related to the age of the person with a disability the respondent was referring to during the completion of the survey. The ages were broken into three choices: 14-17, 18-21, and 22 and above. These two questions help to assure the representative sample for data collection and allow for disaggregating the data by role and age.

### Informational Questions

The second two questions were informational and simple multiple choice. The first question addressed the current type of transportation used most by the person with a disability. The second designated which mode of transportation was most available in their communities.

### Quantitative Questions

The next 16 questions utilized a 1-4 Likert-type scale (1-least concerning, 2-minimally concerning, 3- moderate concern, 4- significant concern) to identify concerns related to the fears and barriers of transportation. Seven questions related to fears of transportation: safety of the rider with a disability, fear of the rider with a disability getting lost, fear of the rider with a disability getting off at the incorrect stop, fear of foul play while utilizing transportation, inability to utilize proper executive functioning skills, lack of trust in the transportation company, and lack of trust in the transportation driver. Nine questions related to barriers of transportation: cost, accessibility of the transportation vehicle, fixed schedules and routes, unpredictable schedule of routes, location(s) of stops, riders' abilities, drivers' lack of knowledge of people with disabilities, rotating drivers, and schedule changes.

### Qualitative Questions

The final two questions were open ended to gather perspectives on the ability to overcome the overarching fears and barriers related to transportation. The responses from this section helped structure the recommendations for strengthening transportation for people with disabilities to move them closer to the attainment of employment, postsecondary education, and independent living. These items included, "What fear or barrier do you believe is the most common reason people with disabilities do not utilize transportation?" "What are enhancements do you believe are essential to remove the barriers for a person with a disability to access transportation?"

## Data Collection Procedures

After the Institutional Research Review Board (IRB) approval, I sent an email describing the study to directors of special education at public school districts, including special education cooperatives and adult agencies in the suburbs of Chicago, Illinois, and asked for assistance in disseminating the survey. See Appendix B. The email included an embedded link that directed the participant to the survey with the request that it be completed by staff as well as family members and or caregivers of students with disabilities. When the respondent clicked on the link within the email, informed consent was the first step in completing the 24-question survey.

As a reminder, the research questions and corresponding hypotheses were examined in this study.

## Research Questions and Hypotheses

1. What are the fears and barriers associated with transportation for people with disabilities across Illinois?

Hypothesis 1: The most significant barriers associated with transportation are related to access, cost, availability, and safety. The proximity to the home of a person with a disability, the cost per trip and cost over time, the availability of transportation given the specific needs of the person with a disability, as well as the overall perceived safety of travel (driver familiarity, requirement to cross a street, disability awareness worries) factor into the barriers associated with transportation.

2. Which transportation mode is most often utilized by people with disabilities?

Hypothesis 2: Individuals with disabilities are relying most on immediate family members for their transportation needs.

3. What type of transportation is most available?

Hypothesis 3: Unknown

4. What enhancements or improvements are needed with transportation?

Hypothesis 4: Transportation enhancements needed include more flexible routes, trained drivers, additional support on transportation, fair costs, and predictable schedules.

## CHAPTER 4

### RESULTS

#### Preliminary Analysis

Tables were created to illustrate the demographic data regarding the number of caregivers and practitioners who completed the survey as well as the ages of the person with a disability. Mean responses to each Likert-type item were calculated to identify fears and barriers among all respondents and then mean scores on all items were calculated for each participant type (practitioner or caregiver). The range of responses was calculated and reported for each response. Mean results of a 3.1 or higher indicated a high level of concern, results from 2.1 to 3.0 indicate average concern, and results below 2.0 were deemed as not concerning at all (James et al., 2008).

The open-ended questions were asked to produce supporting evidence for the Likert scale questions and to allow for the expansion of their responses. Every response was read, analyzed, and coded. Two or more responses within a sample group were then coded into a category. In the analysis of the coding systems, the examination began with 12 categories across two themes for the two open-ended questions. A total of 137 responses were coded.

#### Research Question 1: Fears and Barriers

Research Question 1 asked respondents to rate their fears and barriers associated with transportation for people with disabilities in the suburbs of Chicago, Illinois. For this question, a

list of fears was reported and participants were asked to rate each fear based on a Likert-type scale where one was the most concerning and four was the least concerning. I hypothesized that the most significant barriers associated with transportation would be related to access, cost, availability, and safety. Mean scores were derived for each of the questions and then compared side by side between the caregiver's responses and the practitioner's responses to see if either group had a higher mean than the other. This comparison of the survey results between the caregivers and practitioners failed to support this hypothesis. Mean survey results for each survey question that contributed to Research Question 1 is presented below by caregiver and practitioner response.

#### Caregivers

The caregivers' responses to RQ1 revealed a range of ratings ranging from 2.17 to 3.82 for caregivers. The four fears and barriers that the caregivers feared the least were cost, which ranged from 2.18 to 2.45 (M = 2.37); accessibility, which ranged from 2.17 to 2.73 (M = 2.39); fixed schedules of routes, which ranged from 2.55 to 2.82 (M = 2.75); and location of stops, which ranged from 2.45-2.91 (M = 2.75). Data also revealed that the four highest fears and barriers indicated by caregivers were the safety of the rider with a disability, which ranged from 3.27 to 3.73 (M = 3.38); the inability to utilize proper executive functioning skills (time management, alerting the driver that the stop is approaching, advocating for oneself), which ranged from 3.00 to 3.60 (M = 3.18); the fear of the rider with a disability getting lost, which ranged from 3.00 to 3.55 (M = 3.14); and the fear of the rider with a disability getting off at the incorrect stop, which ranged from 2.82 to 3.73 (M = 3.06).

### Practitioners

Practitioner responses to RQ 1 revealed a range of ratings from 2.54 to 3.49. The four lowest fears and barriers indicated by practitioner respondents were fixed schedules and routes, which ranged from 2.35 to 2.93 (M = 2.54); lack of trust in the transportation company, which ranged from 2.56 to 2.80 (M = 2.65); fear of foul play while on transportation, which ranged from 2.68 to 2.80 (M = 2.73); and location(s) of stops, which ranged from 2.74 to 2.90 (M = 2.79). Analysis of the data also revealed that the four highest fears and barriers indicated by the practitioners were the inability to utilize proper executive functioning skills (time management, altering the driver that the stop is approaching, advocating for oneself), which ranged from 3.07 to 3.60 (M = 3.49); the safety of the rider with a disability, which ranged from 3.15 to 3.50 (M = 3.28); schedule changes, which ranged from 3.27 to 3.29 (M = 3.27); and the fear of the rider with a disability getting off at the incorrect stop; which ranged from 2.93 to 3.40 (M = 3.25).

Responses from caregivers and practitioners highlighted several similarities. Both caregivers and practitioners reported location(s) of stops to be a low level of concern. The caregivers' and practitioners' responses were also similar in three out of their four greatest fears: the inability to use executive functioning skills, the safety of the rider, and the fear of getting off at the incorrect stop. The two stakeholder groups differed in their responses related to one of their four highest fears. Caregivers noted another significant concern was the fear of the rider getting lost, but schedule changes rose to the top of the practitioners' four greatest fears. Overall, caregivers and practitioners had similar concerns related to the safety of the rider, fear of rider getting lost, lack of trust in the driver, fixed schedules and routes, unpredictable schedule of routes, location(s) of stops, the rider's abilities, the driver's lack of knowledge of people with

disabilities, rotating drivers, and schedule changes. The two stakeholders had different levels of concern related to fear of getting off at the incorrect stop, fear of foul play while on the transportation, inability to use executive functioning skills, lack of trust in the transportation company, cost, and accessibility.

For caregivers, fear grew as the person with the disability grew older. The age bands within the survey represented people who were ages 14-17, 18-21, and 22 and over. Fear over time increased for caregivers related to the unpredictable schedule of routes. There were no caregiver data revealing fears or barriers decreased as the person with a disability grew older. For practitioners, fear grew related to the safety of the rider and lack of trust in the driver. The data revealed that four areas of decrease were the fear of getting lost, cost, accessibility, and the driver's lack of knowledge of people with disabilities. Table 1 summarizes the mean for each of the three age bands.

#### Research Question 2: Transportation Mode Most Used

Research Question 2 explored the mode of transportation most often utilized by people with disabilities. I predicted that individuals with disabilities rely most on immediate family members for their transportation needs. This prediction was supported across both groups of caregivers and practitioners. The survey results revealed that 92 out of 118 responses, both caregivers and practitioners, indicate that people with disabilities rely most on immediate family members for transportation, with 43 caregivers and 49 practitioners identifying this as the primary mode.



Table 1

## Fears and Barriers of Caregivers and Practitioners

Age Bands	Caretaker Average Response	Practitioner Average Response
Safety of rider		
14 - 17	3.73	3.15
18- 21	3.27	3.35
22 and over	3.29	3.50
Total	3.38	3.28
Fear of rider getting lost		
14 - 17	3.00	3.29
18- 21	3.55	3.20
22 and over	3.03	3.00
Total	3.14	3.21
Fear of getting off at the incorrect stop		
14 - 17	3.00	3.29
18- 21	3.27	3.40
22 and over	2.82	2.93
Total	3.06	3.25
Fear of foul play while on transportation		
14 - 17	3.00	2.68
18- 21	3.82	2.80
21 and over	2.69	2.77
Total	3.00	2.73
Inability to use executive functioning skills		
14 - 17	3.00	3.59
18- 21	3.60	3.60
22 and over	3.10	3.07
Total	3.18	3.49
Lack of trust in driver		
14 - 17	2.91	2.75
18- 21	3.18	2.85
22 and over	2.72	2.93
Total	2.86	2.82
Lack of trust in the transportation company		
14 - 17	2.73	2.56
18- 21	3.09	2.80
22 and over	2.72	2.64
Total	2.80	2.65

Continued on following page

Table 1. Continued.

Age Bands	Caretaker Average Response	Practitioner Average Response
	Cost	
14 - 17	2.18	2.75
18- 21	2.45	2.70
22 and over	2.41	2.57
Total	2.37	2.70
	Accessibility	
14 - 17	2.64	2.88
18- 21	2.73	2.75
22 and over	2.17	2.71
Total	2.39	2.81
	Driver's lack of knowledge of people with disabilities	
14 - 17	3.00	3.18
18- 21	3.09	3.10
22 and over	2.97	3.14
Total	3.00	3.15
	Rotating drivers	
14 - 17	2.91	3.03
18- 21	3.09	3.10
22 and over	2.93	3.00
Total	2.96	3.04
	Schedule changes	
14 - 17	3.00	3.27
18- 21	3.27	3.26
22 and over	2.93	3.29
Total	3.02	3.27

### Caregivers

A total of 43 caregivers reported that the most utilized mode of transportation for people with disabilities is to rely on their family members. The next highest mode of transportation was public PACE transportation (7). No caregivers reported the use of a taxi/Uber/Lyft (0) or other (0) forms of transportation by the individuals they support.

Practitioners

A total of 49 practitioner responses identified that relying on family members for transportation was the most utilized mode. The next highest transportation option was Other (5) and public PACE transportation (5). The two lowest modes of transportation used by people with disabilities were to drive oneself (0) and walk/ride a bicycle (1).

The overwhelming majority of respondents, both caregivers and practitioners, indicated that immediate family members' transport was a mode of transportation most commonly utilized. The count of caregivers and practitioners related to each transportation option is summarized in Table 2.

Table 2

Transportation Mode Utilized Most Often

Transportation Mode	Caregivers	Practitioners	N
Dial-a-Ride transportation	1	4	5
Drives oneself	0	0	2
Immediate family transports	43	49	92
Other	0	5	5
Public PACE transportation	2	5	7
Rideshare program with other families/friends	1	3	4
Taxi/Uber/Lyft	0	3	3
Walk/ride bicycle	1	1	2
<b>Total</b>	<b>48</b>	<b>70</b>	<b>118</b>

### Research Question 3: Type of Transportation Available

Research Question 3 allowed the investigator to explore the type of transportation that is most available. I did not have a prediction on how respondents would respond. Survey Question 6 revealed that the most available mode was immediate family members providing the transportation. The survey results revealed that 93 out of 118 responses, both caregivers and practitioners, indicated that people with disabilities rely most on immediate family members for transportation, with 43 caregivers and 50 practitioners identifying this as the primary mode.

#### Caregivers

Caregiver responses totaled 43 identifying that the most available mode of transportation for people with disabilities is to rely on their family members. The next highest mode was driving oneself (2) and public PACE transportation (2). The two lowest modes of transportation available to a person with disabilities noted by caregivers were Other (0) and walk/ride a bicycle (0).

#### Practitioners

Fifty practitioner responses identified that relying on family members for transportation was the most available form of transportation. The next highest transportation option was public PACE transportation (8) and taxi/Uber/Lyft (4). The two lowest modes of transportation available to people with disabilities were driving oneself (0) and a ride-share program with other families and/or friends (0). The overwhelming majority of respondents, both caregivers and practitioners, indicated that relying on immediate family members to transport is the most available mode of transportation for people with disabilities. The specific number of caregivers' and practitioners'

responses related to which transportation mode is most available are summarized in Table 3.

Table 3

Transportation Mode Most Available

Transportation Mode Most Available	Caregivers	Practitioners	N
Dial-a-Ride transportation	1	3	4
Drives oneself	2	0	2
Immediate family transports	43	50	93
Other	0	2	2
Public PACE transportation	2	6	8
Ride share program with other families/friends	1	0	1
Taxi/Uber/Lyft	1	4	5
Walk/ride bicycle	0	3	3
Total	50	68	118

#### Research Question 4: Suggested Enhancements or Improvements

Research Question 4 collected data on enhancements or improvements needed with respect to transportation. I predicted that transportation enhancements would include more flexible and predictable routes, trained drivers, additional support on transportation, and cost. Survey Questions 9 and 10 were used to examine RQ 4. Of the 111 respondents who completed Research Question 9, 57 caregivers and 81 practitioners, 138 total comments were collected and categorized. The qualitative information collected was coded using open coding as themes emerged, with quotations used to complement the quantitative reporting (James et al., 2008).

### Caregivers

The data revealed that the four largest fears and barriers according to caregivers were safety (19), flexible and dependable schedules and stops (8), executive functioning (7), and accessibility (6). The four lowest categories indicated by caregivers were additional support person on transportation (1), cost (2), training/experienced drivers (2), and familiar driver (3).

### Practitioners

The data exposed that practitioners believed the largest fears and barriers were safety (23), flexible and dependable schedules and stops (14), accessibility (12), and support to riders via training and practice (10). The four lowest categories indicated by practitioners were familiar driver (2), additional support person on transportation (2), more options for transportation (3), and training/experienced drivers (4).

The survey results revealed that both stakeholder groups perceived safety as the largest fear or barrier for people with disabilities not utilizing public transportation. After safety, both agreed that flexible and dependable schedules and stops were the next most impactful barrier to transportation success. Accessibility was also a significant concern to both caregivers and practitioners. Both groups saw this as the next most important area of consideration. Caregivers' and practitioners' views were the most different on the topics of training and experienced drivers, familiar driver, cost, additional support person on transportation, support to riders, more options for transportation, and executive functioning.

The ten fears or barriers categories related to transportation, Research Question 9 of the survey, are summarized in Table 4.

Table 4

## Greatest Fear or Barrier to Transportation

Greatest Fear or Barrier to Transportation	Caregiver	Practitioner	Total Comments
Training/Experienced drivers	2	4	6
Flexible & dependable schedules and stops	8	14	22
Familiar driver	3	2	5
Safety	19	23	42
Accessibility	6	12	18
Cost	2	5	7
Additional support person on transportation	1	2	3
Support to riders (training and practice)	5	10	15
More options for transportation	4	3	7
Executive functioning	7	6	13
<b>Total</b>	<b>57</b>	<b>81</b>	<b>138</b>

The survey results for Question 10 revealed that the five highest ranked enhancements that both caregivers and practitioners believed are essential to remove the barriers for a person with a disability to access transportation were flexible and dependable schedules and stops, trained and experienced drivers, additional support to riders (training and practice), accessibility, and additional technology needs. Of the 112 respondents who completed Question 10, 143 comments were collected and categorized. A total of 58 caregivers and 84 practitioners provided data on Question 10.

### Caregivers

The data revealed that the greatest enhancements to transportation according to caregivers were training for drivers and experienced drivers (9) and flexible and dependable schedules and routes (13). The least popular enhancements noted by caregivers were training for families and school personnel (0) and comfort (2).

### Practitioners

The data also exposed that practitioners believed the greatest enhancements to transportation were support to riders via training and practice (17), flexible and dependable schedules and stops (14), training for drivers and experienced drivers (13), and accessibility (13). The two least popular enhancements noted by practitioners were comfort (0) and familiar driver (1).

Caregivers' and practitioners' views on enhancements were similar in the areas of flexible and dependable schedules and stops, safety, cost, additional support person on transportation, and more options for transportation. The caregivers' and practitioners' survey results on enhancement were different in the areas of accessibility, support to riders via training and practice, and training for families and school personnel. The 12 categories for Question 10 are summarized in Table 5.



Table 5

## Categories for Enhancements

Categories of Enhancements	Caregiver	Practitioner	Total Comments
Training/Experienced drivers	9	13	22
Flexible & dependable schedules and stops	13	14	27
Familiar driver	4	1	5
Comfort	2	0	2
Safety	5	5	10
Accessibility	5	13	18
Cost	5	3	8
Additional support person on transportation	3	3	6
Support to riders (training and practice)	3	17	20
More options for transportation	4	2	6
Training for families and school personnel	0	6	6
Additional technology needs	5	7	12
<b>Total</b>	<b>58</b>	<b>84</b>	<b>137</b>

## Summary

This survey was designed to collect information from practitioners and caregivers of people with disabilities across Illinois to explore the fears and barriers individuals with disabilities face related to transportation. One hundred and eighteen participants completed the survey, which outlined the fears and barriers that stand in the way of people with disabilities accessing transportation so that they can live full and meaningful lives. Four research questions

provided data on the current state of transportation and what impacts the utilization of transportation. Caregivers and practitioners believe that the inability to use executive functioning skills, the safety of the rider, and the fear of getting off at the incorrect stop most impede the utilization and success of transportation for people with disabilities, and as a result, people with disabilities turn to their immediate family members to provide transportation to get to their job, engage in postsecondary educational opportunities, and interact within their community. The data collected on the enhancements and improvements needed with respect to transportation showed that if enhancements include flexible and dependable schedules and stops, improved safety, cost efficiencies, additional support person on transportation, and more options for transportation, people with disabilities would access and utilize transportation. The results gleaned from the survey sent to caregivers and practitioners in Illinois set the stage for recommendations to offer safer, more flexible, and supportive transportation options for people with disabilities so that they can reach their postschool outcomes in the areas of employment, postsecondary education, and independent living. The next steps and recommendations related to transportation are outlined in the final chapter of this study.

## CHAPTER 5

### DISCUSSION

Transportation impacts nearly every aspect of daily life for people with disabilities and will continue to be an obstacle to the attainment of employment, postsecondary education, and independent living unless changes are made. The purpose of this study was to identify the fears and the barriers of using transportation and also recommendations for enhancements that can be implemented to decrease said fears and barriers of caregivers and practitioners who support people with disabilities.

This mixed-methodology study examined the fears, barriers, and enhancements of transportation for people with disabilities through the lens of caregivers and practitioners. Existing research on the impact transportation has on the successful outcomes of people with disabilities was limited. This study fills the gaps related to transportation for people with disabilities.

Transportation has a direct implication on the lives of people with disabilities in the areas of employment, community engagement, social opportunities, and postsecondary education (Field & Jette, 2007). Given that transportation is likely required in order to access work, postsecondary education, and the community environment postgraduation, it is integrally tied to success in postsecondary settings for young adults with disabilities. Understanding the barriers related to transportation will assist caregivers and practitioners in identifying strategies to overcome these barriers so that young adults can live happy, self-sufficient lives and achieve positive postschool outcomes.

## Discussion of Results

The four research questions examined the fears, barriers, and proposed enhancements of transportation for people with disabilities from the perspective of caregivers and practitioners and are summarized below.

### Research Question 1

The first research question uncovered that caregivers were most concerned with the safety of the rider. Other fears included the inability for the rider to utilize proper executive functioning, that they would get lost, and the fear of getting off at the incorrect stop. Practitioners' greatest concerns focused on the safety of the rider. Additional fears included the inability of the rider to utilize proper executive functioning skills, unpredictable schedule changes, and the fear of getting off at the incorrect stop. The survey results revealed that safety was the greatest reason why people with disabilities do not utilize public transportation, according to caregivers and practitioners.

When examining the results over time, as people with disabilities grew older, interesting findings emerged. For caregivers, fear grew as the person with the disability grew older related to the unpredictable schedule of routes. For practitioners, fear grew over time related to the safety of the rider and the lack of trust in the driver.

### Research Questions 2 and 3

Research Questions 2 and 3 exposed that both caregivers and practitioners stated that people with disabilities rely most on their immediate family members as the most available and most utilized mode of transportation. The overwhelming majority of respondents, 92 total

caregivers and practitioners out of 118 respondents, indicated that immediate family members are the mode most commonly utilized. These results were not surprising.

The next most utilized transportation option after the immediate family was public PACE transportation. Two out of 50 caregivers and five out of 70 practitioners identified PACE as the transportation mode most often utilized.

Research Question 3 explored what type of transportation is most available to people with disabilities. By no surprise to the hypothesis earlier in this study, the overwhelming majority of respondents, both caregivers and practitioners, 93 out of 118, indicated that relying on immediate family members' transport is the most available mode of transportation for people with disabilities.

The two lowest modes of transportation available to a person with disabilities noted by caregivers were "other" and walking/riding a bicycle. The two lowest modes of transportation available to people with disabilities were driving themselves and ride-share programs with other families and or friends.

#### Research Question 4

Research Question 4 revealed the greatest barriers and enhancements to transportation from the caregiver and practitioner perspectives. The greatest enhancements according to caregivers were additional training for drivers, experienced drivers, and ensuring public transportation had more flexible and dependable schedules and routes. Practitioners reported the greatest enhancements to transportation were additional support provided to riders via training and practice, flexible and dependable schedules and stops, training for drivers and experienced drivers, and accessibility.

Research Question 4 scrutinized the largest fears and barriers according to caregivers and practitioners as well as uncovered the recommended enhancements needed in order for people with disabilities to access transportation with a higher rate of success.

The survey results revealed that both stakeholder groups of practitioners and caregivers believed safety was the largest fear or barrier as the reason people with disabilities do not utilize public transportation. Given that safety is the root of the fear for both family members and people who work most closely with people with disabilities, it is no wonder why the default is family members. These survey results set the stage for understanding what needs to change and identified strategies to lead to more effective and safer transportation for individuals with disabilities.

### Results Aligned to Research

Previous research from the American Association of People with Disabilities (2018) stated that millions of people with disabilities have transportation-limiting conditions but did not provide specific information as to the reasons transportation usage was limited. This study provided specific reasons identified by caregivers and practitioners as to which fears and barriers are associated with the lack of use of transportation as well as outlined potential enhancements or improvements that would increase the likelihood of additional utilization and success on transportation.

These survey findings aligned to research and confirmed that in order for a person with a disability to be employed, attend postsecondary education, and live independently, predictable, safe, efficient transportation options may support outcomes for people with disabilities (Carmien et al., 2005). Additional options for transportation need to be available in order to change the

trajectory of outcomes for people with disabilities in the areas of employment, postsecondary education, and independent living.

Existing research is in line with the results gleaned from this survey as to what specifically gets in the way of success on transportation for people with disabilities. Challenges related to transportation for people with disabilities are multifaceted and include the logistics of transportation such as cost, environmental concerns, the complexity of the system, lack of individualized options, and/or accessibility issues that exist; the lack of executive functioning skills necessary to navigate complex systems (Carmien et al., 2005); and the psychological barriers that may impact the user's success and participation in the transportation (Koppa et al., 1998). Executive functioning impedes a person's ability to effectively utilize transportation; misreading signs, failing to signal the driver to get off at the next stop, or riding on the incorrect bus are common errors displayed by riders with disabilities (Carmien et al., 2005). From time to time people with disabilities struggle to adapt to unfamiliar or novel situations which may cause them to panic and make rash decisions (Koppa et al., 1998). The lack of ability to generalize from one transportation situation to the next essentially requires or forces a person with a disability to "re-learn" the experience the very next time they access transportation (Carmien et al., 2005). The existing research aligns directly to the results of the survey results provided by caregivers and practitioners.

The benefits of successful transportation transcend postschool outcomes to provide people with disabilities "the ability to safely move about one's community and increase the independence of adults with disabilities by offering more employment and means to access community settings" (Mechling & O'Brien, 2010, p. 230). The results of the survey completed by 118 caregivers and practitioners and the foundational research that supports the findings

related to limitations and enhancements in transportation provide the underpinning to recommendations and next steps. The strategies outlined below may be implemented in order to increase the safety and use of various transportation options for people with disabilities.

### Suggested Strategies for Transportation Enhancements

In order to bridge the gap between the survey results within this study and the supporting research, new strategies may be implemented to alleviate fears, eliminate potential barriers, and improve the safety and experience of transportation to a rider with a disability. The suggested strategies are broken down into four subcategories: training and partnership with transportation personnel, instruction for the student, transportation alternatives, and embedding safety features within transportation.

#### Training and Partnership with Transportation Personnel

School personnel and families may consider partnering with local transportation staff to outline the identified areas of concern, outline what is successful, and provide recommendations for improvement. Creating and maintaining relationships with transportation companies opens the door to engaging in topics of discussion including ways to increase the safety and usability of transportation, training materials or training program for drivers and students with disabilities, and a driver accreditation program.

The implementation of additional safety and usability features within transportation is one potential outcome of a partnership between school stakeholders and transportation personnel. The ability for the groups to brainstorm new routes and stops that will benefit people with disabilities would be a positive outcome of the discussion. Some of the areas for discussion could



include bus schedules and routes as well as arrival and departure times for people with disabilities. Sharing that several people with disabilities attend the same adult agency or work at the same location in the community could lead to an additional stop being added to an existing route.

The collaboration could include the improvement of systems that prevent riders from getting off at the correct location, getting lost, and other safety features. Concerns were gleaned from these survey results regarding the complexity of the public transportation system. One solution to this problem could be to simplify the system and incorporate safety measures that are user-friendly for the riders. The location of the PACE stops in proximity to a person's home can be another barrier because the bus stop may be too far away to walk to independently. The independence required by the rider to use this option is another critical issue. If a person with a disability forgets to inform the driver of their stop, they could remain on the bus for too long, causing them to be late to their job, their medical appointment, or to get lost within the community if they exit the bus at the wrong location.

A driver training program could include a manual that is provided to all drivers and reviewed consistently to ensure new drivers are trained and veteran drivers can ask questions and continue to learn about supporting people with disabilities who are present on their routes. Training program/manual content could include disability awareness, building relationships, and building trust with the rider and the family, as well as communication with people with disabilities.

Another potential outcome of the partnership could lead to a driver accreditation program. This program would support drivers through a training program that would earn certification in supporting individuals with disabilities. The list of drivers who are "certified" in

this program could then be marketed and communicated with families within the community so they are aware that the list of drivers are trained to support people with disabilities.

Transportation companies partnering with school personnel, families, adult agency providers, and people with disabilities may ignite a spark for action. The ultimate goal is to make transportation more attractive to people with disabilities. If partnerships are created and nurtured to facilitate a consistent feedback loop of what can be improved, more people with disabilities and their families will likely feel safer on transportation so that they can live a full and connected life, the same as community members without disabilities (Carmien et al., 2005; Zhou et al., 2012).

#### Instruction for the Student

One of the significant findings from the practitioner results of the survey pointed to additional instruction needed for students to ensure they are prepared to utilize transportation effectively. Preparedness could include proficiency in the areas of preparation and planning via the IEP, real-life practice and opportunities with transportation, and the necessary tools for success (technology and executive functioning skills). Survey results showed that students needed more training and support to utilize their executive functioning skills, which include problem solving, communicating with the driver, and getting off at the proper stop. IEP conversations and planning, caregiver feedback, real-life experience to learn and practice with transportation in a supportive environment, technology integration to facilitate and support students to get off at the correct stop and problem solve if they make a mistake, and an emphasis on teaching and practicing executive functioning skills are all areas to focus on in order to prepare the student for success on transportation. These components could be embedded into a

comprehensive transportation training curriculum. Both classroom and real-life practice within the community are options to support the student to generalize their transportation skills from theory to practice (Mechling & O'Brien, 2010).

Preparation and planning via the IEP is a critical step in the process to ensure the transportation goals, needs, and plans are clear for a student with a disability. Beginning with the IEP document and the IEP team, the transition plan outlines the transportation goals, the short-term objectives, and training that will best prepare a person with a disability for success on transportation. One recommendation is to ensure the individualized identified fears, barriers, and areas of concern related to the student's ability to utilize transportation are incorporated into the student's IEP and transition plan. When transportation is noted in the IEP and within the transition plan, it holds the educational teams accountable to work collaboratively to bridge the gaps that exist for the student in transportation based on their specific goals and needs.

Ensuring family members are engaged in the conversation at the IEP meeting to determine where the student may work, attend school, and interact within the community, as well as identify which transportation options exist, is critical in order to outline the transportation plan. Gathering IEP team members' input and perspectives while developing the plan is critical to the success of the student and the success of their outcomes (Yell, 2006). The cornerstone for providing meaningful and impactful transition services that set the stage for the attainment of postschool outcomes is intentional transition planning along with IEP development, student participation, and planning strategies, the three key areas in student-focused transition planning (Kohler & Field, 2003).

Providing students with disabilities real-life practice and opportunities for transportation training is important to prepare the student for success. Additional classroom and real-life

training for students with disabilities may lead to improved utilization of transportation. School personnel can partner with families to set up alternative transportation to and from school versus the traditional school bus or district-provided transportation. The school could set the student up to utilize the PACE bus versus district-provided transportation. This option would provide students with daily opportunities to practice transportation while being directly supported by school staff.

The use of video simulation within the classroom to teach students how to utilize transportation affords students additional opportunities to learn and practice transportation skills while saving on cost and time out of the classroom. The use of presentation slides and videos to simulate each step of the transportation process is a strategy to teach students the individual steps of utilizing transportation while in the classroom. Once the simulation teaching is complete, students can then practice with greater success on real-life transportation opportunities (Mechling & O'Brien, 2010).

An additional recommendation is to teach the skills associated with street crossing. Oftentimes students are taught the core elements of utilizing transportation, but safe street crossing and parking lot safety are overlooked. In order for a student to be successful on transportation, practitioners need to pay attention to every aspect of the transportation trip. A task analysis of each step of the transportation journey can be used and followed to ensure all steps are taught and learned, from street crossing to successfully utilizing transportation.

Providing students with disabilities the necessary tools for success in transportation is critical. Technology and executive functioning skills are two essential components of transportation success. One area of technology that may benefit a student with a disability while utilizing transportation is Global Positioning System (GPS) technology. GPS can be utilized so

that the rider has visual cues and reminders to be made aware when their destination is approaching. A focus on communication is also a strong recommendation to support a person with a disability for success on transportation. Equipping students with multiple ways to express themselves while utilizing transportation is a crucial element in their success. Communication skills and needs vary among people with disabilities. One student may carry a cell phone for communication support and another could hand over a notecard to the driver if something is wrong or if they need assistance. When students learn how to overcome obstacles on transportation and learn to generalize problem-solving skills to succeed, they can avoid psychological fears such as anxiety and not being in control of their situation (Koppa et al., 1998).

Innovative practices and the use of technology can be utilized to teach transportation to students with disabilities. Technology tools such as “video modeling, computer-based instruction, virtual reality, and portable handheld devices are all ways to support students in acquiring the skills needed to be successful on transportation” (Mechling & O’Brien, 2010). Computer-based video instruction (CBVI) is a strategy utilized by practitioners to teach skills such as purchasing items, using a credit or debit card, and vocational tasks. CBVI may be a strategy that practitioners utilize to teach students with disabilities transportation skills (Mechling & O’Brien, 2010).

Some of the key areas gleaned from the survey results showed the concern with the lack of executive functioning skills a student with a disability possesses that impedes their success on transportation. In order to foster growth in executive functioning skills such as the ability to generalize from one transportation situation to the next, communicate, utilize time management skills, and to be able to problem solve if issues arise on transportation, explicit training and

practice must occur (Davies et al., 2010).

The inability to generalize from one transportation situation to the next requires a person with a disability to “re-learn” the experience the very next time they access transportation (Carmien et al., 2005). Practitioners may think about embedding ways to practice many different transportation situations so that the student learns to adapt and use problem-solving skills to succeed in each situation. Teaching unexpected events is a strategy to support the problem-solving skills of people with disabilities and better prepare them for the unexpected issues that may arise on transportation (Mechling & O’Brien, 2010). Providing students with dedicated and intentional time to succeed, problem solve, and make mistakes while in a supervised and safe environment will better prepare them for their transportation experiences in the future.

### Transportation Alternatives

School personnel and administration are key stakeholders in organizing a community conversation about transportation in their area. Partnering with parent groups, special recreation associations designed to support people with disabilities, adult agencies, and state rehabilitation agencies can move the transportation conversation forward to create alternatives for transportation. Survey results from this study revealed that an overwhelming majority of people with disabilities rely on their family members to provide transportation. The plan of relying solely on family members is not sustainable. Transportation alternatives must be offered to people with disabilities so they can participate in their community without the overreliance on family members.

A transportation alternative could be to provide families with information related to ride-share programs within their community. Ride-share programs can be set up among a group of

friends, neighbors, or other families with a person with a disability to create a schedule for transporting more than one person at a time. The schedule can rotate from family to family so that the burden of transportation doesn't remain on one person or family.

Another alternative to relying on family members is to walk or ride a bicycle within the community. Surprisingly, walking or riding a bicycle as a transportation mode was rated low on survey results from both the caregiver and practitioner perspectives. Perhaps more of an emphasis on navigating street crossing and safely walking reasonable distances opens another opportunity for a no-cost transportation option.

A third transportation alternative to consider is the use of taxi, Uber, or Lyft services within the community. Practitioners indicated taxi, Uber, or Lyft as a viable alternative to transportation in the survey results, yet caregivers did not. Perhaps practitioners could engage in conversations with caregivers about utilizing one of these options as a mode of transportation. School personnel could begin to utilize this option during the school day. If school personnel find drivers at one of these companies that would be willing to provide transportation to the student from school to their vocational training location or other areas within the community, the student could build a relationship with the driver and find success with a particular company. This intentional connection and practice could lead to a viable transportation alternative for people with disabilities.

#### Embedding Safety Features Within Transportation

Technological tools may support people with disabilities to be more successful on transportation. The addition of tools to support communication, safety, and verbal or visual cues may fill the gaps needed for a person with a disability.

Supports from technology can come in many forms. Trackers, GPS, and navigation applications that a rider can put on their phone or technology device may be a recipe for success. Technological tools may be handheld and provide supports such as audio prompts, audio directives, and visual reminders to the rider (Davies et al., 2010).

Trekker Breeze GPS is an example of technological support that provides auditory directions, guidance, and information for users who are visually impaired, but this tool may be utilized to support a broad group of people with disabilities (Mechling & Seid, 2011). An additional piece of technology, called the Wayfinder, is a handheld computer that allows routes to be uploaded to the device for step-by-step route directions and guidance. This technology has visual icons as well as provides audio cues and reminders for the rider to utilize throughout their transportation journey (Davies et al., 2010). Personal Digital Assistant (PDA) is another technology application that offers prompts and personal support to assist with multi-step tasks such as cooking, cleaning, or folding laundry, but PDAs could be utilized to support people with disabilities on transportation as well (Mechling & Seid, 2011).

In summary, the results from this study clearly showed the specific areas of fear and concern and most importantly ways to improve the current landscape of transportation. If strategies such as training and partnership with transportation personnel, additional instruction for the student, transportation alternatives, and embedding safety features within transportation are implemented, students with disabilities will be more prepared to utilize transportation, will feel safer, and be more successful. With the proper supports, people with disabilities will have the ability to move about one's community safely, which can expand their opportunities to meet their personal goals in employment, postsecondary education, and independent living (Mechling & O'Brien, 2010).



## Strengths and Limitations

Several strengths existed in this study. The first identified strength of this study was that responses directly from caregivers and practitioners were summarized and reported related to the underlying fears and barriers of transportation. Specific research from these specific stakeholder groups did not exist overtly in existing research prior to this study. Secondly, the study afforded the opportunity to view whether the identified fears and barriers changed as the person with a disability grew older.

The mixed-methods approach of gathering both qualitative and quantitative data allowed respondents to provide more in-depth responses and summarized enhancements to transportation in their own words, from their personal experiences. This study allowed me to scrutinize and compare the fears, barriers, and enhancements of transportation from caregivers versus practitioners. A benefit of this survey was that caregiver data can be shared with practitioners and vice versa to inform and change current practice in educational programs, curriculum, and training strategies. The survey results provided clear strategies for practitioners to implement in the areas of training of transportation personnel, instruction of the student, creating transportation alternatives, and embedding safety features within transportation. These survey results additionally exposed how caregivers and practitioners feel, what they fear, and what they believe needs to change in order for people with disabilities to better access and utilize transportation, which sets the stage for next steps and future directions for research.

Three identified limitations existed within this study. The first limitation was that while 118 caregivers and practitioners responded to the survey, the survey was not sent to the person with a disability. The person with a disability may have highlighted different or additional fears, barriers, and enhancements of transportation.

The second limitation was that the sample size of caregivers and practitioners was small (118) as opposed to the number of overall caregivers and practitioners in the state of Illinois. Overgeneralizations of the identified fears, barriers, and enhancements may exist given the underrepresented number of caregiver and practitioner respondents to this survey.

The final limitation identified within this study was that the responses of the caregivers and practitioners related to the transportation most available and most utilized may be skewed given the fact that the survey did not include a question about population density. Results related to the most available and most utilized transportation may have revealed different results had that question been asked of survey respondents.

#### Future Directions for Research

Given the recognized research, survey results, and recommendations for transportation enhancements, future directions for research emerged. Future directions could include exploring the development of a transition training curriculum for students with disabilities and creating and disseminating an additional survey to understand the reliance of transportation compared to where they live.

The first area of recommended future direction of research is to develop a transition training curriculum for young adults after they complete their high school experience. This curriculum may include specific information and training related to executive functioning skills, street crossing, exposure to and training on various transportation options, community awareness, money management and technology supports as well as communication skills. These six core areas could make up the structure to the curriculum so that young adults with disabilities have the tools they need to be successful and meet their life goals when they exit the program.

The first skill of executive functioning includes problem solving, adaptive thinking and planning, self-control, time management, and organization skills. Explicit training and practice in each of the five identified executive functioning domains would prepare a student with a disability for the problem-solving skills they need to be more successful on transportation. Street crossing is the next critical skill because it is essential to be successful in the overall transportation experience, not only one component. If people with disabilities plan to walk to the bus stop, they need to know each step in the street crossing process to arrive safely. Training could include the teaching of safe navigation within a parking lot as well as the ability to identify street signs that show where the bus or transportation stops to pick up passengers.

The curriculum could additionally include the opportunity to explore a variety of transportation experiences. Developing a broad repertoire for transportation options is important so that people with disabilities have the skills necessary to navigate a variety of transportation options within their community, such as public buses, taxis, or Dial-a-Ride transportation. This allows the person with a disability flexibility with their transportation choice and supports the student to determine when they would utilize one transportation mode over another.

The training program may be broken down to begin with classroom instruction on each curriculum topic along with simulation. Simulation could include watching videos of other people utilizing various transportation modes. Videos could then be broken down so that students could practice specific components such as handing over a bus pass or communicating to the driver their intended location. Once skills reach mastery level in the classroom, the skills can be generalized into the community, on the actual transportation vehicle.

Community awareness is an additional area of training people with disabilities need in order to be successful. Community awareness involves instructing on stranger awareness and

community helpers. This support would teach students who they should interact with in their community, such as an employee of a store or business. Being safe within the community is another key component of community awareness. One example on community safety would be to identify a different mode of transportation to be utilized during the day versus at night.

Money management is another area of emphasis in the training curriculum. Managing money is an important skill to ensure the person can afford the transportation of their choosing so they can hand over the correct amount of money or utilize a pass successfully. Money management could include the use of physical bills and coins, passes, or navigating online or via an application to transfer money from a bank account to the appropriate transportation application. Money management skills can be imbedded and worked on across many environments and then generalized to transportation.

Technology was another identified element of the transportation curriculum. This component would include the teaching of various technological tools that may support the individual student with their needs on transportation. Supports could include visual, audio cues, and GPS support. Technology goes hand in hand with the final recommended component of the program, communication skills.

A person with a disability may require additional communication support and training in order to effectively communicate with various people they encounter on their transportation journey. Experience and practice with communication both inside the classroom and within the authentic environment are essential for people with disabilities. The ability to communicate their wants and needs to both familiar and unfamiliar listeners will aid in their success on transportation.

An additional place to consider future research is to probe more deeply into the specific

safety concerns that caregivers and practitioners expressed that get in the way of the utilization of transportation. The survey revealed that safety was the number one barrier that got in the way of people with disabilities using transportation options outside of their immediate family members. A future study could dive more deeply into the specific safety concerns from the caregiver and practitioner viewpoints to better understand the safety concerns that get in the way for people with disabilities utilizing transportation.

A third area for future direction of research is to examine whether the implementation of the recommended strategies in partnering with and training transportation personnel, additional instruction for the student, determining transportation alternatives, technology to support people with disabilities, and embedding safety features within transportation improve for the person with a disability. A future researcher could develop and identify assessments that target each of the four recommended categories to see if the strategies improved transportation for the person with a disability when said recommendation was implemented.

A fourth and final area for further direction of research could be to send an additional survey out to caregivers and practitioners related to transportation according to population density. An additional survey may reveal different survey results regarding the most available and most used mode of transportation if someone lives in an urban setting versus a suburban or rural setting.

Areas for future research can move the needle forward for people with disabilities. Future research and additional information will further expose areas for improvement in the area of transportation for people with disabilities so that they can meet their life goals and dreams.

## Conclusion

In closing, it is evident that transportation limitations impact every aspect of life for a person with a disability. The lack of transportation is also a significant barrier to a more inclusive and better quality of life (Mechling & O'Brien, 2010). Yet strategies can be utilized to move toward transportation improvements for people with disabilities. Some of the recommendations are larger in scale and will take more time to complete, yet other changes can happen more immediately through intentional conversations and planning. Strategies implemented in the areas of training and partnership with transportation personnel, instruction for the student, transportation alternatives, and embedding safety features within transportation will lead to greater success for people with disabilities so they can meet their individual goals and dreams to work, learn, and participate in their local community.

At the beginning of the journey for people with disabilities, the greater community advocated so they were included in public school, alongside their same-aged peers, regardless of ability level. Now, the bar has been raised to ensure people with disabilities live the lives they want to live, have success in their employment, engage in postsecondary opportunities, are socially involved as they choose in their community, and most importantly, have the ability to live their life how they choose (Carter et al., 2011). This study demonstrated that although the path toward the safe and successful utilization of transportation for people with disabilities has begun, there is a great deal of work ahead. The journey involves communities coming together to partner with and train transportation personnel, instruct the student with various skills, determine transportation alternatives, embed technological enhancements, and incorporate safety features so that people with disabilities have adequate means of

transportation to access more independent living arrangements, competitive work environments, and social opportunities in their communities (Davies et al., 2010).

## REFERENCES

- Alwell, M., & Cobb, B. (2009). Functional life skills curriculum interventions for youth with disabilities. *Career Development for Exceptional Individuals, 32*(2), 82-93.
- American Association of People with Disabilities. (2018). *Transportation equity*.  
<https://www.aapd.com/advocacy/transportation/>
- Benz, M. R., Lindstrom, L., & Yovanoff, P. (2000). Improving graduation and employment outcomes of students with disabilities: Predictive factors and student perspectives. *Exceptional Children, 66*(4), 509-541. <https://doi.org/10.1177/001440290006600405>
- Berry, H. G., Ward, M., & Caplan, L. (2012). Self-determination and access to postsecondary education in transitioning youths receiving supplemental security income benefits. *Career Development and Transition for Exceptional Individuals, 35*(2), 68-75.  
<https://doi.org/10.1177/0885728811422230>
- Blackwell, W. H., & Rossetti, Z. S. (2014). The development of individualized education programs: Where have we been and where should we go now? *Sage Open, 4*(2), 2158244014530411.
- Blalock, G., Kochhar-Bryant, C. A., Test, D. W., Kohler, P., White, W., Lehmann, J., Bassett, D., & Patton, J. (2003). The need for comprehensive personnel preparation in transition and career development: A position statement of the Division on Career Development and Transition. *Career Development for Exceptional Individuals, 26*(2), 207-226.  
<https://doi.org/10.1177/088572880302600207>
- Bureau of Labor Statistics. (2019). Persons with a disability: Barriers to employment, types of assistance, and other labor related issues. <https://www.bls.gov/news.release/dissup.toc.htm>
- Carmien, S., Dawe, M., Fisher, G., Gorman, A., Kintsch, A., & Sullivan, J. F. (2005). Socio-technical environments supporting people with cognitive disabilities using public transportation. *ACM Transactions on Computer-Human Interaction, 12*(2), 233-262.  
<https://doi.org/10.1145/1067860.1067865>
- Carter, E.W., Austin, D., & Trainor, A. A. (2011). Factors associated with the early work experiences of adolescents with severe disabilities. *Intellectual and Developmental Disabilities, 49*(4), 233-247. <https://doi.org/10.1352/1934-9556-49.4.233>



- Carter, E. W., Austin, D., & Trainor, A. A. (2012). Predictors of postschool employment outcomes for young adults with severe disabilities. *Journal of Disability Policy Studies*, 23(1), 50-63. <https://doi.org/10.1177/1044207311414680>
- Davies, D. K., Stock, S. E., Holloway, S., & Wehmeyer, M. L. (2010). Evaluating a GPS-based transportation device to support independent bus travel by people with intellectual disability. *Intellectual and Developmental Disabilities*, 48(6), 454-463. <https://doi.org/10.1352/1934-9556-48.6.454>
- Endeavor Business Media. (2020). *Smartmaps* <https://www.masstransitmag.com/management/company/10066363/smartmaps>
- Erickson, A. S. G, Noonan, P. M., Brussow, J. A., & Gilpin, B. J. (2014). The impact of IDEA Indicator 13 compliance on postsecondary outcomes. *Career Development and Transition for Exceptional Individuals*, 37(3), 161-167. <https://doi.org/10.1177/2165143413481497>
- Field, J. J., & Jette, A. M. (2007). *The future of disability in America*. National Academies Press.
- Field, S., Martin, J., Miller, R., Ward, M., & Wehmeyer, M. (1998). Self-determination for persons with disabilities: A position statement of the division on career development and transition. *Career Development for Exceptional Individuals*, 21(2), 113-128. <https://doi.org/10.1177/088572889802100202>
- Finn, D., Getzel, E. E., & McManus, S. (2008). Adapting the self-determined learning model for instruction of college students with disabilities. *Career Development for Exceptional Individuals*, 31(2), 85-93. <https://doi.org/10.1177/0885728808318327>
- Friedman, C., & Rizzolo, M.C. (2016) The state of transportation for people with intellectual and developmental disabilities in Medicaid home- and community-based services 1915(c) Waivers. *Journal of Disability Policy Studies*, 27(3), 168-177. <https://doi.org/10.1177/1044207316644413>
- Gartin, B. C., & Murdick, M. L. (2016). IDEA: 2004 The IEP. *Remedial and Special Education*, 26(6), 327-331. <https://doi.org/10.1177/07419325050260060301>
- Hasazi, S.B., Furney, K.S., & DeStefano, L. (1999). Implementing the IDEA transition mandates. *Exceptional Children*, 65(4), 555-566. <https://doi.org/10.1177/001440299906500409>
- James, E.A., Milenkiewicz, M.T., & Bucknam, A. (2008). *Participatory action research for educational leadership: Using data-driven decision making to improve schools*. Sage.
- Katsiyannis, A., Yell, M.L., Bradley, R. (2001) Reflections on the 25th anniversary of the Individuals with Disabilities Education Act. *Remedial and Special Education*, 22(6), 324-334. <https://doi.org/10.1177/074193250102200602>

- Kena, G., Aud, S., Johnson, F., Wang, X., Zhang, J., Rathbun, A., Wilkinson-Flicker, S., & Kristapovich, P. (2014). *The condition of education 2014* (NCES 2014-083). National Center for Education Statistics.
- Keogh, B. K. (2007) Celebrating PL 94-142: The Education of All Handicapped Children Act of 1975. *Issues in Teacher Education*, 16(2), 65-69.
- Kohler, P.D. (1996). *Taxonomy for transition programming: Linking research and practice*. Transition Research Institute.
- Kohler, P. D., & Field, S. (2003). Transition-focused education: Foundation for the future. *The Journal of Special Education*, 37(3), 174-183. <https://doi.org/10.1177/00224669030370030701>
- Kohler, P. D., Gothberg, J. E., Fowler, C., & Coyle, J. (2016). *Taxonomy for transition programming 2.0: A model for planning, organizing, and evaluating transition education, services, and programs* [PowerPoint slides]. [https://floridadcdt.org/uploads/3/5/7/1/35718381/taxonomy\\_for\\_transition\\_prog.\\_2.0.pdf](https://floridadcdt.org/uploads/3/5/7/1/35718381/taxonomy_for_transition_prog._2.0.pdf)
- Koppa, R., Davies, B., & Rodriguez, K. (1998). *Barriers to use of transportation alternatives by people with disabilities* [Report SWUTC/98/467402-1]. <https://rosap.ntl.bts.gov/view/dot/49447>
- Lefler, V., & Castillo, F. (2019). Designing our future transportation workforce for supporting seniors and individuals with disabilities. In T. Reeb (Ed.), *Empowering the New Mobility Workforce* (pp. 269-288). Elsevier.
- Martin, E., Martin, R., & Terman, D. (1996). The legislative and litigation history of special education. *The Future of Children*, 6(1), 25-39. <https://doi.org/10.2307/1602492>
- Mechling, L., & O'Brien, E. (2010). Computer-based video instruction to teach students with intellectual disabilities to use public bus transportation. *Education and Training in Autism and Developmental Disabilities*, 45(2), 230-241.
- Mechling, L. C., & Seid, N. H. (2011). Use of a hand-held personal digital assistant (PDA) to self-prompt pedestrian travel by young adults with moderate intellectual disabilities. *Education and Training in Autism and Developmental Disabilities*, 46(2), 220–237.
- National Technical Assistance Center on Transition. (n.d.). *Pre-employment transition services*. <https://transitionta.org/topics/pre-ets/>
- Newman, L., Wagner, M., Knokey, A.-M., Marder, C. Nagle, K., Shaver, D., & Wei, X. (2011). *The post-high school outcomes of young adults with disabilities up to 8 years after high school. A report from the National Longitudinal Transition Study-2. (NLTS2)* (NCSE 2011-3005). National Center for Special Education Research.
- Patton, M. (2008). *Utilization-focused evaluation*. Sage.

- Rowe, D. A. (2020). Teaching students with disabilities: It is all about the science. *Teaching Exceptional Children*, 52(6), 364-366. <https://doi.org/10.1177/0040059920933853>
- Rowe, D. A., Alverson, C. Y., Unruh, D., Fowler, C., Kellems, R., & Test, D. W. (2013). A Delphi study to operationalize evidence-based predictors in secondary transition. *Career Development and Transition for Exceptional Individuals*, 38(2), 113-126. <https://doi.org/10.1177/2165143414526429>
- Rowe, D. A., & Test, D. W. (2013). Effects of simulation to teach students with disabilities basic finance skills. *Remedial and Special Education*, 34(4), 237-248. <https://doi.org/10.1177/0741932512448218>
- Smith, T. E. C. (2004). IDEA 2004: Another round in the reauthorization process. *Remedial and Special Education*, 26(6), 314-319. <https://doi.org/10.1177/07419325050260060101>
- Test, D. W., Fowler, C. H., Richter, S. M., White, J., Mazzotti, V., Walker, A. R., Kohler, P., & Korterling, L. (2009) Evidence-based practices in secondary transition. *Career Development for Exceptional Individuals*, 32(2), 115-128. <https://doi.org/10.1177/0885728809336859>
- Test, D. W., Fowler, C.H., Wood, W.M, Brewer, D.M., & Eddy, S. (2005) A conceptual framework of self-advocacy for students with disabilities. *Remedial and Special Education*, 26(1):43-54. <https://doi.org/10.1177/07419325050260010601>
- U.S. Department of Labor (n.d.). *Persons with a disability: Labor force characteristics – 2021*. <https://www.bls.gov/news.release/pdf/disabl.pdf>
- Vitelli, E. M. (2013). A perspective on revising OSEP Indicator 14. *Career Development and Transition for Exceptional Individuals* 36(2), 124-134. <https://doi.org/10.1177/2165143412457984>
- Wehman, P., Revell, W. G., & Brooke, V. (2003). Competitive employment: Has it become the “first choice” yet? *Journal of Disability Policy Studies*, 14(3), 163-173. <https://doi.org/10.1177/10442073030140030601>
- Yell, M. L. (1998). *The law and special education*. Merrill/Prentice-Hall.
- Yell, M. L., Rogers, D., & Rogers, E. L. (1998). The legal history of special education: What a long, strange trip it's been! *Remedial and Special Education*, 19(4), 219-228. <https://doi.org/10.1177/074193259801900405>
- Yell, M. L., Ryan, J. B., Rozalski, M. E., & Katsiyannis, A. (2009). The US Supreme Court and special education: 2005 to 2007. *Teaching Exceptional Children*, 41(3), 68-75. <https://doi.org/10.1177/004005990904100308>

Zang, X. (2016). Research on street-level discretion in the west: Past, present, and the future. *Chinese Political Science Review*, 1(4), 610-622. <https://doi.org/10.1007/s41111-016-0041-z>

Zhou, J. (2012). Sustainable transportation in the US: A review of proposals, policies, and programs since 2000. *Frontiers of Architectural Research*, 1(2), 150-165. <https://doi.org/10.1016/j.foar.2012.02.012>

APPENDIX A

QUALTRICS SURVEY QUESTIONNAIRE

Q1. I am 18 years of age or over.

Yes, I am 18 years of age or over. Please proceed to the remainder of the survey questions and thank you in advance for your participation in this survey.

No, I am not 18 years of age or over. Please feel free to pass this link along to another caregiver or practitioner of a person with a disability that is 18 years of age and over who is interested in contributing. Thank you.

Q2. Thank you in advance for your participation in this survey. Please know your participation is voluntary and can be discontinued at any time without penalty or bias.

By checking "I agree" you are providing consent to participate in a research project conducted by Danielle Carter, Doctoral Student at Northern Illinois University, DeKalb.

I agree

I do not agree

Q3. For the next four questions, please provide information related to your work and your role/relationship with a person with a disability.

What is your role/relationship to the person with a disability:

Caregiver (Medical Professional, Family Member) Practitioner (Educator, Transition Specialist, Case Manager)

Q4. What is the age of the person with a disability you have in mind when completing this survey:

14-17

18-21

22 or older

Q5. What form/mode of transportation does your person with a disability access most: Immediate family transports

Public PACE transportation Dial a Ride transportation Taxi/Uber/Lyft

Rideshare program with other families/friends Drives oneself

Walks/rides bicycle Other

Q6. What form/mode of transportation is most available to your person with a disability:

Immediate family transports

Public PACE transportation Dial a Ride transportation Taxi/Uber/Lyft

Ride share program with other families/friends Drives oneself

Walks/rides bicycle Other

Q7. For the next seven questions, please respond based on a scale from 1-4; 1 being least concerning to 4 being most concerning (1-least concerning, 2- minimally concerning, 3- moderate concern, 4- significant concern). How concerned are you by the following fears: The safety of the rider with a disability

The fear of the rider with a disability getting lost

The fear of the rider with a disability getting off at the incorrect stop The fear of foul play while utilizing transportation

The inability to utilize proper executive functioning skills (time management, alerting the driver that the stop is approaching, advocating for oneself)

The lack of trust in the transportation company The lack of trust in the transportation driver

Q8. For the next nine questions, please respond based on a scale from 1-4; 1 being least concerning to 4 being most concerning (1-least concerning, 2- minimally concerning, 3- moderate concern, 4- significant concern). How concerned are you by the following barriers:

Cost

Accessibility of the transportation vehicle Fixed schedules of routes

Unpredictable schedule of routes Location(s) of stops

Riders' abilities

Driver's lack of knowledge of people with disabilities Rotating drivers

Schedule changes

Q9. For the final two questions of the survey, please provide your thoughts via the open-ended statement related to:

What is the largest fear or barrier you believe is the reason people with disabilities do not utilize transportation?

What are enhancements that you believe are essential to be made in order to remove the barriers for a person with a disability to access transportation?



APPENDIX B

PARTICIPANT EMAIL

Hello!

Thank you so much very much for participating in the data collection for the research study I am conducting as a Northern Illinois University Doctoral Student. I appreciate your support!

The purpose of the research is to understand the landscape of transportation as it relates to people with disabilities from the viewpoint of caregivers and practitioners. The research seeks to understand which modes of transportation are most used and available as well as unpack the fears and barriers that get in the way of utilizing transportation. The final mission focuses on the identification of improvements or enhancements to transportation that would potentially eliminate the fears and barriers associated with transportation based on feedback and input of practitioners and caregivers of people with disabilities. Specific details of the study are outlined below including key information, description of the study, risks and benefits, confidentiality, and your rights. Please click on the anonymous survey at this [link](#) to complete the survey.

**Study Title:** Transportation: The Obstacle that Impacts Employment, Postsecondary Education, and Independent Living for People with Disabilities

**Investigator:** Danielle Carter

**Dept:** Ed. Leadership

**Phone:** (847) 986-3448

**Key Information:** This is a voluntary research study on transportation that impacts nearly every aspect of daily life for people with disabilities and will continue to be an obstacle in the attainment of employment, postsecondary education, and independent living unless changes are made. This study is critical because it will provide the information that will address the fears and the barriers of transportation and then identify changes that can be put into place to decrease the identified fears and barriers. This information will then enhance transportation in general so people with disabilities can have access to their adult outcomes and goals in the areas of employment, postsecondary education, and independent living. This three-week study involves participants completing a Qualtrics online survey. There are 22 questions on the survey. Participants can exit the survey at any time and can skip questions they choose not to answer.

The benefits include providing caregivers and practitioners with creative solutions for decreasing barriers and improving transportation options. This in turn will have a direct impact on persons with disabilities who are cared for and supported by study participants. The data gleaned from the survey will outline the most significant barriers associated with transportation, the degree of reliance on caregivers and practitioners to reach desired outcomes, and the transportation enhancements necessary for people with disabilities to successfully navigate within their community. The benefits of understanding barriers and fears of transportation will allow caregivers and practitioners to identify solutions that will greatly enhance adult outcomes for

individuals with disabilities. Due to the fact that this survey is not collecting identifiable data, is voluntary, and offers participants the ability to withdraw from the completion of the survey at any time, there are no foreseeable risks.

**Description of the Study:** The purpose of the study is to uncover how the identified fears and barriers related to people with disabilities utilizing transportation will lead to transportation improvements and affording people with disabilities the opportunity to work, learn and live in their community.

If you agree to participate in this study, you will be asked to answer a Qualtrics online survey related to people with disabilities and their transportation access and usage. The first two questions of the survey are demographic and ask the role of the respondent as well as the age of the person with a disability for which they are referring to as they complete the survey. The second two questions are informational in nature. Simple multiple-choice questions ask about the mode of transportation that the person with a disability utilizes most often, and the second about which mode of transportation is most available to the person. The next 16 questions ask respondents to indicate their fears and the perceived barriers related to transportation via a four-point Likert scale. Finally, two open-ended questions concluded the survey to allow respondents to provide short answers related to transportation enhancements.

**Risks and Benefits:** There are no reasonably foreseeable or expected risks. The benefits of participation is that it will provide the information that will address the fears and the barriers of transportation and then identify changes that can be put into place to decrease fears and barriers which will then enhance transportation in general so people with disabilities can have access to outcomes in the areas of employment, postsecondary education, and independent living.

The data gleaned from the survey will outline the most significant barriers associated with transportation, the degree of reliance on caregivers and practitioners to reach desired outcomes, and the transportation enhancements necessary for people with disabilities to successfully navigate within their community. The benefits of understanding barriers and fears of transportation will allow caregivers and practitioners to identify solutions that will greatly enhance adult outcomes for individuals with disabilities.

**Confidentiality:** This study is anonymous. We will not be collecting or retaining any information about your identity. The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password-protected file. We will not include any information in any report we may publish that would make it possible to identify you.

**Your Rights:** The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time. Your decision will not result in any loss of benefits to which you are otherwise entitled. You have the right to skip any question, as well as to withdraw completely from participation at any point during the process.

You have the right to ask questions about this research study and to have those questions answered before, during, or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Danielle Carter at [z028189@students.niu.edu](mailto:z028189@students.niu.edu) or by telephone at (847) 986-3448. If you have any questions about your rights as a research participant that has not been answered by the investigators or if you have any problems or concerns that occur as a result of your participation, you may contact the Office of Research Compliance, Integrity, and Safety at (815)753-8588.

Your signature will be captured by clicking the “I agree” option at the beginning of the survey. Clicking “I agree” indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above.

Thank you so much for your support!

Sincerely, [z028189@students.niu.edu](mailto:z028189@students.niu.edu) Danielle Carter  
Northern Illinois Doctoral Student (847) 986-3448