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Training Needs and Challenges in Supporting Young Adults with Autism to Access Integrated Employment

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TRAINING NEEDS AND CHALLENGES IN SUPPORTING YOUNG ADULTS WITH AUTISM AND CHALLENGING BEHAVIOR TO ACCESS INTEGRATED EMPLOYMENT

A dissertation submitted in partial fulfillment of the degree of Doctor of Special Education at Virginia Commonwealth University

by

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Abstract

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Major Director: Yaoying Xu, Professor, Counseling and Special Education

The purpose of this study was to conduct a needs assessment identifying the current level of training, training needs, and challenges to support adults with autism and significant support needs, such as challenging behavior, to access integrated employment. Foundational literature in employment indicates that employment service providers must possess an expansive skillset in order to perform the expectations of their profession. Research on supporting adults with autism to access employment indicates that skills above the traditional employment skills may be needed to obtain and maintain employment. This was one of the first studies to assess the needs of staff providing employment services to adults with autism. Study findings indicate that employment service providers continue to have high training needs in skills integral to the provision of employment services to individuals with disabilities but also training needs specific

to serving adults with autism, to include challenging behavior and needs related to the primary and secondary characteristics of autism. Service provider self-reported training needs and challenges indicate that facilitating employment for this population will require a multi-faceted approach to target all stakeholders.

Chapter 1

Introduction

Despite advances in the understanding of autism spectrum disorder, its etiology, and manifestation, there remain large gaps in the intervention literature related to this population; specifically in relation to this population's transition to adulthood and employment (Hendricks & Wehman, 2009; Gerhardt & Lainer, 2011; Shattuck, 2012). This situation presents a significant problem as increasing amounts of youth with autism will exit the school system and require adult services in upcoming years (Anderson & Butt, 2018). A recent review by Shattuck et al. (2020) estimates that between 707,000 to 1,116,000 youth with autism will turn eighteen in the next decade.

Historically, persons with disabilities (PWDs) have been pushed to the outskirts of society and have been barred from participation in activities known to foster financial and personal independence and to increase quality of life. Over the last century there has been a push to increase the integration of PWDs into the community as opposed to sheltered and segregated settings (Stevens & Martin, 1998; Winsor et al., 2019). In fact, currently only 18% of individuals with IDD participate in paid employment (Winsor et al., 2019). The push towards community integration for PWDs places new burden and requirements on the professionals tasked with supporting this transition (Hall et al., 2014). As individuals are removed from institutions there remain areas of typically developing adult's daily life in which PWDs may require support and services to access such as: recreation/ leisure, independent living, developing social

relationships, and employment. The onus is on adult service providers and society in general to identify and provide adequate supports and services to fully integrate PWDs to the extent that they are both capable of and desire (Gerhardt & Lainer, 2011). The provision of support across these areas can be financially prohibitive to taxpayers, communities, PWDs, and their families or support staff. Access to employment can be a way to offset some of these financial burdens (Hedley et al., 2017; Henricks, 2010). However, supporting PWDs to access employment has historically been difficult; particularly for individuals with autism (Shattuck et al., 2012). Over the years, research demonstrates that individuals with autism may require support needs above and beyond what individuals with other disabilities may require (Roux et al., 2018). Additionally, employment can be a "gateway" activity that can facilitate access to other experiences through learning and social opportunities. Low rates of participation in integrated employment settings is due to a paucity of qualified adult service providers rather than issues inherent with a diagnosis of autism (Gerhardt & Lainer, 2011).

Statement of the problem

Accessing competitive integrated employment (CIE) is the primary post-secondary goal for young adults with autism (Roux et al., 2015); yet this population continues to transition to sheltered and segregated settings more than CIE (Roux et al., 2013). In fact, there is indication that funding streams support day treatment and habilitation settings more than employment support services (Hall et al., 2014). An evaluation of state level data conducted by Winsor et al. (2019) found that funding to promote integrated employment lags behind other service options for adults with disabilities. Furthermore, when employed this population tends to be under or unemployed when their skill levels and education are taken into account (Burgess & Cimera, 2014). Prior research demonstrates that individuals with autism require intensive and long term

supports to access and maintain employment (Hendricks & Wehman, 2009). Reasons for these high support needs include challenges associated with the primary and secondary characteristics of autism, particularly the presence of maladaptive behaviors (Hendricks, 2010; Schall, 2010). When or if employment is obtained, outcomes are optimal when support is provided by trained staff with experience working with individuals with autism (Matson et al., 2016). There is little to no research on autism specific staff training needed to support adults with autism in CIE, particularly individuals with complex support needs such as the presence of maladaptive behaviors.

Recently, the centers for Medicaid and Medicare issued a statement that service providers trained in working with autism are necessary and that autism advocates may be needed in order to bring about this change legislatively (Anderson & Butt, 2018). Despite the identified need for qualified staff and additional emphasis on the provision of adequate employment supports and services there remains insufficient knowledge about the problem to bring about the needed policy and funding change (Roux et al., 2018). While an effort to include the voices of all stakeholders involved in solving this dilemma is needed, a specific exploration of training needs and challenges that employment service providers experience while providing support to individuals with autism will help inform and improve this process.

Rationale for Study of the Problem

Increasing rates of employment for individuals with autism is an issue that will need to be addressed on multiple levels. Systems change informed through eliciting the perspectives of all stakeholders involved will be necessary to improve employment outcomes and services for adults with autism. Stakeholders include education systems, vocational rehabilitation (VR) providers, employment service organizations (ESOs), parents and caregivers of individuals with

autism, and individuals with autism. Unemployment and underemployment of a disability group that affects up to 1 in 54 children (CDC, 2020) presents a societal dilemma that needs to be addressed. In fact, Gerhardt and Lainer (2011) identified this dilemma as, "A Crisis on the Horizon." At the time of their study (2011), 70% of the population of individuals with autism were under the age of 14. This group is now in the process of transitioning to adulthood (Gerhardt & Lainer, 2011) with little to no change in the provision of employment services or outcomes. Recent estimates believe that the population of individuals with autism will cost $468 billion by the year 2025 (Howlin & Magiati, 2017) and $35 billion annually (Gerhardt & Lainer, 2011). The majority of this financial burden is allocated to adults with autism and one aspect of the cost is reduced productivity {participation in employment} of both individuals with autism and their caregivers (Howlin & Magiati, 2017). Some, albeit not all, avenues for alleviating this financial burden include supporting individuals to access employment (Hedley et al., 2017; Hendricks, 2010) and improving adult service systems (Gerhardt & Lainer, 2011). One way to improve adult service systems is by assessing and improving the capacities of staff who serve and support adult learners with autism (Cohen-Hall et al., 2018; Gerhardt & Lainer, 2011).

Current research in this field identifies the need for specific vocational services to support individuals with autism to access community employment (Nicholas et al., 2015). While it is clear that one eventual solution to this problem is to increase the provision of training to build staff capacity, it is helpful to gain insight from the perspectives of those in the field prior to the development of training. In fact, Powell et al. (2019) address a parallel issue but for a different population, adults with traumatic brain injury (TBI). In order to develop adequate training, direct report of stakeholders involved in providing services to individuals with TBI was explored through a comprehensive needs assessment (Powell et al., 2020). To date, despite the identified

need, little is known about the specific barriers to employment for adults with autism nor how to provide vocational supports that are specific to the needs of adults with autism (Nicholas et al., 2015). The existing literature on vocational services and interventions for adults with autism is not based on a needs assessment of vocational services and those responsible for providing services (Nicholas et al., 2015). The researcher plans to address the need to improve services to this population by conducting a needs assessment of direct service providers.

Statement of Purpose

Individuals with autism have complex needs that are related to both the primary and secondary characteristics associated with this diagnosis (Anderson et al., 2017). In addition to social and communication challenges, individuals with autism may engage in maladaptive behaviors at a higher rate than individuals in other disability categories (Levy & Perry, 2011). Currently, employment service providers are not prepared to provide intensive employment services to individuals that have complex and long-term support needs (Anderson & Butt, 2018; Gerhardt & Lainer, 2011; Nicholas et al., 2015). Perspectives from stakeholders, specifically caregivers of individuals with autism, report that employment service providers do not have adequate knowledge of autism and that the presence of challenging behaviors compounds the ability to receive adequate services (Anderson et al., 2017; Anderson & Butt, 2018). Qualitative interviews conducted by Anderson and Butt (2018) report that finding adult service staff knowledgeable in both autism and Vocational Rehabilitation (VR) supports was all but impossible to access and that individuals with the most complex support needs, such as a history of challenging behavior, tended to be found ineligible or were bounced around between different service providers in attempts to have their needs met (Anderson & Butt, 2018).

The use of applied behavior analysis (ABA), an evidence-based technology, with a large amount of research to support its efficacy in younger individuals with autism has not been adequately examined in adults with autism (Gerhardt & Lainer, 2011). In order to develop targeted training and provide services to increase the capacity of employment service providers to serve individuals with autism, it is necessary to identify areas of training need, challenges, and experiences serving adults with autism. The current study targeted two stakeholder groups involved in facilitating employment for individuals with autism: VR counselors and Employment Specialists. VR provides funding, case management services, and access to employment services. VR is also responsible for determining eligibility for employment services. Employment Specialists are responsible for supporting individuals with autism in employment settings and through the various phases involved in employment services, which will be discussed later.

Research on training needs, information about the receipt of training, and stakeholders' perceptions on serving individuals with autism is sparse to nonexistent. The purpose of the current study was to address this gap through a needs assessment. The needs assessment will identify VR and ES' current knowledge and training needs regarding working and supporting individuals with autism and their perceptions of this population's barriers to participation in competitive employment settings. Additionally, this needs assessment focused on the ability of service providers to serve individuals with high support needs, such as the presence of maladaptive behaviors. The information gained through this study can inform policy for the provision of employment services to individuals with autism who are both underrepresented and underserved in employment settings. More specifically, this study identified areas of training need and can thus inform the development of training to key stakeholders that are responsible for

providing employment services to adults with autism. This needs assessment identified VR counselors and ES current experiences and training needs in serving adults with autism with a goal of identifying training needs and perceptions of barriers to employment through a behavioral lens.

Brief Review of the Literature

Autism Spectrum Disorder is a life-long neurodevelopmental disorder that is characterized by difficulties in social communication and interaction, as well as restricted and repetitive patterns of behavior, interests, and activities (American Psychiatric Association [APA], 2013). The majority of individuals with autism will require some form of support throughout their lifetime in order to access activities of daily living such as education, recreation and leisure, independent living, and employment (Levy & Perry, 2011). Most will continue to engage in behaviors that present challenges to community integration (Roux et al., 2015). Over the years, research demonstrates that individuals with autism do best and are more likely to access less restrictive environments when they have access to specialized support services through trained specialists and providers (Matson et al., 2016). As mentioned above, access to these providers dwindles as individuals with autism transition to adulthood. Caregivers of adults with autism report that adult service systems have not progressed at the same rate as childhood and/or educational service systems (Kirby et al., 2020).

Education agencies recognize that staff who provide services to students with autism must be aware of the challenges that students with autism present such as challenges with social and communication skills, aggression, self-injurious behavior (SIB) or other behavioral challenges (Scheuermann et al., 2003). Students with autism who are served in public school settings have access to specialized autism providers with knowledge of the behavioral needs of

learners with autism (Anderson et al., 2018; Schall, 2010). It is easier for parents and caregivers to receive support that is specific to how their child is impacted by autism while in school because education agencies serve as central coordinators for services while students with disabilities are in schools (Matson et al., 2016). In fact, in the state of Virginia, specific training in behavioral management for paraprofessionals serving students with autism is legislatively mandated through House Bill 325 (H.B. 325 22.1-298.3, 2012). Virginia Commonwealth University- Autism Center for Excellence (VCU-ACE), in conjunction with the Virginia Autism Council (VAC, 2014), developed the *Skill Competencies for Professionals and Paraprofessionals in Virginia Serving Individuals with Autism Across the Lifespan*. This document provides guidelines for skill sets required for service providers supporting individuals with autism across their lifespan, it is a leveled system based on your professional designation {paraprofessional to expert/ content developer}.

However, school-based services are entitlement based and these services are no longer required as individuals transition to adulthood. The literature terms this the "services cliff" (Havlicek et al., 2016; Shattuck et al., 2011; Turcotte et al., 2016). Individuals experiencing this transition out of school-based services liken the experience to a symbolic set of doors slamming shut as their children transition to adult services (Anderson & Butt, 2018). The transition to adulthood does not equate to a decrease in support needs as the availability or difficulty in accessing adequate services for high support needs implies. Support needs do not disappear as students become adults and exit the school system, but there has been little emphasis in the literature on preparing adult service staff to support individuals with autism (Gerhardt & Lainer, 2011). Nor is there any legislative oversight of training requirements for adult service providers serving adults with autism.

Autism. Currently, the CDC estimates that 1 in 54 children will be diagnosed with an autism spectrum disorder. Males are more likely to receive a diagnosis than females (CDC, 2020). Individuals with autism display challenges with social communication and interaction skills and engage in repetitive and restricted patterns of behavior, interests, and activities (American Psychiatric Association [APA], 2013). These challenges are considered the primary characteristics of autism; however, individuals who receive an autism diagnosis are also likely to exhibit challenges with some of the secondary characteristics that are associated with autism. Secondary characteristics include but are not limited to challenges with executive functioning, fine and gross motor impairments, and challenging/ maladaptive behaviors (Dew & Alan, 2007). The definition of maladaptive behaviors varies but for the purposes of the current study will be defined as the following: behaviors that interfere with everyday activities and include self-injurious behavior (SIB), withdrawal, uncooperative behavior, aggression, and destruction of property (Shattuck et al., 2007).

Adults with Autism. The majority of research on autism targets early childhood, pre-school and elementary years (Howlin et al., 2015). Overall, only 2% of the funded research in autism goes towards a focus on adulthood (Anderson & Butt, 2018). This focus is due to the idea that early intensive behavioral intervention (EIBI) will provide the best long-term outcomes and reduce symptoms and impacts of an autism diagnosis over the lifespan. The available literature on this topic indicates that while EIBI is helpful, the majority of individuals with autism, even those without a comorbid diagnosis of intellectual disability, will require intensive and targeted support throughout their lives (Taylor & Seltzer, 2011).

The prevalence of autism is increasing along with the identified need to implement interventions that are based in research and have evidence to support their implementation

(Odom et al., 2014). Currently among the 27 evidence-based practices for autism, few are researched for adults with autism (National Standards Project (NSP), 2015). In fact, only two practices have or are beginning to have evidence of effectiveness. Behavioral interventions are considered established and vocational interventions are an emerging practice (NSP, 2015). Large gaps remain in the research literature on best practices to support individuals with autism in adulthood and employment.

Employment and Autism. The current statistics on employment outcomes for adults with autism present a bleak picture. Despite a legislative focus on improving and providing employment support services, individuals with autism have poor employment outcomes compared to most other disability categories (Burgess & Cimera, 2014; Roux et al., 2015). When individuals with autism are employed they tend to be underemployed and/ or more expensive to serve; it is important to ensure that services that are provided to this group as they reach adulthood are adequate (Burgess & Cimera, 2014). Additionally, individuals with autism are more likely to access sheltered rather or day treatment settings rather than competitive employment (Burgess & Cimera, 2014). According to the National Autism Indicators Report (2016), there is a stark decrease in the amount of transition aged youth with autism accessing services as they transition to adulthood. While in school 97% of youth with autism access some type of service through the Individuals with Disabilities Education Act (IDEA), upon the transition to adulthood 26% of young adults do not receive any support service (Roux et al., 2015). Roux et al. (2016) report on national statistics that 58% of youth with autism have a job between school exit and their early 20s, a statistic that is lower than same age peers in other disability categories. 95% of individuals in their twenties with a learning disability worked, 91% with a speech language impairment, 91% with emotional disturbance, and 74% with an

intellectual disability (Roux et al., 2015). Individuals with autism are clearly faring worse in employment outcomes and experiences compared to same or similar age peers in other disability categories. This statistic is compounded by the fact that if they are employed they tend to be in part-time, low wage positions (Roux et al., 2015).

Employment, Autism, and Maladaptive Behavior. Individuals with autism face many barriers to employment. One cited barrier in the literature is the presence of maladaptive and challenging behaviors (Hendricks, 2010; Rusch & Hughes, 1996; Schall, 2010). The literature reports examples of individuals with autism being terminated from employment due to the presence of challenging behavior (McLannahan et al., 2002). While not all adults with autism display challenging behaviors, individuals with autism are more likely to engage in maladaptive behaviors than individuals with other developmental disabilities (Gray et al., 2012; Levy & Perry, 2011). Individuals with autism are also more likely to have co-occurring mental health challenges (Gray et al., 2012). Research demonstrates that upon graduation from high school, individuals with autism continue to engage in challenging behavior that will serve as a barrier to community integration (Roux et al., 2015). Over the course of adulthood, at least half of individuals with autism continue to display maladaptive behaviors and some even have behaviors that worsen, particularly during the transition out of school (Taylor & Seltzer, 2014). Individuals who engage in maladaptive behaviors are more likely to have poor employment outcomes and/or be placed in segregated day settings (Canella-Malone & Schaefer, 2017; Gerhardt & Lainer, 2011; Rusch & Hughes, 1996; Schall, 2010, Taylor & Seltzer 2011b). Parents and caregivers of individuals with autism also report a struggle accessing employment services when there is a history of challenging behavior (Anderson et al., 2017).

An examination of employment and behavioral statistics highlights some interesting disparities. Employment first, in competitive integrated employment, is the goal for all individuals with autism. Unemployment and/ or placement in segregated settings continues to hover around 50% for adults with autism (Roux et al., 2015) while the presence of challenging behaviors persist for about half of individuals with autism (Taylor & Seltzer, 2014). It is probable that the presence of maladaptive behaviors is contributing to both the prolonged poor employment outcomes and difficulty in accessing employment for individuals with autism. To date, no study has addressed this potentiality. Supported Employment (SE) is a service model that is intended to support individuals who are the most severely impacted by their disability and who engage in challenging behavior to access employment (Rusch & Hughes, 1996). Adult service providers are responsible for providing access to employment support services such as SE.

Adult Service Providers. Parents and transition age youth with autism encounter two main service agencies as they transition from high school to adult life: post-secondary education or public agencies (Anderson et al., 2017). VR providers, which fall under public agencies, serve as gatekeepers to employment services and are an integral part of the employment process for individuals with autism (Neubert et al., 2018). Job coaches, employment specialists or skills trainers are also an integral part of supporting individuals with autism in employment (Nicholas et al., 2015). For the purposes of this study, the term Employment Specialist (ES) will be used to refer to this professional. ES fall into the category of direct service personnel. As a profession, the field of direct service personnel are plagued by high turnover, low salary, and low perceptions of capacity (Hall et al., 2014). One reported reason for high turnover of direct service

personnel is lack of knowledge in how to address challenging behavior of clients (Gerhardt & Lainer, 2011).

VR counselors are responsible for determining service eligibility and provide funding and access to employment specialists who are responsible for providing employment services to individuals with autism. Employment services include supporting individuals with autism to prepare, search and interview for positions as well as the provision of "on the job" supports, these services can be long-term and indefinite. VR usually funds employment services through community rehabilitation (CRPs) or employment services organization's (ESOs) (Roux et al., 2015).

Stakeholder Training in Autism/ Behavior. Knowledge gaps in how to best serve individuals with autism were identified as early as the 80's when increased focus was placed on improving rates of employment for individuals with autism. Initial research identified the need for specially trained staff to support this population to not only obtain but to retain employment (Rusch & Hughes, 1996; Wehman & Kregel, 1988). Wehman and Kregel (1988) identified that a major barrier to accessing employment for individuals with autism was an inability of providers to support individuals with significant challenges and high support needs; similarly, that the more challenges an individual presents then the more trained and skilled their provider needs to be. Despite this early identified awareness, the ability of adult service systems to address and serve adults with autism to access employment has not improved (Anderson & Butt, 2018; Gerhardt & Lainer, 2011; Roux et al., 2018). Additionally, this population continues to be denied services due to staff incapacities (Anderson et al., 2017; Roux et al., 2018).

Researchers acknowledge that it is best for individuals with autism to be supported by trained and knowledgeable staff. However, it is not clear what constitutes a trained ES and/ or

VR provider to be "specialized" in the provision of autism services. There is a lack of research on the provision of autism specific employment supports (Nicholas et al., 2015). While this study focused on autism and behavior specific supports, a discrepancy between training and expectations for direct service personnel serving individuals with disabilities in employment settings was identified over two decades ago by Rogan and Held (1999),

> The current dilemma is that we would like job coaches to exhibit high level skills with students at work sites and in other community settings, yet there is a discrepancy between our expectations and what we prepare and pay these individuals to do. (p. 274)

The job demands placed on ES continue to grow as there is increasing emphasis on community employment for individuals with significant disabilities and complex needs (Cannella-Malone & Schaefer, 2017). Currently, most job coaches do not receive *specialized* training unless they are involved in research studies (Brock et al., 2016). Supporting individuals with autism at work requires a specific skillset due to their unique needs such as engaging in challenging behavior. Employment specialists are typically not instructed on how to address challenging behavior in work settings (Rush and Hughes, 1996; Stevens and Martin, 1998; Wehman and Kregel, 1988).

Identified Competencies in Autism and Behavior. The Association of Community Rehabilitation Educators (ACRE) provides competency areas that were developed and informed through expert review. ACRE competency areas are broken down into four overarching domains: application of core values and principles to practice, individualized assessment and employment/ career planning, community research and job development, and workplace and related supports (http://www.acreducators.org). Included in Workplace and Related Supports (Domain 4) is a competency area that acknowledges the need for professionals to be able to support individuals with disabilities to meet behavioral and social expectations of the workforce:

Helping individuals meet social/behavioral expectations of the workplace culture. Additional research reports on behavior and instructional strategies, rooted in ABA, that are likely to facilitate successful employment in community settings specifically for individuals with autism. Wehman et al., (2020) identified strategies rooted in ABA used by ES to facilitate employment for transition aged youth with autism. Additionally, *Skill Competencies for Professionals and Paraprofessionals*, developed by the VAC (2014) outline a range of competencies for those who support individuals with autism. Table 1 lists general autism competencies and Table 2 lists behavioral competencies by organization or research group.

Table 1

Virginia Skill Competencies: General Autism Competencies Statements

Overarching Competency	Subdomains of Competencies
Understands the characteristics and diagnosis of autism as defined by the most recent version of the Diagnostic and Statistical Manual	Lists and explains the defining characteristics of autism (communication/social functioning, patterns of repetitive and restrictive patterns of behavior) and the impact on the individual. Lists and explains the associated characteristics commonly present in autism (ex: difficulties with motor skills, theory of mind, and imitation) and the impact on the individual. Lists and explains the associated cognitive characteristics and learning styles commonly present in autism (ex: difficulties in executing functioning, attending, planning, abstract thinking, problem solving) and the impact on the individual. Describes the range of possible behaviors across the lifespan.

Table 2

Existing Identified Competencies in Behavior by Organization or Research Group

ACRE: Helping individuals meet social/ behavioral expectations of the workplace culture	*Virginia Skill Competencies*: Behavior Competencies	Wehman et al., (2020)
Identify cultural norms of the workplace	Identifies and operationalizes target behaviors for assessment and person centered planning	Task Analysis
Describe behaviors in measurable and observable terms	Assists team members, including the family, in prioritizing areas of concern.	Shaping
Describe the events and situations that precede the occurrence of challenging behaviors	Observes and documents behaviors using objective measures and criteria.	Modeling
Identify consequences that follow these behaviors	Completes functional behavior assessment to determine function of behavior and maintaining antecedents and consequences.	Generalization
Assess the communicative functions of these behaviors	Identifies individualized reinforcement preferences using indirect and direct measures on an ongoing basis.	Functional Assessment of Behavior Challenges
Evaluate options before implementing behavioral interventions	Develops and implements multi-component support plans based on the results of the FBA that emphasize prevention and are socially valid.	Multicomponent Behavior Intervention

Support individuals to acquire socially acceptable behavior	Implements all components of the behavior support plan with consistency in a variety of complex environments under natural circumstances	Prompting and prompt fading

Employment staff competencies include the ability to assess and intervene on challenging behavior in the workplace, also to subsequently teach socially appropriate behaviors. Recent research identifies evidence-based behavior strategies that specifically support adults with autism to access employment. Furthermore, in 1988 a needs assessment of employment service personnel reported the need to learn to address challenging behavior and provide reinforcement to be in of their top five reported training needs (Everson, 1988). Individuals with autism are more likely to engage in challenging behavior and these behaviors are a barrier to accessing employment. Strategies rooted in ABA have been shown to facilitate employment for adults with autism and in addressing behavior(s) in the workplace (Schall, 2010; Wehman et al., 2012). These competencies inform employment models that are designed to support individuals with the most severe disabilities to access employment. Research on transition to adulthood, current employment statistics and caregiver report demonstrate that current adult service and employment systems are not meeting the needs of individuals with autism.

The purpose of this study was to identify the current level of training and training needs of these behavioral specific competencies in relation to adults with autism by surveying VR counselors and Employment Specialists. The researcher also explored perceived and/ or experienced challenges to supporting individuals with autism to access integrated employment. This survey contributes to current gaps in direct report of employment staff supporting individuals with autism to access employment.

Research Questions

RQ1: What training do direct service personnel and VR counselors receive in autism and behavioral supports (competencies)?

RQ2: What levels of training do direct service personnel and VR counselors need in autism and behavioral supports in employment settings?

RQ3: What are VR providers and direct service personnel perceived barriers to employment and receipt of employment services for individuals with autism?

RQ4: Are there differences between service providers in self-reported training needs?

Methodology

This study utilized a single-mode web-based survey to identify the type of training received, training needs, and experiences and challenges in supporting adults with autism, specifically challenging behavior, through a web-based, self-report survey. Survey items were adapted from existing expert developed competencies in autism and employment, empirical literature this topic, and prior needs assessments that examined similar research questions applied to different population (TBI) or different professionals (paraprofessionals). Items were also adapted from *Skill Competencies for Professionals and Paraprofessionals in Virginia Supporting Individuals with Autism Across the Lifespan* developed by the Virginia Autism Council, ACRE Employment Specialist Competencies in 'Helping individuals meet social/behavioral expectations of the workplace culture', and strategies employed by ES to support adults with autism to access integrated employment in Wehman et al., (2020).

Findings and Conclusions

'Training Needs and Challenges in Supporting Adults with Autism to Access Integrated Employment' surveyed a sample of VR providers, ES, and ES managers. The majority of

respondents were ES or ES managers. Survey responses provided information on the type of training they received, their preferences for training, and barriers to receiving training. Participants also rated their level of training received and level of training need on twenty-three competencies on a five-point Likert Scale. Competencies in general autism characteristics and skills to facilitate integrated employment tended to receive higher levels of training and also training need. Behavioral assessment and support competencies had lower self-reported levels of training received and training need. Open-ended questions indicated that maladaptive behavior and support needs related to the primary and secondary characteristics of autism are significant barriers to providing employment services as well as issues related to staffing, funding and general training for professionals.

Summary

The prevalence of individuals diagnosed with ASD is increasing (Anderson & Butt, 2018) and each year more students with this diagnosis are going to transition out of schools and into the world of adulthood. The majority of individuals exit school with a goal of accessing employment (Roux et al., 2015). Currently, attaining this goal remains the exception rather than the general rule for the majority of individuals with autism. While in school individuals with autism receive specialized services, particularly services to support and address challenging behavior (Schall, 2010). These support services do not transition with individuals with autism as they attempt to access employment despite indication that there is continuing need for specialized support services (Anderson et al., 2017). Additionally, the requirements and competencies for educational staff supporting students with autism in school settings do not translate to similar requirements for adult service staff. Adult service staff, also known as direct support providers, tend to have high turnover and report training needs in the areas of how to

address and respond to challenging behavior with the clients they are supporting (Everson, 1991; Gerhardt & Lainer, 2011). Adult service staff are not equipped or trained to support the specific needs associated with individuals with autism (Anderson & Butt, 2018; Gerhardt & Lainer, 2011; Schall, 2010). It is likely that the continued poor employment rates of adults with autism is related to the presence of challenging behavior and the lack of staff trained to address and support these needs (Gerhard & Lainer, 2011; Schall, 2010). The literature on facilitating employment for adults with autism identifies promising practices (Wehman et al., 2019). Research on training and preparing employment support staff is sparse and little is known about not only training needs but also how best to train employment staff supporting individuals with autism. A needs assessment exploring these service providers' current training and needs will inform policy development with the ultimate goal of improving the provision of employment supports and subsequent employment outcomes for adults with autism. Understanding these professionals' current experiences and challenges in supporting individuals with autism to access employment will inform targeted future training development and provide a picture of the current capacities and experiences of these professionals.

The current body of research on employment supports for adults with autism is in need of more systematic and rigorous research to identify interventions that work and for whom (Hedley et al., 2017; Nicholas et al., 2015). However, a first step in answering these questions and contributing to the literature was to hear from the individuals who put these interventions and practices into place and currently serve in direct service positions.

Definition of Key Terms

Autism. ASD is characterized by deficits in social communication and social interaction across multiple contexts and restricted, repetitive patterns of behavior, interest of activities

(American Psychiatric Association [APA], 2013). It is a lifelong neurodevelopmental disorder and is further characterized by levels of severity from Level 3 requiring "very substantial support" to Level 2 "requiring substantial support" and Level 1 "requiring support" (American Psychiatric Association [APA], 2013). Typically, signs of autism appear early in childhood but symptoms persist throughout the lifespan. Currently, the CDC (2020) estimates that 1 in 54 children will be diagnosed with autism.

Employment Service Organization/ Community Rehabilitation Provider. These organizations, typically funded through Rehabilitative Services Administrations, support individuals with disabilities to access employment (APSE, n.d.).

Supported Employment. Employment support service that progresses through phases geared to support an individual with a disability to prepare, search, interview, access, and maintain employment.

Customized Employment. An employment support service that grew out of Supported Employment but that is predicated on a customized fit between the needs of a business and the strengths, interests, and preferences of an individual with a disability.

Competitive Integrated Employment. As defined by the Office of Disability and Employment policy refers to:

> jobs held be people with the most significant disabilities in typical workplace settings where the majority of persons employed are not persons with disabilities. In these jobs, the individuals with disabilities earn wages consistent with wages paid workers without disabilities in the community performing the same or similar work; the individuals earn at least minimum wage, and they are paid directly by the employer (Department of Labor, n.d.)

Workforce Innovations and Opportunity Act. Legislation intended to better prepare the workforce to meet the needs of employers by focusing on education and preparatory activities. Specific portions of this act are geared towards individuals with disabilities and transition aged youth with a focus on integrated and customized employment options and tunneling funding towards increasing collaboration between education agencies and VR providers (Department of Labor, n.d.).

Employment Specialist/ Job Coach. Supports a person with a disability to prepare for, search, access, and maintain employment.

Vocational Rehabilitation. Federally funded programs that support individuals with disabilities to access employment and education in the community. Services can include: assessment, training, counseling, refresher courses, on-the-job training (Department of Ageing and Rehabilitative Services, n.d.).

Vocational Rehabilitation Provider. Provides case management to include access to services, such as employment, for individuals with disabilities.

Table 3 lists commonly used acronyms.

Table 3

Commonly Used Acronyms

Acronym	Term
VR	Vocational Rehabilitation
ESO	Employment Service Organization
CRP	Community Rehabilitation Provider
ES	Employment Specialist
CIE	Competitive Integrated Employment

SE	Supported Employment
CE	Customized Employment
WIOA	Workforce Innovation and Opportunity Act
ASD	Autism Spectrum Disorder

Chapter 2

Review of the Literature

Individuals diagnosed with ASD experience challenges in social communication and repetitive patterns of behavior, interests, or activities. As of 2020, the Center for Disease Control reports that 1 in 54 children will be diagnosed with ASD (CDC, 2020). Individuals with ASD are also likely to engage in challenging or maladaptive behaviors (Shattuck et al., 2007). Children diagnosed with ASD will eventually become adults with ASD. Historically, the majority of interventions for individuals with Autism have focused on early intervention methods. These methods are conducted in order to achieve maximum possible future benefits for these individuals and to achieve the highest level of functioning possible. Research on early intervention methods demonstrates that these methods are effective in improving levels of functioning (e.g. language, IQ, or social interaction) (Hillier et al., 2007). Due to the focus on developing effective interventions for youth with ASD, evidence-based practices (EBP's) for children and youth with ASD are numerous and exist across the domains of social skills, communication, and behavior. It is reasonable to assume that employment is an integral aspect of improving future functioning and outcomes for children with ASD. However, to date, there are only six EBP's for individuals between the ages of 15-22 in the vocational domain (Wong et al., 2015).

The results of early intervention studies are a possible reason for the focus on early intervention methods for youth with autism. Initial studies concluded that early intervention

methods with a strong base in Applied Behavior Analysis (ABA) techniques could support children in IQ and adaptive behavior gains to the extent that they lost their ASD diagnosis and/or would be included in the general education curriculum (Lovaas, 1987). While early intervention is beneficial in certain areas, ASD is a lifelong disability and ASD symptoms persist throughout an individual's lifespan (Hendricks & Wehman, 2009; Taylor et al., 2014). Furthermore, despite noted benefits in levels of functioning with early intervention methods there is no correlation with long term functioning nor improved adult outcomes (Howlin et al., 2015). In fact, during the transition to adulthood there may be declines or plateaus in certain gains that were made in adaptive behavior during the early school years (Anderson & Butt, 2018; Edwards et al., 2011; Matthew et al., 2015; Taylor & Seltzer, 2010) and most adults with autism will continue to require support throughout their lifespan (Levy & Perry, 2011). Roux et al. (2015) point out the failure of the current system to support transition age youth with autism at a pivotal time as they exit school with continued support needs and encounter a system ill equipped to address them. Early intervention is important, but there is a strong case for continued intervention given that the symptoms of autism continue into adulthood, may occasionally worsen, and the noted lack of correlation between early intervention and improved adult outcomes (Anderson et al., 2017; Edwards et al., 2011; Howlin et al., 2015).

Education systems acknowledge that direct care staff supporting individuals with autism in school settings may require specialized skill sets that go above and beyond what may be required of staff supporting students with other disabilities (Scheuermann et al., 2003). Specifically, additional training is required not only due to the primary characteristics such as challenges with social and interaction skills but also due to challenging behavior. However, this awareness, acknowledgement, and provision of training has not transitioned to staff supporting

individuals with autism in adulthood, particularly employment settings. Identifying the current experiences, training, and training needs of both direct service and VR staff in supporting individuals with autism in employment was a necessary first step leading to developing and providing future professional development.

This chapter includes a review of research on VR and ES training, autism interventions, the current state of transition and employment of individuals with ASD, factors impacting employment and ASD, particularly maladaptive behavior and ASD, and a review of research on supporting individuals with challenging behavior in integrated employment settings. These variables do not occur in isolation. In order to understand adult maladaptive behavior and autism it is necessary to explore the interaction from various perspectives to include: the individual, the education system, adult service providers, employers, and federal legislation. All of these systems contribute to further propagating poor employment outcomes and will be involved in improving the current employment statistics and intervention patterns for adults with ASD.

Theoretical Framework

The current review is conducted through the lens of Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1977) and Rusch and Hughes (1996) systems theory. Bronfenbrenner's system's theory purports that observation of human behavior is best conducted in natural settings with an awareness of an interacting and hierarchical set of systems. Rusch and Hughes (1996) systems theory was developed in regard to maladaptive behavior, its assessment and intervention, at the individual, small group, worksite or agency, and community level. Rusch and Hughes (1996) expand on Bronfenbrenner's original theory and suggest that in order to adequately address behavior the impact of overarching systems on individual behavior must be addressed and taken into account. The purpose of the current review was to gain both an

understanding of the current state of interventions that exist for individuals with challenging behavior in integrated employment settings and the current capacities and requirements of service providers, both VR and direct support staff such as ES, to adequately support adults with autism with complex needs such as challenging behavior in employment settings.

Transition to Adulthood

The majority of all intervention articles that are published on individuals with ASD are conducted with children between the ages of 2-6; less than 3.6% of intervention articles on ASD are published with individuals that are over the age of 20 (Seaman & Cannella-Malone, 2016). The noted increase in diagnostic rates mean that there are increasing amounts of youth with ASD that are going to be exiting the school system; currently there is a discrepancy between the amount of intervention research that is being placed on younger children and the growing amount of coming-of-age adults that are going to be in need of intervention (Edwards et al., 2011). Half a million students with autism will transition to adulthood over the next decade; currently, these students have worse post-school employment outcomes compared to same age peers with other disabilities and typically developing peers (Roux et al., 2015). This is the case in spite of the fact that employment is the primary post school goal for students with autism (Roux et al., 2015). While in school youth with ASD receive tailored interventions targeting the core impairments of ASD. In a study designed to improve paraprofessional's use of EBPs to support students with autism Ledford et al. (2018) included the following as most effective skills: prompting, providing support and reinforcement, and prevention and appropriate responding to challenging behavior. ASD is a lifelong disability, then it is likely that these skills will continue to be needed in some form or other (Wong et al., 2015).

Graduating from high school is a time of transition for youth with disabilities and comes with a requisite shift in education and services. As youth with disabilities exit high school there is a shift in the primary service provider from their education system to a Vocational Rehabilitation (VR) or a Community Service Board (CSB) who then is responsible for coordinating access to adult services, such as Employment Service Organizations (ESOs) or Community Rehabilitation Providers (CRPs) who employ ES. The overall lifetime costs for supporting and providing services to individuals with ASD are high. The average cost on taxpayers to support individuals with autism is higher than individuals with other disabilities or impairments such as cancer or stroke (Hedley et al., 2017; Howlin et al., 2015) and is estimated to cost between 1.5 to 2.3 million dollars over a lifetime (Burgess & Cimera, 2014). Increasing employment for individuals with ASD is a possible pathway to reduce the overall estimate lifetime costs of supporting this population (Hedley et al., 2017). Furthermore, services such as SE that promote community integration are more cost effective than segregated services (Taylore et al., 2021).

Employment

The majority of individuals with ASD exit high school with a plan to receive employment services rather than enroll in PSE. Currently, post school employment options for individuals with ASD include day habilitation settings, sheltered workshops, supported employment programs, and competitive employment without support (Burgess & Cimera, 2014). There is a long history of federal legislation aimed at improving employment options for individuals with disabilities: the Americans with Disabilities Act (1991), the Rehabilitation Act (1973), and most recently the Workforce Innovations and Opportunity Act (WIOA) (2014). Over time, a growing emphasis on supporting integrated rather than segregated employment settings has occurred.

However, accessing integrated employment settings requires more skill on the part of adult service providers who are increasingly tasked with serving individuals with more complex and severe disabilities in integrated settings (Cannella-Malone & Schaefer, 2017). WIOA focuses on improving service collaboration between schools and adult service providers to place transition age youth with disabilities into competitive integrated employment (CIE).

Despite the aforementioned legislation the employment rate of all individuals with disabilities remains low in comparison to the general population (Siperstein et al., 2014). However, employment outcomes for individuals with ASD is even lower; the unemployment rate for individuals with autism is 63.2%, higher than all other disability categories with the exception of individuals with comorbid diagnoses (Burgess & Cimera, 2014). According to statistics reported in Roux et al. (2015), the employment rate of individuals with autism is 15% lower than individuals with intellectual disability (58% for individuals with autism and 74% for individuals with intellectual disability). The poor outcomes are further exacerbated by type of employment and setting for individuals with ASD. If adults with ASD are employed then they are more likely to be underemployed as commensurate with their education, skills, and abilities (Burgess & Cimera, 2014; Wehman et al., 2016) and the majority of individuals with ASD continue to be placed in non-integrated employment settings (Wehman et al., 2016). For example, in a review of vocational interventions for youth with ASD, Taylor et al. (2012) found that over half of the individuals in their study transition to sheltered work and 12% of individuals in their study had no daily activities at all. Individuals with intense behaviors are more likely to be placed in institutional or segregated settings (Cannella-Malone & Schaefer, 2017; Gerhardt & Lainer, 2011). Despite legislation and the development of employment support programs, such as Supported Employment (SE), the amount of IWD's entering CIE has slowly declined since

the 1980's (Riesen et al., 2015). It is necessary to look at barriers to employment that individuals with ASD face.

Barriers to Employment

As a result of continued poor employment outcomes various systematic reviews have been conducted to evaluate the history and efficacy of employment services for individuals with ASD. Hedley et al. (2017) conducted a review of employment interventions and programs to include prior systematic reviews and individual studies that have been conducted across seven vocational themes: employment experiences, employment as primary outcome, development of workplace social skills, non-employment-related outcomes, assessment instruments, employer focused and economic impact. The general consensus across employment literature is that methodological rigor stands to be improved in order to progress the field of employment and ASD research in hopes of increasing employment outcomes. In fact, over the past several decades the amount of research on employment training for individuals with disabilities has declined and the majority of the research was conducted in sheltered or segregated settings; if this pattern continues to occur then employment outcomes will likely remain poor (Cannella-Malone & Schaefer, 2017). Cannella-Malone and Schaefer (2017) note a clear correlation between disability status and placement in segregated settings. Similarly, Hedley et al. (2017) discuss one particular theme, non-employment related outcomes, which discusses research that addresses behavioral and soft skills in employment settings. Two studies were identified that used single subject designs to reduce challenging behavior in employment settings (Schall, 2010; Smith & Coleman, 1986.)

An examination of behavior and its impact on the workplace is warranted due to the fact that the core challenges individuals face in social, communication skills, and behavior remain

over their lifetime and present a barrier to employment (Wehman et al., 2014). Additionally, accessing integrated employment is not likely without access to intensive and tailored supports from adult service providers (Wehman et al., 2019). Application of applied behavior analysis (ABA) strategies to facilitate the acquisition of social and technical skills embedded in employment services has demonstrated improved employment outcomes compared to individuals who do not receive these services (Wehman et al., 2014). Improvements in employment outcomes through the use of behavioral support strategies provide preliminary evidence of a need for continued intervention, particularly behavioral intervention, in order to access employment. Similarly, Gerhardt and Lainer (2011) make a call for the use of ABA strategies in employment settings to adequately support and meet the needs of adults with autism. Currently, employment support staff are not equipped to provide ABA strategies in employment settings (Gerhardt & Lainer, 2011) with an exception for employment staff that are participating in research related work (Brock et al., 2016). Along similar lines, Taylor et al. (2014) found preliminary evidence that participation in employment settings can improve autism symptoms and the presence of maladaptive behaviors. A more recent review conducted by Taylor et al. (2021) found that employment has positive impacts on quality of life indicators such as health, behavior, well-being, self-control, self-determination, and behavior, among other indices. Behavioral interventions can improve employment outcomes and participation in employment has the potential to improve behavior. Further investigation of these two phenomena is warranted.

The presence of maladaptive behaviors is a common comorbid condition with ASD; however, there is a dearth of research into the presence and manifestation of maladaptive behaviors over the course of a lifetime for adults with ASD (Shattuck et al., 2007). Maladaptive

behaviors are defined as behaviors that interfere with everyday activities including self-injurious behavior (SIB), withdrawal, uncooperative behavior, aggression, and destruction of property (Shattuck et al., 2007). Shattuck et al. (2007) conducted an initial study to identify how the presence of maladaptive behaviors evolves into adulthood and found that half of individuals with maladaptive behaviors demonstrate improvement in the frequency and severity of maladaptive behaviors and half of adults with ASD do not demonstrate improvement or may even worsen with age (Shattuck et al., 2007).

Maladaptive behaviors are a barrier to employment and their presence is considered by some to be a critical limiting factor to individuals with ASD accessing integrated employment (Holwerda, 2012). Siperstein et al. (2014) found that a diagnosis of an Intellectual Disability or an emotional or behavioral problem makes you more than two times less likely to be employed; Lemaire and Mailick (2008) report that behavior problems are the most commonly cited barrier to employment. The presence of social and behavioral problems is also a noted reason for individuals with autism being let go from an employment position (West et al., 2015). Addressing maladaptive behaviors in integrated employment settings has been an identified need in the literature, for individuals with intellectual and developmental disabilities since the onset of SE (Kemp, 1999; Kemp & Carr, 1995; Rusch & Hughes, 1996; Stevens and Martin, 1998). It seems likely that the presence of maladaptive behaviors impact current employment rates and potentially hinder or are a reason for removal from access to employment services (Hendricks, 2009; Schall, 2010).

Recent literature out of Virginia Commonwealth University-Rehabilitation Research and Training Center (VCU-RRTC), the research center that published many of the case study articles discussed in the current review, further identifies the need for research and training to address the

presence of challenging behavior displayed by individuals with ASD in integrated work settings. In a recent publication, one of the first RCT to evaluate employment practices to support individuals with ASD to obtain competitive integrated employment found that 93.7% of individuals who applied to participate in the study demonstrated behavioral challenges and required support to address them (Wehman et al., 2020). Furthermore, 62% of the treatment group that received the employment intervention required individualized behavioral supports and/ or the development of a behavior intervention plan. These research findings align with Chen et al. (2015) who discussed internal and external barriers to employment for individuals with autism. Examples of internal barriers to employment are social skill deficits, challenging behavior, and co-occurring diagnoses (Chen et al., 2015). Examples of external challenges are systemic such as adult service systems, employers, and socioeconomic status (Chen et al., 2015).

Benefits of Employment

There are multiple benefits to employment that are noted in the literature. Employment impacts quality of life, social skills, self-esteem, and provides an opportunity for community and social integration (Riesen et al., 2015). Participation in employment may also improve scores on autism scales (Taylor et al., 2014). Another stakeholder in the employment and ASD equation are employers who also stand to benefit from employing individuals with ASD. Unger (2002) noted general contributions that individuals with disabilities contribute to the workforce such as low turnover and dependability, hiring individuals with disabilities also improves an employer's public image and increases workforce diversity. Individuals with ASD in particular can present unique skillsets that are valuable to employers: attention to detail, low absenteeism, reliability, and trustworthiness (Hillier et al., 2007; Murray et. al, 2016).

Prior to the development of an employment service known as Supported Employment (SE) where individuals with the most significant disabilities receive intensive and ongoing support to obtain and maintain employment, individuals with autism were sent to segregated work settings or institutions (Duran, 1984). SE was developed to serve the most significantly impaired individuals. VR counselors, a stakeholder group evaluated in the current survey, are able to deem individuals to be too impacted by their disability to benefit from employment services and individuals with ASD are more likely to receive this designation (Hedley et al., 2017; Roux et al., 2018). Once deemed eligible, VR counselors contract ESOs or CRPs to provide employment support services, typically SE or CE. Employment support services are provided by a 'professional' job coach also known as an employment specialist, skills trainer, or job developer. For the purposes of this review this professional designation will be referred to as an Employment Specialist (ES).

History of SE

Wehmeyer and Lainer (2011) outline the historical trajectory of autism supports and research focus since the 1970's. An initial focus in the 70's on instructional practices for young children with autism, due to increased identification of the disorder, then progressed to a focus on employment and transition supports in the 80's as this initial identified group aged out of the school system. However, Wehmeyer and Lainer (2011) also posit that a focus on transition supports did not equate to improved or satisfactory outcomes. In fact, these services have plateaued and/ or declined. The 1980's also brought a focus on the service delivery model of Supported Employment (SE). Since this time, other service delivery models such as Customized Employment (CE) have also begun to gain momentum, particularly with recent legislation such

as WIOA (2014). Each model of employment support services relies an ES to provide direct support on the employment site.

Regardless of the service delivery model a PWD receives, the quality of the services that is provided is directly related to the skills of the ES providing them (Grossi et al., 1991; Wehman et al., 2018). Typical skills required by an ES include: identifying a job match based on identified and/or assessed client preferences, negotiating with employers to develop a job match, developing task analyses of essential job duties, the ability to provide systematic instruction and self-management techniques, supporting interactions between PWD's and their co-workers (e.g. natural supports), and fading support over time to promote independence (Stevens and Martin, 1999).

ES competencies and essential skill requirements have gained focus over the years through the development of professional associations such as the Association of Persons Supporting Employment First (APSE) and the Association of Community Rehabilitation Educators (ACRE). In 1988 the Association of Persons Supporting Employment First (APSE) developed the first set of competencies, to include knowledge and skills needed, for professionals supporting individuals with developmental disabilities to access SE (ACRE, 2013). APSE was the first association, with the support of a board of professionals, to develop competencies for these professionals. In 2005, the Association of Community Rehabilitation Educators (ACRE), adapted these competencies and expanded them (ACRE, 2013). ACRE recognizes that there is currently a lot of variability in the quantity and training of employment support staff. ACRE has since revised their list of competencies three more times, in 2013 and 2018 (with an emphasis on CE), and most recently in 2021 (ACRE, 2021). Organizations can develop training materials and provide a certificate of achievement upon completion. To do this,

ACRE must review and approve the curriculum to ensure it aligns with their identified competencies. ACRE offers two types of certificates: Basic and Professional, this certificate also prepares individuals to sit for Certified Employment Support Professional (CESP) exam administered through APSE. Currently, 14,129 individuals have earned a Basic certificate and 294 hold a Professional certificate.

It is necessary to note that the aforementioned employment support models and associated competencies were developed to facilitate access to integrated employment settings for individuals with the most significant disabilities or barriers to employment. As early as the 1980's researchers in the field of VR identified these employment support models were not being used for their intended target populations, those with the highest support needs and the most severely impacted due to their disability (Wehman & Kregel, 1988). In actuality, individuals with the most significant disabilities were not being found eligible for employment services. Individuals who engage in challenging behavior(s) tend to have the highest rates of unemployment (Rusch & Hughes, 1996). Stevens and Martin (1999) outlined the essential job skills of ES, listed above, and made specific note of a missing skill- the ability to address challenging behavior in employment settings. Rusch and Hughes (1996) mentioned behavior modification as an essential skill set of ES in addition to the abilities to support task completion and environmental modifications. Both sets of researchers further identified that training in this competency is both unaddressed in typical ES training and remains vitally under-researched. Now, almost four decades have passed since initial identification of the lack of training for ES.

ES Employment Statistics

Within the labor market, the professional ES falls under the realm of direct support professionals (DSPs) (Hewitt & Larson, 2007). Due to the greying of the population and

concomitant deinstitutionalization movement the need for direct support workers is expected to grow exponentially, five million workers will be needed by 2020 (Bogenschutz et al., 2014). In addition to growing needs, this workforce faces high turnover, between 45-70%, which would be considered completely debilitating in most other sectors. Similarly, Gerhardt and Lainer (2011) identified that staff turnover can be as high as 50% for those serving adults with disabilities; a major reason for turnover is lack of training and behavioral challenges of clientele. Generally, this sector of the workforce has little formal training or education requirements and also tends to have low rates of compensation. The repercussions of this become evident when you reflect on the requirements and daily skills required to directly support individuals who may struggle with low communication and engage in moderate to severe levels of challenging behaviors.

Historically, adequately preparing direct support workers has received insufficient attention from a policy perspective and also from funding sources (Hewitt & Larson, 2007). Similar to the evolution of supported employment models this profession has been impacted by changes in perceptions and legislation regarding best ways to support individuals with disabilities. Due to the deinstitutionalization movement PWDs are now supposed to be supported to access integrated employment settings. Little attention has been paid as to how to best prepare professionals to support this process. In order to improve employment outcomes and support meaningful quality of life, identifying and improving the skillsets of direct support professionals such as ES is going to be vital or else risk continued and increased placement in day habilitation settings or simply remaining at home and thus isolated (Cannella-Malone & Shaefer, 2017). Interestingly, Canella-Malone and Shaefer (2017) also identified that despite the focus on employment first policies and legislation the amount of research that focuses on how best to

support integrated employment for individuals with severe disabilities has steadily decreased since the 1990's.

While promising practices do exist in regards to job development and placement strategies, there is a dearth of research on employment specialists who are capable of directly improving employment outcomes of jobseekers with disabilities (Fabian et al., 2011). This lack of research will become increasingly problematic as ES' positions will become increasingly difficult as a legislative focus on community integration becomes the norm (Hall et al., 2014).

ES Training

The existing research on ES characteristics and training demonstrates that there is not a general set of education requirements, background experiences, or consistent and required training for this subset of direct service professionals. In fact, if ES are the recipients of specific training they are generally ES working on research studies rather than ES working in traditional supported employment contexts (Brock et al., 2016). As SE has grown in recognition as a service model "second-generation" training issues are making themselves known (Grossi et al., 1991). Second- generation training issues relate to the quality of service provision rather than the delivery model itself (Everson, 1991). It is recognized that employment support model literature offers promising and research based practices, in both SE and CE models; however, it remains unknown whether employment support staff put these practices in place in community employment contexts (Butterworth et al., 2012). The focus of the available research on training tends to be related to equipping these professionals to provide instruction geared towards independence and/or best provide the competencies that are related to the current phase of employment support that a client is receiving rather than a specific focus on equipping these professionals to best serve a certain population, such as those with exceptionally poor

employment outcomes, or individuals with autism. Recognition of the need for disability specific competencies is growing (Kester et al., 2019).

Over the past several decades occasional focus was placed on how best to provide training to ES and hire individuals that are a good match for the job. The amount of research on the aforementioned topic is sparse. Research on hiring ES staff recommend hiring a professional with a background in special education, rehabilitation, or psychology so that it is more likely that you are hiring someone with knowledge of systematic instruction, data collection, and general behavioral principles (Grossi et al., 1991). Research on the provision of ES training and skill acquisition tends to examine facilitating independence for their clientele, employment outcomes of job seekers, or skill acquisition in evidence-based strategies. Hagner et al. (2014) looked at providing online training and consultation in order to improve placement and integration into the worksite. Parsons (2001) examined how to reduce job coach assistance on the worksite by providing training during offsite hours. Brock et al. (2016) looked at supporting these professionals to acquire skills in systematic instruction: task analysis, simultaneous prompting, and least to most prompting. This research was conducted to address the gap in how best to train ES. Similarly, Migliore et al. (2018) looked at training ES in order to improve employment outcomes of jobseekers served such as wages, hours, and placement in integrated employment. A scoping review (Ham et al., 2022, in press) identified that while professional competencies exist it is not clear how ES are trained in these competencies, if these competencies are sufficient to provide adequate employment services to individuals with significant disabilities, nor if the current approved training programs are in fact improving outcomes. Identified competencies in the scoping review spanned from reviewing existing competencies, to suggesting additional competencies, to include suggestions both on core skills and personality characteristics.

One model of Supported Employment, the Individual Placement and Support Model (IPS), has developed the most evidence based and well-described model of Supported Employment (Bond et al., 2008). The IPS model was developed to specifically support clients diagnosed with severe mental illness (SMI). Researchers following this model have also begun to look at ES characteristics and competencies that facilitate success for job seekers with SMI. While SE was originally designed to serve individuals with developmental disabilities, the IPS model aligns with general SE competencies. The main differentiating component being the research focus on evaluating validity and fidelity to SE components (Bond et al., 2008). The IPS model also places a focus on collaboration between mental health service providers and employment support staff (Bond et al., 2008). Seven core principles of Supported Employment constitute the IPS model: a focus on competitive employment, eligibility based on consumer choice, rapid job search, integration of mental health and employment services, attention to consumer preference in job search, individualized job supports, and personalized benefits counseling (Bond et al., 2008). The majority of research identifying core characteristics and competencies of ES have been conducted within this model. These core characteristics are related to personality characteristics such as persistence, hardiness, ability to communicate and build rapport, and competencies that align or fall within the evidence-based principles of SE (Glover & Frounfelker, 2013; Tilson & Simonsen, 2013; Whitley et al., 2010). The IPS model identifies that employment support staff may need specific skills to best serve clients with SMI.

There are many identified gaps and directions to take within the field of ES training and skill acquisition. Within the available literature there is little research that incorporates the voices and experiences of employment support personnel. In order to both develop and provide an adequate training regimen it is necessary to first conduct a thorough needs assessment (Everson

& O'Neill, 1988). Everson (1991) conducted a needs assessment of training needs, backgrounds, and employment experiences of supported employment personnel due to the awareness of available promising practices and identified competencies but no direct input from staff in these roles. Importantly, participants in the study reported training needs in key areas such as provision of job modification, social security and Medicaid benefits, and supervision techniques. Even more important both managers and direct service staff in Everson's (1991) needs assessment reported training in client behavior management and related reinforcement techniques as a top training priority. Fabian et al. (2011) examined job coach attitudes and perspectives towards employers and the employment process. Their motivation behind examining perspectives is relevant, motivations and attitudes influence behavior, and attitudes also have the potential to create barriers (Fabian et al., 2011). No research has taken job coach perspective into account towards their knowledge, training, and service provision to specific populations such as autism.

ES and autism

The current amount of training that ES receive is varied and tends to be provided through rehabilitative agencies, universities, or through individual employers (Hall et al., 2014). Hall et al. (2014) also recognize that different or specialized skillsets may be required for clients, families, employers. Clients with different diagnoses may also have different support needs that require specialized skills and training on the part of the ES, such as autism. Anderson and Butts (2018) conducted interviews of parents of individuals with autism and individuals themselves who are or did experience transition services. Parents reported that staff were generally underqualified and that finding support staff with knowledge of both autism and VR was impossible. Additionally, parents felt that employment agencies did not take the specific learning needs of adults with autism into account such as a tendency to be visual rather than auditory

learners. The high support needs identified with their dependents also made them more likely to be turned away or denied services due to lack of agency/ staff capacities. Families' hopes of their children receiving employment experiences and support by staff who "understood" autism were not realized (Anderson & Butts, 2018).

Nicholas et al. (2018) conducted a survey of employment support staff's perceived capacity to address autism while also surveying clients with autism and their caregivers. Overall, there is little specific training in place for individuals with autism and most providers rated their capacity higher than the surrounding community and higher than those receiving the services (Nicholas et al., 2018). Kester et al. (2019) conducted a survey of VR professionals and educational staff who provide transition services to identify training needs in autism and transition. Kester et al. (2019) placed a focus on interdisciplinary collaboration but did identify a need for improved capacity in autism competencies. Wehman (2012) utilized an employment consultation model where job coaches that were specifically responsible for supporting individuals with autism to access integrated employment were supported by a behavioral specialist. Wehman et al. (2018) found that the skills most utilized to support individuals with autism to access integrated employment were: task analysis, shaping, modeling, generalization, functional assessment of behavioral challenges, multicomponent behavioral interventions, prompting and prompt fading.

Similarities to paraprofessional literature

Approaches and identification of the need for specialized training of direct support staff supporting individuals with autism can be borrowed from research in education. For example, Ledford et al. (2018) identified that some of the most effective skills for educators serving individuals with autism are prompting, reinforcement, and the ability to address behaviors. These

identified skill competencies align with competencies identified in vocational support research (Wehman et al. 2017). Furthermore, Ledord et al. (2018) also identified that paraprofessional and employment support staff have similar education requirements (i.e. minimal) while also being tasked with complex skill requirements such as addressing behavior. This same research also identified that minimizing problem behavior leads to placement in less restrictive settings. Staff supporting students with autism may require specialized skills such as behavior management that go above and beyond the skillset that may be required for individuals with mild to moderate disabilities (Scheuermann et al., 2003). Within school settings, Brock and Carter (2013) report that the number of paraprofessionals hired is increasing and that 79.2% of these staff work directly with students with autism. The majority of these paraprofessionals report that they spend time providing behavioral and social support to students. As discussed, the skill level of employment support staff are related to employment outcomes and improving outcomes is related to improving training and knowledge. Paraprofessionals have a similar potential impact on outcomes, yet they are in another profession that receives little or vague training and ongoing professional development activities (Brock & Carter, 2013). However, there is legislation in place that requires a certain amount of training and background experience for educators supporting students with autism.

The studies that are available on training ES in instructional strategies borrowed from the literature that exists on preparing paraprofessionals (e.g Brock et al., 2016). One study examined preparing paraprofessionals to serve in the role of the ES (Morgan & Held, 1999). Research in training ES was similar to the paraprofessional training literature because both of these roles have little to no education or training, yet these professionals are tasked with providing the most direct support to individuals with the most severe developmental disabilities, such as autism

(Ledford et al., 2018). In order to improve the outcomes of the individuals that these professionals serve, it will be necessary to equip them with the skills needed to effectively serve the populations they are working with. Currently, there is a mismatch between the professional requirements and the training and support that these professionals receive.

As a result of education legislation and perhaps the level of need in the school system due to the increasing prevalence rate of autism there is more research available on the importance of training paraprofessionals who directly support youth with autism. Legislation such as No Child Left Behind (NCLB) (2001) requires paraprofessional training (Hall et al., 2010) and locally in the state of Virginia House Bill 325 also requires paraprofessional training in evidence-based practices to support students with autism. However, the amount of research on training these individuals is still considered scarce (Hall et al., 2010). Placement or access to inclusive educational settings is on the rise just as placement in competitive integrated employment is on the rise for individuals with autism. Paraprofessionals are often tasked with supporting students with challenging behavior in inclusive settings (Martinez, 2017). Skilled support staff will be integral to supporting individuals with autism and challenging behavior to access integrated settings, in both education and employment.

Implications of ES Training

Clearly, a major differentiating factor between ES and paraprofessionals is the context in which they provide support, community employment settings versus the classroom environment. Gerhardt and Lainer (2011) noted that the expectations of community settings is greater than employment settings. For example, writing a task analysis for grocery shopping can be more complex and the instruction required for this task places greater demand in terms of time and skill than for a shorter or more discrete task that occurs in the classroom setting. Identified need

for additional training is beginning to occur in a profession with similar backgrounds and requirements as the ES but it is possible that performance expectations and task complexity are higher for supporting adults with autism in integrated employment settings.

Looking at training needs, knowledge and perceptions of barriers from a direct service provider perspective is important- it will only inform part of the picture. Youth with autism are at risk of not receiving VR services due to behavioral challenges and other unique needs related to the disorder (Roux et al., 2018). Therefore it was also necessary to explore VR staff perspectives of this population, otherwise a more comprehensive understanding of training needs relating to serving adults with autism will not be fully informed.

VR professionals

Roux et al. (2013) identify that research is needed in how Rehabilitation Services can contribute to employment outcomes. VR providers are part of the transition planning process and enter the process earlier than employment support staff. VR providers are part of planning the transition to adulthood process for students with disabilities and either providing or facilitating access to employment support services. VR providers are able to determine if individuals with autism are eligible or ineligible for employment services (Hendricks, 2009; Schall, 2010). Due to the higher likelihood of individuals with autism being sent to day habilitation settings it is also important to explore these providers' perceptions of training and barriers to serving this population, despite differing education requirements and service roles compared to employment support staff. To date, very little is known about the state of VR services for individuals with autism (Roux et al., 2016). In 2007 recommendations were put forth for autism specific competencies for both VR and ES, including a recommendation for ACRE to designate an autism specific certificate (Dew & Alan, 2007). Dew and Alan (2007) identified that lack of

trained VR staff and ES staff are a challenge to providing appropriate employment services for adults with autism.

Recently, Kester et al. (2019) conducted a survey of VR professionals in community settings and transition professionals in education settings. A measure was developed that asked participants to self-report on competencies pulled from empirical literature on autism and transition. The majority of respondents in this study were educational staff (80 participants) and 48 self-reported as VR professional, to include job coaches and VR staff. The study found that there is a need for ASD specific training in the areas of communication, sensory needs, and social skills.

Research has begun to explore the capacity of VR staff to support individuals with autism. An exploration of autism and behavior specific competencies has not been conducted. Additionally, an attempt to explore autism related needs of ES staff has yet to be undertaken. It is evident that individuals with autism have specific support needs. It is also evident that the adult service system is generally unprepared to support individuals with autism. Brock et al. (2016) report that unless an ES is involved in research that they do not receive specific training. The next portion of this chapter reports on a review to identify what literature is available on addressing challenging behavior in employment settings.

A Review of the Impact of Maladaptive Behaviors in Employment

In order to move the state of employment services forward it is necessary to further identify how maladaptive behaviors may impact employment and if there are demonstrations of successful or unsuccessful interventions to address maladaptive behaviors in integrated employment settings. If there are successful demonstrations, how was support provided to these

individuals and who was responsible for providing the support. Below is a review of research on addressing challenging behavior of adults with autism in integrated employment settings.

Review Method

Search Strategy

The researcher searched the CINAHL, ERIC, and Education Research Complete databases for relevant literature. Search terms were developed in the categories population, domain, and intervention (Westbrook et al., 2012). The researcher used the population terms (autis* OR asd OR asperger* OR "pervasive developmental disorder*" OR PDD OR "autism spectrum disorder"), intervention terms (PBIS OR "positive behavior support" OR ABA OR"applied behavior analysis" OR intervention OR "behavior intervention" OR "behav*" OR"social skill*" OR "soft skill*") and domain terms (work* OR employ* OR vocation* OR "Supported Employment" OR "Customized Employment". The researcher also added another domain to target literature on the appropriate age range (adult*). The researcher chose to not provide a date range to access all literature available on the topic. A quick initial search identified articles from 1980 and the researcher wanted to ensure all relevant literature was reviewed. Search terms were purposefully kept broad. Filters for articles written in English and peer reviewed were applied to the database search engines. The researcher used PRISMA methodology for identifying articles to be included in this review (Liberati et al., 2009). Figure 1 displays the PRISMA diagram.

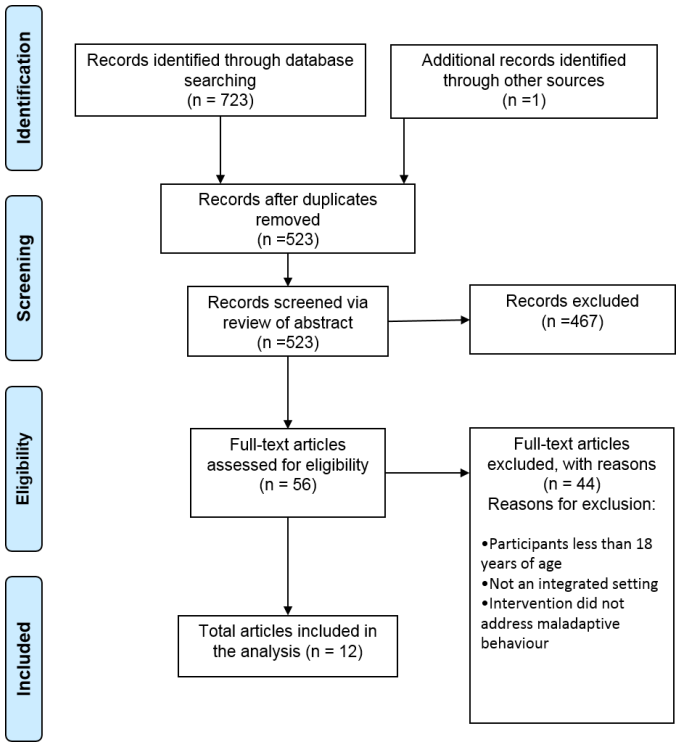


Figure 1

PRISMA review process and results

Inclusion/ Exclusion Criteria

To be included in the review articles had to be in English, describe an empirical study, and published in a peer reviewed journal. Articles also had to report on an intervention to address maladaptive behavior in integrated employment settings. Integrated employment settings were defined as: participants are learning or being paid for job skills and working around individuals without disabilities in a community employment setting around individuals without disabilities who are not direct support staff. Internship experiences in community settings were also included. In order to be included in the review studies had to have participants that were 18 years of age or older. The researcher chose this age range because this age range is more likely to have exited the school system and begun to receive adult services. Participants must have been diagnosed as having an autism spectrum disorder (ASD), Asperger syndrome, pervasive

developmental disorder, or pervasive developmental disorder-not otherwise specified. Participants with a comorbid diagnosis or intellectual disability (ID) were included in the review. Interventions must have been put in place to address or decrease a maladaptive behavior. Maladaptive behaviors were defined as behaviors that interfere with everyday functioning to include aggression, self-injurious behavior (SIB), uncooperative behavior, and withdrawal (Shattuck et al., 2007; Taylor et al., 2014.) The researcher did not place any restrictions on research design. The researcher chose to exclude articles that took place in sheltered or community settings or that reported on interventions to increase social skills adaptive behaviors without mention of a specific maladaptive behavior, or interventions put in place to address specific job-related tasks.

Study Selection and Coding

After conducting the database searches the researcher exported all results and combined them into an Excel spreadsheet. Duplicate articles were then removed from the spreadsheet. Next, the researcher screened titles and abstracts for inclusion criteria. Articles that met inclusion criteria after the title and abstract review were then reviewed in full and screened for inclusion/ exclusion criteria. Articles found to meet inclusion criteria after being read in full were then coded according to: research design, participant age range, participant disability, gender, sample size if applicable, intervention, intervention setting, outcome measures, and limitations or challenges to research quality. Table 4 displays articles included in the review.

Table 4

Coding for Reviewed Studies

Article	Design	Sample Size	Participant Age, Gender	Disability	Intervention	Intervention Setting	D.V	Limitations
Dunkel-Jackson	MBL	3		ASD	Self- control training	Restaurant breakroom	Choice for reinforcement, task engagement	Integrated setting is questionable, did not report on change in maladaptive behaviors
Kemp & Carr	MBL	3	28, male 30, female 26, male	ASD, MR ASD, MR ASD, MR	Multicomponent: building rapport, offering choices, embedding demands, functional communication training, build tolerance delay of reinforcement	Community greenhouse	Latency to problem behavior, percentage of work steps completed	Setting- not paid, two different settings Actual employment setting not reported
Mackey & Nelson	Within participant multiple probe	2	19, male 19, male	ASD ASD	Video feedback plus job coach evaluation, video feedback plus self- evaluation	Experiential jobsite	Engagement, decision making, appropriate	No social validity

							interactions, proper hygiene, smooth transitions BOSS-Behavior Observation of students in schools	Not paid employment setting, 'experiential' Generalization to other settings is questionable Procedures to teach behavioral expectations not reported
Elliott et al.	One factor repeated measures	2	Not reported	ASD	Antecedent exercise	Community integrated vocational task	Rates of maladaptive and stereotypic behavior	Lack of demographics, vague procedural reporting, not sure how participants chosen for vocational activity
Wehman et al.	RCT	54	18-21	ASD	PS + ASD Supports: task analysis, interventions, behavioral rehearsal,	Large healthcare organization	Maladaptive behavior improvement in SIS	Behavioral reporting not individualized, don't know

					FBA/ BIP, discrete trial, prompting			what component is responsible for behavior change
Gentry et al	Case Study	3	21 60 20	ASD ASD ASD, Down Syndrome	iPod with behavioral management and other visual supports	Hospital	Independence on jobsite and decrease in behaviors	Procedural reporting, no replication
Smith & Coleman	Case study	3	25, male	ASD	Role play, response cost, reinforcement	Book bindery	Tantrums	Vague procedures
			26, male	ASD	Differential reinforcement,verbal praise, graphing	Recycling Plant	Good Behavior Points, productivity	No social validity No replication
			27, male	ASD	Differential reinforcement	Printing company	Productivity	
Wehman et al	Case Study	2	19, male 20, male	ASD ASD	Visual supports, role play, self-management, reinforcement	Large healthcare organization	Cursing, inappropriate touching, work avoidance	Procedural reporting
Ham et al	Case Study	2	Female	Down Syndrome, Intellectual Disability,	Self-monitoring plan, visual schedule, alarms	Large healthcare organization	Calls to job coach, behavioral frequencies	Procedural reporting, experimental control

			23, male	ASD, hearing loss ASD	Self-monitoring, behavioral rehearsal			
Schall	Case study	1	25, male	ASD	FBA FCT BIP	Large healthcare organization	Frequency of aggression and vocal outbursts	No replication
Morgan and Schultz	Case study	1	19, male	ASD	Interagency collaboration Behavioral assessment and intervention to teach functional appropriate communication behavior	Situational assessments and graphic firm during work hours	Work productivity, Vocal outbursts	No baseline of behaviors Weekly hours employment low
Burt, Fuller, and Lewis	Case study	4	26, female 21, male 25, male 29, male	ASD, ID ASD, ID ASD, ID ASD, ID	Behavioral contract, modeling, role playing, behavior modification, incorporate inappropriate behaviors into work tasks, redirection, shaping	Training program and work setting	Reduction in target behaviors and increase in appropriate replacement behaviors, work productivity reported in some instances and employment	Taught in pre-employment program and work setting, vague description Short description of data, no graphs or tables

			status and tenure

Findings of the Review

The author identified a total of 12 articles that met criteria for inclusion in the current review; three single case design (SCD) studies, seven case study articles, one quasi-experimental study and one randomized controlled trial (RCT). Participants ranged in age from 18-60, were mostly male, and all had a diagnosis of ASD. Interventions were varied and consisted of various applied behavior analysis strategies such as Functional Behavior Assessment, antecedent strategies, and assistive technology. Dependent measures included latency to problem behavior, frequency of problem and/or appropriate behaviors and measures of work productivity. The selected studies were found in a variety of journals and publication dates range from 1986-2017. The majority of the case study articles were published more recently and are worth discussing for their contribution to the literature base but are limited in terms of experimental rigor. Major limitations exist in the identified literature which will be discussed later.

Single Case Designs

Kemp and Carr (1995) used a multiple baseline across participants design and first implemented their intervention in a segregated training setting and subsequently in a community greenhouse setting. Three adults over the age of 20 diagnosed with autism and MR participated in the study and demonstrated maladaptive behaviors such as aggression, SIB, property destruction and tantrums. The participants were selected for inclusion in the study because their maladaptive behaviors, such as aggression, SIB, and yelling previously prevented them from being placed in integrated employment. The researchers employed a multicomponent intervention consisting of rapport building with participants, offering of choice, embedding demands within preferred activities, functional communication training, and building tolerance

for delay of reinforcement. Targeted interventions were individualized and based on the hypothesized functions of the participant's problem behavior(s). Kemp and Carr (1995) were able to significantly reduce participant's maladaptive behaviors and increase time spent at work and productivity levels. This study is significant because rather than employing typical measures of duration and frequency of maladaptive behavior the authors employed measures of latency to problem behavior. This allowed the researchers to address severe problem behaviors in a community setting and prevent community members and employers from observing severe and intense problem behavior, social validity data was taken from the employer perspective. This study determined that individuals with severe problem behavior can be placed in integrated settings, individuals were not hired at the greenhouse but were eventually employed in similar community settings.

Mackey and Nelson (2015) used a multiple probe within participants design to measure amounts of appropriate behavior across five behavioral categories: task engagement, decision making, appropriate interaction, hygiene, and transitions. This study was implemented in two different warehouse settings, the participants were not paid and it was considered "experiential". The participants were two 19-year-old twins with autism who were selected because of their maladaptive behaviors on jobsites. The researchers used video feedback with the addition of job coach or job coach plus self- evaluation to measure rates of appropriate behavior and absence of problem behavior in employment settings. Behaviors addressed ranged from low stamina and work productivity to challenges with proper hygiene and managing frustration appropriately such as yelling, crying, and growling. The researchers employed a modified version of the Behavior Observation of Students in Schools (Shapiro, 1996) and improvements were observed in communication, pro-social behavior and frustration management. Researchers noted the

importance of training job coaches on data collection and behavioral interventions. No social validity data was taken and the employer's perspective was not solicited, employment outcomes were not mentioned.

Dunkel-Jackson and Dixon (2016) used a multiple baseline across participants design to increase measures of self-control and task engagement of employees in a restaurant setting. Participants were three adults with ASD who engaged in SIB, property destruction, outbursts, inattention, and noncompliance. Participants were referred for services because they engaged in maladaptive behavior during their work tasks in the restaurant. The authors' aims were to increase participant's capacity for self-control by measuring participant's decision to choose delay of reinforcement for a larger reinforcer at a later time while simultaneously increasing task engagement. The authors did not report on the decrease of participant's maladaptive behaviors and task engagement was measured in the breakroom of the work setting with tasks that were possibly related to participant's work tasks but were not the participant's actual work tasks. The study showed that participants with ASD can demonstrate self- control by delaying reinforcement and engaging in tasks but it is difficult to apply the study's procedures, interventions, and measures to employment outcomes. No social validity data was taken and employer perspectives were not solicited.

Experimental and Quasi-Experimental Designs

Elliott, Dobbin, Base, and Soper (1994) used a one factor repeated measures, quasi-experimental design. Participants were six adults diagnosed with autism and ID who were randomly assigned to various antecedent exercise conditions; rates of problem behaviors were measured after vigorous or nonvigorous exercise conditions. Out of the six total participants that participated, two were selected to receive the exercise intervention prior to arriving to their

employment setting. Reductions in maladaptive and stereotypic behaviors were observed in the two participants that were selected for training in community employment situations. This study is limited by its lack of demographic data, participant selection for employment conditions were not randomized, and reports of procedures for the various conditions is limited. There was very limited description of employment setting, procedures, and tasks. Elliott et al. (1994) used frequency counts to measure which behaviors improved, worsened or remained the same and demonstrated that there was a decline in maladaptive behaviors following the vigorous aerobic exercise condition only. This study demonstrated methodological weaknesses, particularly in the employment condition; however, it did provide a potential method of decreasing maladaptive behaviors prior to engaging in work tasks.

Wehman et al. (2017) published the only experimental study examining what types of supports facilitate employment for young adults with ASD. The 49 participants in the study, aged 18-21 with autism, received an intervention consisting of internship rotations, embedded vocational instruction in a classroom setting, plus the use of various ABA strategies such as task analysis, reinforcement, prompting, and functional behavior assessment (Wehman et al., 2017). The control group in this study received the traditional transition services provided by their local educational agencies. A standardized assessment, the Support Intensity Scale (SIS) was used to report on maladaptive behaviors of the studies participants and included behaviors such as aggression, property destruction, SIB, tantrums, wandering, and touching/ exposing self. At the conclusion of the intervention the treatment group demonstrated lower support needs compared to the control group. The study provides a table of various behavioral interventions that were used to support the students in their internship to employment experiences. This is a notable study as it is the first experimental study that directly reports on interventions that address

maladaptive behaviors in integrated employment settings, the study is limited by not identifying which aspect of the multicomponent experimental intervention or various behavioral interventions are responsible for participant's behavioral change on an individual level.

Case Studies

The author of the current review identified seven case studies that demonstrate interventions for maladaptive behaviors in integrated in work settings. The author chose to include case studies because while lacking in experimental rigor they provide important contributions to an understudied but vital aspect of supporting individuals with ASD and maladaptive behaviors in the workplace. Morgan and Schultz (2012) stress the importance of interagency collaboration between service providers and use of different assessments, including behavioral assessment, to increase work productivity and decrease a 19-year-old male with ASD vocal outbursts. Burt, Fuller, and Lewis (1991) provide three case study reports of adults with ASD whose maladaptive behaviors prevented entrance into integrated employment settings. The participants received interventions rooted in ABA and an intensive 4- month pre-work training program to decrease maladaptive behaviors and increase appropriate behaviors. All participants were successfully placed in integrated employment with the continued support of the job coach and implementation of the behavior plan.

Smith and Coleman (1986) presented three case studies of individuals with ASD and maladaptive behaviors in integrated employment settings. Three males in their twenties diagnosed with autism spectrum disorder with reported behaviors of hand flapping, grabbing others, hitting others, off task behavior and property destruction were included. The employment settings were a book bindery, a recycling plant, and a printing company. The interventions were individualized based upon the behaviors and needs of the three participants. Outcomes were

measured in terms of behavioral reduction and work productivity. The researchers concluded that behavioral interventions for severe problem behavior can be conducted within a workplace setting and that individuals with severe behaviors can be placed in integrated employment.

Schall (2010) presented a case study to illustrate the steps and procedures of using positive behavior interventions and functional behavior assessment to support individuals with ASD in the workplace. The participant, a 25-year-old man with autism engaged in loud vocalizations/ yelling and aggression in the workplace when he was frustrated. The authors implemented a multicomponent intervention with antecedent strategies, behavioral rehearsal and functional communication training to reduce frequencies of problem behavior in the work setting. Schall (2010) reports on the importance of training job coaches and that one of the main reasons adults with ASD require increased support in job settings is due to the presence of maladaptive behaviors.

Two case study articles were conducted in conjunction with the Wehman et al. (2017) RCT, Project SEARCH plus ASD Supports, out of Virginia Commonwealth University. Wehman et al. (2012) and Ham, McDonough, Molinelli, Schall, and Wehman (2014) presented case studies that provide a detailed description of behavioral interventions used to address maladaptive behaviors in a hospital employment setting. The 2012 study implemented visual supports, role play, self-management, and reinforcement on two participants ages 19 and 20 with autism who demonstrated cursing, inappropriate touching, and work avoidance. The 2014 case study article provided a detailed description of multicomponent behavioral intervention plans including self-monitoring, visual schedules, reinforcement plans, and behavioral rehearsal to decrease maladaptive behaviors such as aggression, property destruction, and crying and noncompliance. Both case study articles demonstrate how the use of functional behavior

assessment (FBA) in integrated work settings, identification of behavioral function and implementation of behavioral interventions rooted in ABA can lead to a decrease in maladaptive behaviors.

Gentry, Lau, Molinelli, Fallen, and Kriner (2012) conducted a study in partnership with the group out of Virginia Commonwealth University. The researchers used Assistive Technology (AT) to address challenging behaviors in a work setting. The researchers demonstrate how AT can support individuals with ASD at work. Specifically, the authors detail a case study of a young woman with maladaptive behaviors and describe how AT in the form of an iPod touch was able to support a job coach in decreasing instances of property destruction, crying, stomping, and inappropriate use of phone while also increasing the participant's ability to self-manage.

In sum, the current review identified three single case design studies, one quasi-experimental, one experimental, and seven case studies. The literature base is most limited due to the majority of the literature being case study research. Additional limitations would be the lack of procedural reporting, replication of the interventions in the reviewed studies would be difficult if not impossible. Additionally, while all the procedures took place in integrated settings with a focus on employability, the setting descriptions were often vague or took place in an integrated employment settings while not actually being employed.

Discussion of the Review

The current review examined the use of behavioral interventions, specifically to address maladaptive behaviors, within integrated employment settings for individuals with ASD, age 18 or older. The purpose of the review was to identify the current state of practice in addressing maladaptive behaviors in integrated employment settings with the intent of identifying ways to contribute to the research base and improve employment outcomes for individuals with ASD.

Preliminary evidence of the capacity for trained staff, such as job coaches, behavioral specialists and/ or researchers to support individuals with ASD and maladaptive behaviors in integrated employment settings is demonstrated. The identification of the need for trained staff aligns with research (Brock et al., 2016) that identified that if employment support staff *are* trained then they are likely involved in research studies. The majority of ES working in traditional employment support roles may not have the training to address behavior in integrated settings, a point that was identified three decades ago (Rusch & Hughes, 1996; Stevens & Martin, 1998). The majority of the research is case study design with a few single subject and experimental studies. Implications and limitations of the identified literature will be reviewed as well as future directions for the field.

Synthesis

Of the literature reviewed, only two SCD's address maladaptive behavior in integrated work settings with a focus on facilitating employment. Overall, reviewed studies were limited by lack of soliciting stakeholder feedback such as support staff, employer, or participant perspective. The amount of detail provided for employment settings, tasks, and training procedures were vague and present major barriers to replication. While all interventions took place in employment settings at some point in time the settings were not always paid employment settings or the actual settings in which participants were hired. Furthermore, staff support provided at the settings for behavioral intervention was not discussed in detail. In general, with the exception of Kemp and Carr (1995) and Mackey and Nelson (2015) behavioral interventions were not described with enough detail to allow for replication. The quasi-experimental design demonstrates major limitations in research quality, the employment reporting portion is limited to a few paragraphs of the entire study. Wehman et al. (2017)

provides support for the use of behavioral interventions as important components of an overarching vocational intervention but it is not clear what components of the behavioral intervention are responsible for the change in behaviors. Additionally, while the RCT provides evidence for the importance and ability to implement behavioral interventions in integrated settings, the overall focus of the study was not targeted specifically to one intervention but rather a treatment package. Of all the studies, only Kemp and Carr (1995) elicited feedback from the actual employment site in order to obtain social validity. None of the studies solicited participant or other stakeholder input. With an overall focus on improving employment outcomes for individuals with ASD it is necessary, not optional, to solicit feedback from employers on their perceptions of interventions, their impact on the employment setting, and perceptions of employability and/or job performance. It is also equally important to obtain other stakeholder feedback such as participants, job coaches or VR staff.

The bulk of the research identified in this review was case study research that provide small demonstrations of the possibility of using behavioral strategies to address maladaptive behaviors in employment settings to successfully support individuals with ASD to obtain and maintain integrated employment. The case studies provide support and an initial understanding of how it is possible to support individuals with ASD and maladaptive behaviors in integrated work settings with use of interventions such as antecedent strategies, visual supports, reinforcement, and self-management plans. However, case studies do not demonstrate experimental control and are limited in generalization and replicability; it is not possible to know if the interventions were the cause of the reported reductions in maladaptive behavior.

Wehman et al. (2017) demonstrated how an overarching vocational intervention with embedded behavioral technologies can lead to improvement in behavioral scores on a

standardized behavioral assessment. Experimental designs are an important contribution to the literature base and RCT's are more likely to be generalizable and replicable. However, there is a strong case for continued focus on SCD designs. SCD designs are designed to show individual change in behaviors and have shown the capacity to demonstrate reductions in challenging behavior and increases in appropriate behaviors (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). The multiple baseline design is a promising method for demonstrating experimental control in an integrated setting in which removing an intervention may not be appropriate, particularly one in which you are trying to gain employment. SCD designs are a promising research design for continuing to evaluate maladaptive behaviors in integrated settings. Additional promise is shown in the ability to conduct SCD within larger experimental designs and it is possible to evaluate interventions used in SCD designs in a meta-analysis and is a growing trend (Horner et al. 2005). The reviewed case study designs stand to benefit from being elevated to SCD designs and the large RCT could benefit from an analysis of the most effective components of intervention.

The identified literature provides preliminary evidence that it is possible to address maladaptive behaviors while individuals are working. The presence of maladaptive behaviors does not preclude an individual from employment nor mean that the individual is not "employment ready" and is thus more suitable for placement in a segregated setting. More specifically, the reviewed literature presented cases in which individuals with ASD who were previously excluded from integrated employment due to the presence of maladaptive behaviors were able to access and in the case of Wehman et al. (2017) maintain employment with targeted behavioral intervention plans implemented by trained staff.

A noted theme in the identified successful demonstrations is that in order to best support individuals with ASD trained staff are necessary to carry out intervention plans and collect data. Kemp and Carr (1995) and most of the case study designs developed individualized behavior intervention plans to address the hypothesized functions of the maladaptive behaviors that the participants engaged in. Conducting assessments to identify the functions of a behavior requires knowledge of ABA principles and procedures. Furthermore, carrying out behavioral assessment in integrated work settings requires oversight by trained staff or time to train staff in procedures. Schall (2010) and Wehman et al. (2014) discussed how the majority of adults in their studies engage in some form of maladaptive behavior and thus require intense and targeted support. Wehman (2012) reported on the importance of a behavioral specialist to support ES in behavior and autism strategies. Job coaches in Kemp and Carr (1995) received sixteen hours of training in crisis intervention plus eight hours of specific intervention training. Mackey and Nelson (2015) provided training to employment staff in positive behavior supports, data collection, assessment and specific trainings on behavior identification.

Research conducted in the 1980's and 1990's (e.g., Kemp & Carr, 1995; Smith & Coleman, 1986; Burt, Fuller, & Lewis, 1991) focused on the importance of addressing maladaptive behaviors in employment for individuals with ASD. In this time period evidence of Supported Employment (SE) as a method of placing individuals with significant disabilities in integrated employment was gaining momentum. These articles specifically address the need to identify methods of addressing maladaptive/challenging behaviors in employment settings in order to increase employment opportunities for individuals with ASD and prevent placement in segregated settings. The available research demonstrated that this topic was not addressed again until Schall (2010) purported that adults with ASD will more than likely require behavioral

intervention in order to obtain and maintain employment due to significant support needs and the presence of maladaptive behaviors. Originally, an emphasis was also placed on staff training to support individuals with maladaptive behaviors in employment settings. Duran (1984) mentions the importance of employment staff (i.e. ES, job coaches) being able to address and reduce challenging behavior in order to provide adequate support. Carr and Carlson (1993) suggested that formal education in Applied Behavior Analysis (ABA) is necessary in order for employment staff to implement function driven interventions and that the use of ABA procedures can facilitate increased community integration. Wehman and Kregel (1988) assert that the harder the individual is to place in employment then the more trained the employment support staff should be. Behavior management was a top five reported training need for ES staff supporting individuals with disabilities in employment (Everson, 1991). The preliminary literature base focused on integrated employment and discussed the need to implement behaviorally based interventions to address maladaptive behaviors in integrated settings with the support of trained staff.

Initially, there was a large crossover between Supported Employment and behavioral intervention. Wehman and Kregel (1985) demonstrated successful and large-scale use of supported employment to place individuals with significant disabilities in work settings. Not only was SE seen as a viable service model for placement in integrated work but this service also demonstrated the appropriate use of behavioral procedures in integrated work settings (Rusch & Hughes, 1989). However, Duran (1984) and Kemp and Carr (1995) noted the problem that there was a lack of behavioral intervention literature in integrated settings due to the fact that prior to SE individuals with disabilities and maladaptive behaviors were traditionally placed in sheltered or institutionalized settings.

Today, research demonstrates that employment outcomes for individuals with disabilities and particularly for individuals with ASD remain low. Despite initial demonstrations of placing individuals with maladaptive behaviors in integrated employment settings due to federal legislation and changing perceptions of employment and integration, the field has not progressed at an acceptable rate. There is a lack of focus and targeted research on intervention methods to support individuals with ASD and behaviors in employment settings. This lack of focus flies in the face of a targeted emphasis on improving and increasing employment outcomes for individuals with ASD. The lack of behavioral intervention research in adults and employment settings contradicts the knowledge that while many individuals with ASD show improvement in behaviors over the course of their lifetime, over half do not and continue to require targeted support.

Implications for Research

Almost forty years have passed since the initial identification of the problem. However, employment rates for individuals with ASD remain low. The majority of individuals with ASD continue to be placed in sheltered or segregated settings. Despite the initial call for interventions to address maladaptive behaviors in employment settings there has been minimal research conducted in this area. The majority of the research that has been conducted is limited and does not meet quality standards for educational research.

The results of the current review allow for multiple pathways to address the problem of supporting individuals with ASD to obtain and maintain integrated employment. Case study designs can progress to single subject designs with a focus on improving experimental rigor and establishing experimental control. There is a need to conduct additional SCD designs to demonstrate both the procedures and the possibility of implementing behavioral intervention

methods in integrated settings to reduce maladaptive behavior and support individuals with ASD to access employment. Continued and additional demonstrations of how to conduct behavioral assessments and implement functionally relevant interventions in integrated employment settings is needed. Additional research can also provide support for placing individuals, whose disability or behaviors may have prevented them from participation in employment, in integrated work with support rather than segregated settings. Additionally, how to train staff to support individuals with maladaptive behavior in integrated settings is an important aspect of future research. Brock et al. (2016) identified that unless employment staff are involved in research studies, they are not trained in evidence based practices. The reviewed research further confirms this statement, ES in research studies are trained in behavioral strategies and data collection (Kemp & Carr, 1995; Mackey & Nelson, 2015; Wehman, 2012). These ES also tended to receive supervision and training from behavioral specialists. For example, the type, amount, and components of staff training necessary to adequately prepare employment staff.

Additional research and focus is needed from all stakeholder perspectives in this line of research. The goal is to improve employment outcomes of individuals with autism and it is not possible to improve outcomes by solely focusing on behavior change at the participant and support staff level. In sum, the research stands to be expanded and improved in multiple areas. The results align with ecological systems theory and the understanding that multiple stakeholders are involved in this issue. Individuals with disabilities, their support staff, employment and VR service providers, community members and employers all play a role in supporting the improved employment outcomes of individuals with disabilities. Supporting individuals in integrated settings is possible but it requires a breadth of knowledge in employment supports, knowledge of ASD, knowledge and ability to address behaviors, and knowledge of general business practices.

Everson and O'Neill (1988) suggested that comprehensive needs assessments must be conducted in order to develop effective staff training in supported employment, the provision of training and then evaluation of training follow, respectively. More recently, the need for increased research in vocational support approaches for individuals with autism is identified but so far this area of study has not been influenced by a comprehensive needs assessment (Nicholas et al., 2015). Recent research also explores transition and employment services from the perspective of caregivers and individuals with autism (Anderson et al., 2017; Anderson & Butt, 2018). A small amount of research has elicited VR perspective on their capacity (Kester et al., 2019; Nicholas et al., 2015). No research, to date, has explored the perceptions of ES staff of their training needs, capacity, and explored challenges to supporting adults with autism to access employment.

Limitations of the Literature

The quasi-experimental design by Elliott et al. (1994) was characterized by a lack of reporting participant demographics, lack of randomization, and vague procedural reporting. The SCD designs provided limited setting information and could improve on social validity reporting. In general, case study designs do not allow for causal implications. A detailed description of the employment settings and vocational tasks were not often present (e.g. delivering pamphlets in a community (Elliott et al.1994), training in a restaurant breakroom (Dunkel-Jackson et al., 2016)). In addition, sometimes participants were paid and sometimes they were not (e.g, Mackey and Nelson (2015) were trained in an "experiential job site") and this was not accounted for in analyses. This has implications for whether or not employers would actually pay these participants for their work rather than allow for training and research at their place of business. In addition, demographic information and diagnostic validation were generally

not discussed in depth, limiting replicability. Research would be strengthened by adding detailed description of procedures for behavioral intervention, especially as interventions in integrated employment settings that may look very different from controlled clinic or educational settings in which more literature is available. Social validity data was also lacking in this literature.

Limitations of Systematic Review on Maladaptive Behavior in Employment

The current review has several limitations. First, the review was conducted by one author and some research literature could have been missed. The author noted that when looking for articles that specifically address maladaptive behavior in integrated work settings that different reviews would cite different articles as evidence of behavioral intervention in employment settings. In general, the definition of integrated work settings and maladaptive behavior varies. In this regard, additional research could either enlarge or limit these definitions to access more, less, or different qualities of literature. For example, the decision to include simulated integrated employment settings rather than integrated work settings would have increased the literature included. The author's inclusion criteria was specific in setting and for this reason chose to include case study research. Expanding the age range and setting could potentially open up the research base to include studies that meet quality research standards. The review could also be limited by publication bias in that researchers only want to demonstrate what interventions were successful. In behavioral literature it is also important to know what does not work or what does not work in certain settings.

Summary of Systematic Review

The purpose of this review was to gain an understanding of the current state of behavioral interventions and supports that exist for individuals with challenging behavior in integrated employment settings. This review provides preliminary evidence for the ability to integrate

individuals with ASD, who demonstrate maladaptive behavior, in integrated employment settings. From here, it is necessary to gain an understanding of what can be done to further support the integration of individuals with challenging behavior into the workplace. Also, ways to continue to address challenging behavior in employment settings and demonstrate to employers, VR, and community service providers that the presence of challenging behavior should not preclude an individual from participating in employment. Revisiting, expanding, and improving the initial and current work on this topic is an important pathway to increasing employment opportunities for individuals with ASD.

The literature on employment and VR professional competencies and training in conjunction with the available literature on the capacity to support adults with autism and challenging behavior in employment provided a foundation and justification for the current study. Before progressing to training development and provision it was beneficial to make an initial attempt to understand the needs and experiences of those working in the field and providing employment services to adults with autism.

Chapter 3

Methodology

In order to develop adequate and meaningful research it is important to hear from the perspective of stakeholders (Sosnowy et al., 2018). Over the past four decades, literature in autism and employment has consistently identified that a certain skillset is likely required, at minimum advantageous, for professionals supporting this population. To date, little research exists on the perspectives of VR and ES professionals on facilitating the employment of adults with autism and no research examined their perspectives on their training, training needs, and identified barriers to supporting adults with autism in employment, particularly through a behavioral lens. Given the emphasis on improving employment outcomes for adults with autism, there was strong justification for exploring the perspectives and experiences of key stakeholders who are instrumental in supporting individuals with autism to obtain CIE.

Large gaps exist in our understanding of the training these professionals receive, need, and what their current experiences and challenges are to supporting adults with autism in employment. It is difficult to move forward with adequate training nor inform policy without an understanding of the current state of affairs. A needs assessment was an initial, important glimpse into the current status of professional preparation for these stakeholders. Survey methodology was employed to identify the types of training received and training needs of employment specialists and VR providers in competencies and behavioral and instructional strategies known to facilitate employment for adults with autism. Additionally, survey methods identified experienced challenges in supporting adults with autism to access employment services, whether providers had experienced clients losing their jobs as a result of challenging behavior, and positive experiences supporting adults with autism to access employment.

The following research questions were addressed through survey methodology:

RQ1: What training do direct service personnel and VR counselors receive in autism and behavioral supports (competencies)?

RQ2: What levels of training do direct service personnel and VR counselors need in autism and behavioral supports in employment settings?

RQ3: What are VR providers and ES' perceived and experienced barriers to employment and receipt of employment services for individuals with autism?

RQ4: Are there differences between service providers in self-reported training needs?

The remainder of this chapter reviews the executed research design, a description of the implemented survey, participants, and administration procedures and management.

Research Design

A non-experimental, single-mode, web-based survey was employed to address the above research questions. Survey methods were an initial foray into the dearth of research that is currently available from the perspective of VR and employment specialists on their capacity to support adults with autism to access or maintain competitive integrated employment. While there is a clear identified need to provide training to these stakeholders, a comprehensive needs assessment can inform the development of training. Prior research demonstration of needs assessments that are conducted to inform the development of future training (Powell et al., 2019) provided a justification for the current needs assessment with similar aims.

According to Dillman et al. (2014) survey methodology is useful in identifying the attitudes of a certain group of persons and in obtaining answers to questions in order to solve a certain problem. In the current situation, there are increasing numbers of young adults with autism matriculating and entering the world of adulthood without viable employment supports

and who continue to demonstrate poor employment outcomes. The purpose of this survey was to identify what type(s) and level of training participants received, level of training need, and perceived and experienced barriers to providing employment services to this population. While it is reasonable to assume that a comprehensive training will be needed to improve the provision of services to adults with autism, this survey study aimed to identify *what* needs to be included in the training and what barriers are perceived through the voices of stakeholders who serve on the front lines and likely have the most direct contact in employment settings with individuals with autism. Results from this survey have the potential to impact future policy development and the development and provision of training for adult service providers supporting adults with autism in employment settings.

Survey Design Features

Hoonnakker and Carayon (2009) identify four methods of internet surveys: embedded surveys, attached text surveys, attached but self- executing surveys, and web-based surveys. This survey was a web-based survey, participants received a link and invitation to fill out a survey through their e-mail or through a post to their organization's member site. Initial research on e-mail based surveys tended to have low response rates; however, web-based surveys have similar response rates to postal mail surveys. Other benefits to web-based surveys include decreased cost and increased speed of return rates (Dillman et al., 2014; Hoonnakker & Carayon, 2009). Additionally, web-based surveys are the fastest growing survey methodology and data indicate that the general population is increasingly comfortable using computer technology (Dillman et al., 2014). A comparison of web and postal surveys provides recommendations on best practices for web- based surveys (Hoonnakker & Carayon, 2009). These best practices are recommended in order to increase response rate and decrease sampling error:

1. Pre-notification and invitation to participate in upcoming survey
2. Attempt to personalize invitation
3. Opportunity for monetary incentives
4. Scheduled reminders and requests to participate in survey

To the fullest extent possible, these practices were included in the survey design. Justification for not following some of these practices were discussed later and in the study limitations.

Awareness of our current climate provided additional justification for moving to a web-based survey. During survey development and recruitment there continued to be impacts to professional interactions and work environments due to the global pandemic caused by the novel coronavirus. There was an increased amount of work and communication that was occurring virtually and there was also fatigue as a result of virtual communication(s). Measures were taken to increase the response rate of participants. Research indicates that likelihood of response is impacted by exchange theory and the salience of the survey topic to potential participants. Dillman et al. (2014) developed their Tailored Design method based on this theory of human behavior. Participants engage in interaction based on perceived benefits and individuals are more likely to participate when they feel that they are helping a group or organization of which they are included. This survey was e-mailed and also shared on private member sites (APSE) to groups of employment support professionals. Survey invitations alerted potential participants to the importance of gaining their insight into professional preparation and also how to support individuals with autism to access employment. Survey invitations supported a request for 'help' and hopefully contributed to increased survey responses.

Best practice in online surveys suggests an advance paper letter alerting participants of the web-based survey that will be made available. This process has the potential to increase

awareness and interest, decrease deletion of e-mail, while simultaneously reducing low response rates (Leeuw, 2018). The original timeline planned to send an advance letter to both organizations. Due to feedback from the contacted organizations, one organization (ACRE) sent a letter alerting their organization of the upcoming survey invitation and also made them aware that multiple invitations and reminders would be forthcoming. Reasons for this were discussed in the administration procedures.

Finally, Leeuw (2018) mentions that attention spans are shorter when multiple devices such as mobile phones, tablets, computers are used to respond to surveys. Given the current state of the pandemic and work environments participants were likely busy and receiving increasing electronic communication requests. The survey was kept brief, under fifteen minutes, which was validated with pilot testing. Survey research finds that participants are more likely to respond when the e-mail is from a familiar organization (Dillman et al., 2014; Hoonnakker & Carayon, 2009). It was anticipated that delivering the survey link through a listserv that participants subscribe to would increase their willingness to participate. This listserv sends frequent e-mails about trainings and various items of interest to individuals in the field. Individuals on this listserv had received requests to participate in surveys before. As a result of these frequent requests, one organization determined that they would prefer another method of recruitment and dissemination of survey invitations.

Sample Selection

The target population of the proposed study were VR providers, employment specialist managers, and employment specialists supporting adults with autism to access employment. Participants were recruited from two national organizations, The Association of Persons Supporting Employment First (APSE) and the Association of Community Rehabilitation

Educators (ACRE). These organizations provide training, certification, and facilitate communities of practice for employment service providers. Participants were eligible to participate in the survey if they met the following inclusion criteria: age 18 or older, working full or part-time in the role of ES or VR provider, and residing in the United States of America.

Participants

VR Counselors. Individuals serving in this role are responsible for supporting individuals to prepare for, access and maintain employment. Their caseload consists of individuals who may have challenges due to their disability to otherwise access employment (Department of Ageing and Rehabilitative Services, n.d.).

Direct Service Personnel/Employment Specialists. Individuals serving in this profession help individuals with disabilities to search, apply, and learn their job duties. They typically support an individual through four phases of employment: assessment, search/ discovery, training, and follow-along services. The survey also included Employment Specialist managers.

There were multiple benefits to using a listserv for employment and rehabilitation professionals as a means of contacting participants. First, as mentioned earlier, individuals on this listerv had received requests to participate in surveys so this would be a routine request. Second, use of a national listserv would allow for the potential to contact a wide range of participants with backgrounds in providing employment services to adults in a range of geographic localities and who work through different adult service providers. Different service systems and localities may have different training requirements or options. Responses would be able to be generalized on a national level of current training, training needs, and challenges facing VR and ES serving adults with autism to access employment. A method of nonprobability

sampling, volunteer sampling, was used, where participants were invited to participate based on their membership to a listserv and their participation was dependent on their willingness to respond to request for participation. Volunteer sampling methods have implicit bias and issues with sampling, response, and nonresponse (Agresti & Finley, 2009). Sampling bias is inevitable in web-based surveys because individuals who do not have internet will not receive the survey (Kaczmirek, 2015). Participants had the option to share the survey link with individuals who might not have had access to the listserv or who were not members of the targeted organizations. For example, two participants asked permission to share the survey with employment service professionals in their state. Expert review and pilot testing addressed potential response bias due to unclear questions. Nonresponse bias were addressed through survey reminders. Within the survey, each section included a thank you for participation and a reminder that their input was important to creating a better understanding of the survey's purpose, as suggested by Dillman et al. (2014).

Survey Development

Development of the survey proceeded in four distinct steps: (1) review and modifications of prior needs assessments, professional competencies, and extant literature for item generation, (2) expert review of items included in survey, (3) pilot testing of survey to a subset of VR counselors and employment specialists, and (4) refining and finalizing the survey based on the pilot testing. The final survey was organized into four main categories: (1) demographic information of participants; (2) receipt and perception of training in autism, behavior, and employment; (3) level of training need in autism, behavior, and employment, and (4) perceived and experienced barriers to providing services and/or accessing employment for adults with autism. Survey questions consisted of a combination of both closed and open-ended questions.

Item Generation

Adaptation and Modification of Prior Needs Assessments. The survey was developed by adapting and expanding two existing needs assessments. One survey was a needs assessment of paraprofessionals in schools supporting adults with autism by Hendricks (2007): *A descriptive study of special education teachers serving students with autism: Knowledge, practices employed, and training needs [Doctoral dissertation, Virginia Commonwealth University]*. This study was a dissertation study completed in 2007 that had similar aims to the current study but was intended to reach a school-based population rather than service providers supporting adults with autism. Competencies chosen to assess general knowledge of autism and behavior were reviewed for inclusion in the current study.

The other survey, *A Survey of the training experiences and needs of paraprofessionals serving adults with brain injury,* was a needs assessment of paraprofessionals including job coaches, which explored perceived training needs and experiences of paraprofessionals working with adults with brain injury (Powell et al., 2019). Validity and reliability information was not available on this measure.

Both sets of researchers provided permission for their survey items to be reviewed and adapted for the current study and its intended population. The survey developed by Powell et al. (2019) provided the over-arching design of the current survey. The training content and experiences explored and validated in prior surveys were modified to reflect general autism characteristics and competencies to assess and respond to challenging behavior in adults with autism with an emphasis on employment settings. Additional included competencies were gleaned from the Association of Rehabilitation Educators (ACRE), the Skill Competencies for Professionals and Paraprofessionals in Virginia Supporting Individuals with Autism Across the

Lifespan, and empirical research on strategies known to facilitate employment for adults with autism (Wehman et al., 2017; Wehman et al., 2020).

ACRE Competencies. The first set of employment support staff competencies were developed in 2001 through an expert panel review process, the Association of Persons Supporting Employment First (APSE) refined and published these competencies. The ACRE competencies are based on the original APSE competencies and with the input of national level experts in the field of employment and rehabilitation. These employment competencies were most recently adjusted in 2021 to align with federal legislation and to incorporate newer employment models such as Customized Employment. Specific ACRE competencies to be assessed through participant self-report are in the domain: *Helping Individuals Meet Social/ Behavioral Expectations of the Workplace Culture*.

Skill Based Competencies for Professionals and Paraprofessionals. The Skill Competencies for Professionals and Paraprofessionals were also developed with national level experts in autism. These competencies were developed with four intentions: (1) assist service providers in identifying areas of need for professional development; (2) influence the development of coursework and certificate programs in institutes of higher education; (3) provide information to incorporate into existing courses and programs in institutes of higher education; and (4) guide the organization of staff development initiatives and selection of training topics (VCU Autism Center, 2020). Both of the above sets of competencies are part of larger documents that identify competencies across a range of domains in employment and autism. However, in order to keep the survey brief and to target the proposed research questions only competency areas in specific domains were addressed in the current survey.

Research Identified Strategies. Finally, evidence-based strategies were included in the survey. The modified survey focused on asking participants to report on training and training need on ABA techniques currently cited in the literature as being most effective in supporting adults with autism to access employment (Wehman et al., 2017; Wehman et al., 2020).

Modifications and adaptations ensured there was no redundancy across existing measures, competencies, and research items that were reviewed for inclusion in the final survey instrument. For example, participants were not asked about functional behavior assessment twice because it is both an identified ACRE competency and a Virginia Autism Council Skill Based Competency. Expert review and pilot testing further ensured adequacy and thoroughness of topics without redundancy.

Expert Review. After initial modifications to the survey individuals with extensive knowledge and experience in VR, employment, supporting individuals with autism, and behavior were asked to review the survey for content validity. Experts were identified through prior participation in research in the domains of autism, employment, behavior, and VR services. Experts with these qualifications are employed through the Virginia Commonwealth University-Rehabilitation Research and Training Center (VCU-RRTC) and other university research centers. National and state level experts were asked to participate in the survey review process. A total of five individuals were sent the initial version of the survey. These individuals were identified based on their experience in direct clinical roles and also research experience in autism and employment. Experts were asked to report on the appropriateness and thoroughness of the items included in the survey (Litwin, 1995). Experts were also asked to provide suggestions on the developed survey. Modifications were made to survey material based on feedback from expert review.

Five individuals responded to the request for expert review. Modifications to the identified survey included suggestions on clarity of questions and content. For example, providing an opportunity for participants to provide an 'other' response to questions asking participants to share their ethnicity or the type of training they had received. This helped to ensure participants could share background information if it was not covered in the drop down options. Modifications were also suggested to ensure that training content was applicable to employment service professionals and that the employment questions were geared towards competitive integrated employment rather than providing responses geared towards segregated or non-paid positions. Experts indicated that this survey explored an important topic and research gap. Once revisions were made to the initial survey questions, the finalized instrument was sent out to a selection of VR providers and employment specialists for pilot testing.

Pilot Testing: After obtaining permission from Virginia Commonwealth University's (VCU) Institutional Review Board (IRB), individuals serving as employment specialists and VR staff were invited to take the survey and provide feedback on the adapted instrument. Pilot testing asked participants the following questions (Litwin, 1995, p.7):

1. Is the vocabulary appropriate for respondents?
2. Is the type size big enough to be easily read?
3. Does the survey flow well?
4. Are the items appropriate for the respondents?
5. Are the items sensitive to possible cultural barriers?

Individuals participating in the pilot test were also asked to provide any other suggestions on improving the survey. Two VR counselors and four ES professionals provided input. Pilot testing indicated that the wording and text were clear, and the survey flowed well. Participants

did provide feedback on the autism severity question, but this question was retained based on diagnostic criteria in the most recent DSM-V **(**https://www.cdc.gov, 2022**).**

Refining and Finalizing. Final modifications to the survey were made based on feedback from the expert panel and pilot test prior to dissemination and request for survey participation.

Survey Description

After clicking on the survey link participants were initially shown an online consent page, after reading through the research consent form participants clicked 'yes' or 'no'. If participants clicked 'yes' then they proceeded to the demographics portion of the survey. If participants clicked 'no' then they were sent to a page thanking them for their interest but letting them know that they were not eligible to participate in the survey. Survey items were a mix of closed Likert-style questions and open-ended questions adapted from Powell et al. (2019). Powell et al. (2019) employed closed ended questions to explore participants' perceptions of received training and level of training need. Within this exploration the survey also asked participants to self- report on their level of confidence in their abilities to support this population. Survey sections 1-3 consisted of closed ended questions with drop down lists or Likert scale responses. Some questions, such as employment provider, provided an option to write in an 'other' response that was not accounted for in the drop down boxes. The final portion of the survey instrument consisted of open-ended response items. See Appendix A for a final copy of the survey instrument.

Section 1: Demographic Information (Items 1-11)

The demographics portion of the survey consisted of items one- eleven. The first portion of the survey collected participant demographic information to include their age, race and

ethnicity, level of education and state in which the reside. This section also gathered information about participants employment status such as part-time/full-time and for characteristics about the individuals with autism they served such as their age range and also the level of autism severity (1-3) that they served. This section also asked participants to identify what type of primary employment service they provide to individuals with autism (i.e., sheltered workshop, CIE, enclave, etc.).

Section 2: Training Received (Survey Items 12-18)

The second section of the survey gathered information on the type of training that participants had received and also their preferences for training format. This section also asked participants to share if they felt that the training they received instilled them with the knowledge, skills, and confidence to support individuals with autism. The latter portion of this portion of survey aligned with the third section of the survey. In these sections participants were asked to respond the amount of training they received on a Likert Scale ranging from [0] None, [1] A little, [2] Some, [3] Moderate, and [4] Extensive. This scale was applied to three major domains of training need: General Autism Characteristics, Behavioral Assessment and Support Competencies, and Skills to Facilitate Competitive Integrated Employment.

Training Preferences (Items 24-26). Three additional survey questions asked participants to respond to a series of closed ended questions asking for their preferred training format, challenges to the receipt of on-the-job training and if a certificate of completion would be beneficial.

Section 3: Training Need(s) (Items 19-23)

The third section of the survey asked participants to rate their level of training need on the same Likert scale they rated the amount of training they received in the three over-arching

domains: General Autism Characteristics, Behavioral Assessment and Support Competencies, and Skills to Facilitate Competitive Integrated Employment. The third section of the survey asked participants to identify the most important training topic out of the three domains and also included an open-ended response portion for participants to share if there were additional training topics that they felt would be important to include.

Section 4: Experiences Supporting Adults with Autism (Items 27-29)

The final portion of the survey included three open- ended question for participants to share what challenges they experienced supporting adults with autism, a success story in supporting adults with autism to access integrated employment, and whether or not they had an adult with autism losing employment as a result of behavior on the jobsite and the response of both the employment support staff and also the employer.

Survey Administration

IRB Approval

Initial approval from Virginia Commonwealth University's Institutional Review Board was received on May 17, 2021. Revisions to the survey administration procedures were made after meeting with the two organizations which agreed to disseminate the survey- further details on changes to planned procedures follows. Final IRB approval based on new administration procedures was received on May 27, 2022.

Recruitment Procedures

The researcher reached out to the boards of two professional organizations mentioned earlier, APSE and ACRE, to see if they would be interested and willing to participate in the survey by providing access to their listserv(s) and/or members for survey dissemination. Both APSE and ACRE were instrumental in developing competencies for employment service

professionals. APSE offers an exam to become a Certified Employment Service Professional (CESP) and ACRE is responsible for reviewing and accrediting training material. Both organizations are working to improve the preparation of employment service professionals with the intention to improve rates of integrated employment.

ACRE Recruitment. The Association of Community Rehabilitation Educators had contact information on their website for the member in charge of their listserv. ACRE was immediately responsive vie e-mail and contacted their leadership board to ensure that all were comfortable with survey dissemination. ACRE requested that the time points for dissemination be shortened and focus on time points where the survey link was included. ACRE was comfortable with the researcher sending the survey letters and they would push the survey invitation out to their members. ACRE was willing to push e-mails out to their listserv but in a limited capacity.

APSE Recruitment. The Association of Persons Supporting Employment first took several e-mail contacts before receiving a response. The Executive Director of APSE scheduled an introductory call to hear more about the survey, to ensure that the appropriate APSE members were involved, and also to discuss best methods of accessing participants and facilitating engagement with the survey. The director suggested that the person in charge of managing their online communication be the main contact person for survey dissemination. APSE did not want to send to their listserv and mentioned that their listserv had low response rates and readership.

Both organizations mentioned e-mail fatigue and low response rates, possibly as a result of the pandemic. As a result of input from the two organizations, recruitment for survey participation proceeded in three different methods but on a similar timeframe.

Survey Dissemination

ACRE pushed a total of four e-mails out to their listserv- a forewarning e-mail and three requests to complete the survey. The forewarning e-mail was developed by ACRE and let the listserv know that multiple survey invitations would be forthcoming. See Appendices B-D for copies of survey invitation letters sent to the ACRE listserv. APSE posted a forewarning link and three posts to their member page. In addition, APSE also invited the researcher to present a brief survey introduction and request for participation on two of their member calls. One call to their organization as a whole and one to a pre-employment transition services group that supports transition aged youth with accessing employment services. See Appendix E for the IRB approved script for recruitment calls and Appendix F for the survey invitation 'post' that appeared on their member page.

Dillman et al. (2014) provided an example timeline of web-based survey data collection procedure with a total of five contact periods in a little over a month's time. Contact dates were scheduled to occur on Days 1, 3, 9, 29, and 35. Hoonnakker and Carayon (2009) suggested a three contact web-based survey with three days on average in between to increase response rate. E-mail reminders were varied to encourage participation and decrease annoyance, which also has the potential to decrease the chances of the email request going to spam or being accidentally deleted (Dillman et al., 2014). Table 5 depicts the amended timeline and research activities. Amended procedures focused on survey contact points over a two-week period and removed the forewarning and thank-you letters. These modifications were based on feedback, requests, and willingness of the two targeted organizations to participate.

Table 5

Timeline of Dissemination Procedures

Day	Activity

Day 1/ June 20, 2022	First survey invitation pushed to ACRE listserv and first survey post to APSE member page
Day 3/ June 23, 2022	Second e-mail containing follow up to initial survey invitation, brief reminder of survey purpose and appreciation, and a link to the web survey.
Day 19/ July 6, 2022	2-week reminder e-mail, requesting participation and help in order to develop training to best support individuals with autism to access employment.
June 29, 2022	APSE member call
July 21, 2022	Join APSE Pre-ETS call

All survey invitations included researcher contact information if they had additional questions or feedback.

Data Analysis

The following section outlines the data analysis procedures broken down by research question.

RQ1: Research question one identified the type and receipt of training in autism and behavioral competencies. This question was analyzed through the use of descriptive statistics: numbers and percentages.

RQ2: Research question two identified participant self-reported levels of training need. This question was analyzed through the use of descriptive statistics: numbers and percentages.

RQ3: Research question three explored participants challenges in working with adults with autism, reasons for job loss, and also positive experiences. Research question three was qualitatively analyzed through the use of memos, coding and thematic analysis (Maxwell, 2013). First, the researcher read all open-ended responses and wrote down initial thoughts and ideas.

Second open-ended responses were categorized according to common themes and issues (Maxwell, 2013).

RQ4: Research question four compared training need based on professional designation of participants. This question was quantitatively analyzed through chi-square analyses and independent samples t-tests.

Table 6 outlines how each research question was analyzed along with sample research questions. It was anticipated that by using both qualitative and quantitative data analysis procedures that a richer and more nuanced data set could be analyzed (Powell et al., 2019). Additionally, the qualitative methods allowed for additional insight into the experiences of employment service professionals supporting adults with autism to access integrated employment as well as potential future training needs.

Table 6

Data Analysis Procedures for each Research Question

RQ1: What training do direct service personnel and VR counselors receive in autism and behavioral supports (competencies)?	
Independent Variable	-Service Provider
Dependent Variable	-Type training, training in general autism competencies, training in behavioral competencies

Sample Questions	-What training have you received? -To what degree do you agree or disagree that the training you received provided you with the **knowledge** needed to support adults with autism to access integrated employment? -To what degree do you agree or disagree that the training you received provided you with the **skills** needed to support adults with autism to access integrated employment? -Did you receive training in the following areas? -How **confident** are you in your ability to work with adults with autism in employment settings?
Analysis	-Descriptive Statistics
RQ2: What levels of training do direct service personnel and VR counselors need in autism and behavioral supports in employment settings?	
Independent Variable	-Service Provider
Dependent Variable	-Reported level of training need in general autism competencies, behavioral competencies

Sample Questions	-Based on your experience, rate the level of need for training in each of the topics listed below: -Of the following topics, check the most important -Are there any training topics that you feel would be important to include? Specify.
Analysis	-Descriptive Statistics
RQ3: What are VR providers and ES perceived and experienced barriers to employment and receipt of employment services for individuals with autism?	
Independent Variable	-Service Provider
Dependent Variable	-Reported Perceived and Experienced Challenges
Sample Questions	-What challenges have you experienced in supporting individuals with autism to access employment? -Describe a success story you have supported an individual with autism to access employment. -Describe a situation in which a person with autism lost employment due to the presence of challenging behavior. -Please describe the behavior and the response of employment support staff and the employer
Analysis	-Thematic Coding

RQ4: Are there differences between service providers in self-reported training needs?	
Independent Variable	-Service Provider
Dependent Variable	-Differences in reported training needs
Analysis	-Chi-square and Independent Samples t-test

Data Management

Study data were collected and managed using REDCap electronic data capture tools hosted at [Virginia Commonwealth University]. REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources (projectredcap.org).

Survey data were kept on this platform and then exported into IBM SPSS Statistics (Version 28). SPSS was downloaded onto the researcher's computer. Once exported into SPSS survey data were cleaned and coded. Participants that left more than fifty percent of survey items blank were removed from the dataset. Survey items that had an option to write in an 'other' response were reviewed to determine if the response fit into one of the provided categories.

Survey items were coded to make data analysis clearer. Data were accessed on a dual encrypted password protected VCU computer. Survey responses will be erased after five years.

Ethical Considerations

It is possible that participants did not feel comfortable answering questions about perceived barriers and challenges to serving adults with autism. This population continues to be placed in segregated or non-work settings or deemed unemployable. Participants may agree that adults with significant needs are not employment ready or do not belong in integrated employment. Response bias, where participants do not want to provide answers that are deemed socially unacceptable (Agresti & Finley, 2009), is a risk with the topic this survey is exploring. In order to address this potential bias and after discussions with the IRB review board there was no potentially identifiable information gathered from the survey and the option for monetary incentive was also removed so that no information that could be linked to participant responses was collected. Similarly, participants may not have felt comfortable responding about level of training received and/ or needed in order to more adequately serve this population. Again, participant responses were kept anonymous and participants were asked to provide their geographic location but were not be asked to report their place of employment.

Summary

A non-experimental, single mode, web-based survey was disseminated that employed both quantitative and qualitative data analysis procedures. Two key organizations, APSE and ACRE, that are responsible for the development and implementation of not only training but also the certification and preparation of employment service professionals were responsible for distributing the survey and providing access to their members. Study findings are presented in Chapter 4.

Chapter 4

Results

This chapter presents the results of a non-experimental web-based survey: *Training Needs and Challenges in Supporting Adults with Autism and Challenging Behavior to Access Integrated Employment*. Results are presented to address the research questions. First, participant demographics and employment characteristics are presented. Second, participant self-reported receipt of training is provided, followed by participant self-reported training needs in the areas of general autism characteristics, behavioral competencies, and skills to facilitate placement in integrated employment. Additionally, a comparison of training received and training need is presented. Participant responses to open ended questions exploring challenges and positive experiences are then categorized by overall themes and unique aspects. Finally, analyses are presented exploring if there were differences between service providers in self-reported training needs.

RQ1: What training do direct service personnel and VR counselors **receive** in autism and behavioral supports (competencies)?

RQ2: What levels of training do direct service personnel and VR counselors **need** in autism and behavioral supports in employment settings?

RQ3: What are VR providers and ES' perceived and experienced barriers to employment and receipt of employment services for individuals with autism?

RQ4: Are there differences between service providers in self-reported training needs?

Participants

Participant Demographics

Seventy-one participants consented to participate in the survey. Fifteen participants were removed for filling out less than 50% of the survey fields. A total of 56 participants were included in the final data analysis. Participants in the Training Needs and Challenges Needs Assessment ranged in age from 25-64 with the average age being 44 years of age. The majority, 71% (n=40), of the participants were female and 27% (n=15) of the participants were male. Most of the participants were white (84%, n=47) and non-Hispanic (93%, n=52). The respondents in this survey were highly educated with 96% (n=54) of respondents reporting some college, completing college, or graduate degrees. In fact, 35.7% (n=20) of participants had a graduate degree. This is significant given that this level of degree is not required for participants to begin a career as an employment specialist. Seventy-five percent of participants had either a college degree or had completed graduate school (n=42). A total of 17 states were represented in the survey with higher percentages of respondents in Virginia (25%, n=14), Rhode Island (14%, n=8), North Dakota (11%, n=6), Illinois (11%, n=6), and Ohio (7.1%, n=4). Table 7 presents additional information on respondent demographics.

Table 7

Sociodemographic Characteristics of Participants

Gender		
	n	%
Male	15	24.6
Female	40	75.4
	M	*SD*
Age	43.48	11.27
Education		
High School	2	2.8

	Some college	12	21
	College	22	36
	Graduate	20	40
Ethnicity			
	Hispanic	3	5
	Non-Hispanic	52	93
Race			
	Asian	1	1.8
	Black or African American	3	5.4
	White or Caucasian	47	84
	Mixed Race	2	3.6
	Unknown	1	1.8
	Prefer not to say	2	3.6

Participant Employment Demographics

Most of the survey respondents reported working full time in their fields (96.4%, n=54). Employment specialists made up the highest number of respondents (51.8%, n=29), followed by ES managers or supervisors (35.7%, n=20). A small number of respondents identified as VR providers, either VR counselor (3.6%, n= 2) or VR manager (1.8%, n=1). Three participants identified as "other" as an employment service role, such as directors (1.8%, n=1), customized employment specialists (1.8%, n=1), or job developer (1.8%, n=1).

The vast majority of participants (94.6%, n=54) reported a focus on integrated employment and supporting their clients to access integrated employment whether through the provision of supported employment services (82.1%, n=46), customized employment services (7.1%, n=4) or internship to employment settings (3.6%, n=2). A small percentage (3.6%, n=2) reported providing other types of services to adults with autism such as case management or

focusing on one aspect of employment services such as job development. Three participants reported a focus on non-integrated or non-employment settings such as facility-based non-work (1.8%, n=1) and community-based non-work (3.6%, n=2). Table 8 presents information on participant employment characteristics.

Table 8

Participant Employment Characteristics

Employment Status		
	n	%
Full-time	54	96
Part-time	2	3
Employment Position		
	n	%
VR Counselor	2	3.6
VR Manager	1	1.8
Employment Services Manager	20	36
Employment Specialist	29	52
Other	5	7
Primary Service Provided		
Facility-based non-work	1	1.8
Community-based non-work	2	3.6
Individual SE	46	77
Customized Employment	4	7
Other	3	11

Characteristics of Individuals with Autism Served

Survey questions asked participants to respond either 'yes' or 'no' to the level of autism severity served. Autism levels were based on the most recent DSM-5 which categorizes a diagnosis of autism on three different severity levels, a Level 1 (Requires Support), Level 2 (Requires Substantial Support), and Level 3 (Requires Very Substantial Support) (cdc.gov). Most participants reported serving individuals with either Level 1 support needs (62.5%, n=35) or Level 2 support needs (60.7%, n=34). Fifteen participants (26.8%) reported providing services to clients with Level 3 'Very Substantial Support' needs. These results indicate that the majority of participants are not serving individuals with the most significant support needs. Additionally, most participants reported serving clients between the ages of 18-25 (82.1%, n=46) and 26-64 (78.6%, n=44). Six participants reported serving clients older than the age of 64 (10.7%).

Training Received

Most Common Training Format(s)

Out of the seven possible training formats, the majority of respondents reported receiving training in the following formats: on-the-job (83.9%, n=47), through workshops (67.9%, n=38), and on-line curriculum (67.9%, n=38). Smaller percentages of participants reported receiving training through self-study (50%, n=28), coaching/ consultation (33.9%, n=19), and college courses (25%, n=14). Twelve and a half percent of participants reported receiving training in "other" formats such as professional certifications from ACRE or APSE (n=2), years of lived experience with family members with autism (n=2), extensive time providing support services to this population (n=1), or attending conferences (n=1).

Preference for Training Format and Barriers to Receipt of Training

Survey questions asked participants to respond 'yes' or 'no' to seven possible preferences for the format of training. Workshops were the most preferred training format (66.1%, n=37),

followed by learning with practice (53.6%, n=30), and online training (48.2%, n=27). Least preferred training topics included self-study (16.1%, n=9) and college courses (8.9%, n=5). Participants also reported 'yes' or 'no' on challenges to the receipt of on-the-job training. Highest reported challenges were time (75%, n=42), not having enough staff (60.7%, n=34), and funding (51.8%, n=29). Lower reported challenges were: training not offered (37.5%, n=21), supervisor support (16.1%, n=9), and technical infrastructure (8.9%, n=5).

Knowledge, Skills, and Confidence as a Result of Received Training

Participants were asked to report their level of agreement that the training they received instilled them with the knowledge and skills needed to support adults with autism to access competitive integrated employment. Responses were reported on a Likert scale of 0-4, with [0] being strongly disagree, [1] disagree, [2] neutral, [3] agree, and [4] being strongly agree. Participant responses were skewed towards a feeling of 'neutral' to 'agree' that their training instilled them with the requisite knowledge (n=55, M=2.56, SD=1.05) and skills (n=55, M=2.42, SD= 1.10). These results suggest that participants do not feel strongly that they possess the knowledge and skills to support adults with ASD to access employment. Figure 2 presents participant responses on 'Knowledge Needed' and Figure 3 presents information on 'Skills Needed.'

Figure 2

Training Provided with Knowledge Needed to Support Adults with Autism

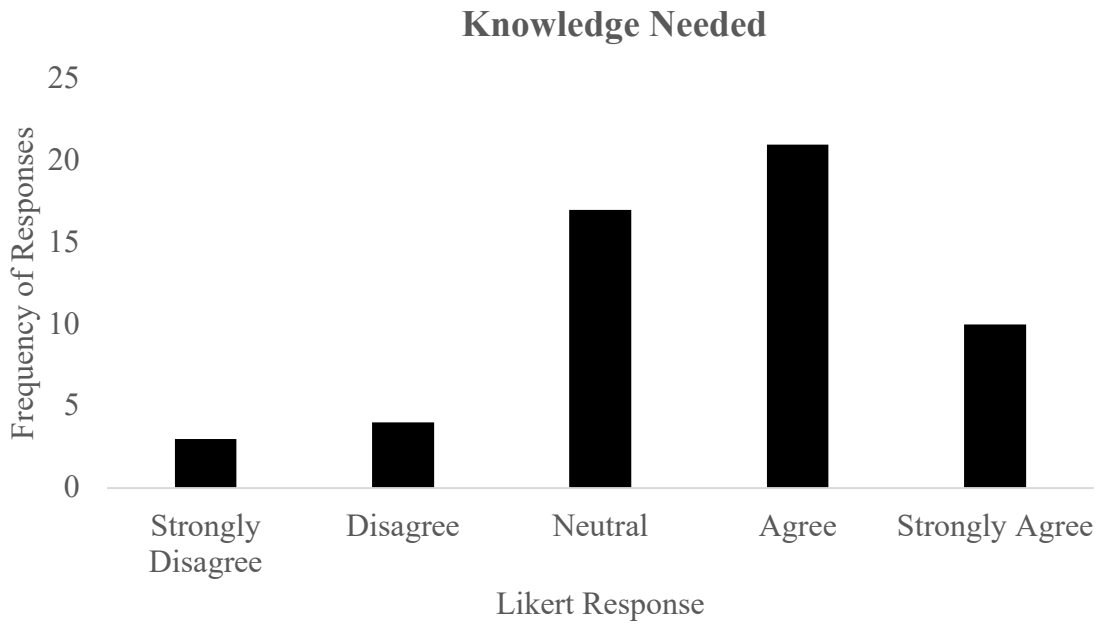
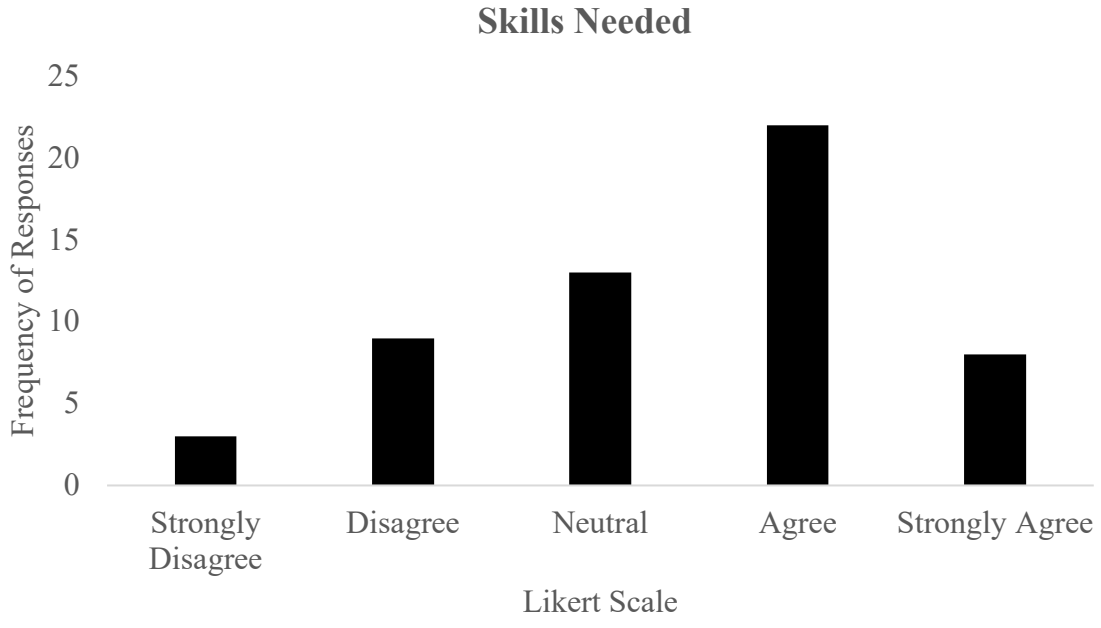


Figure 3

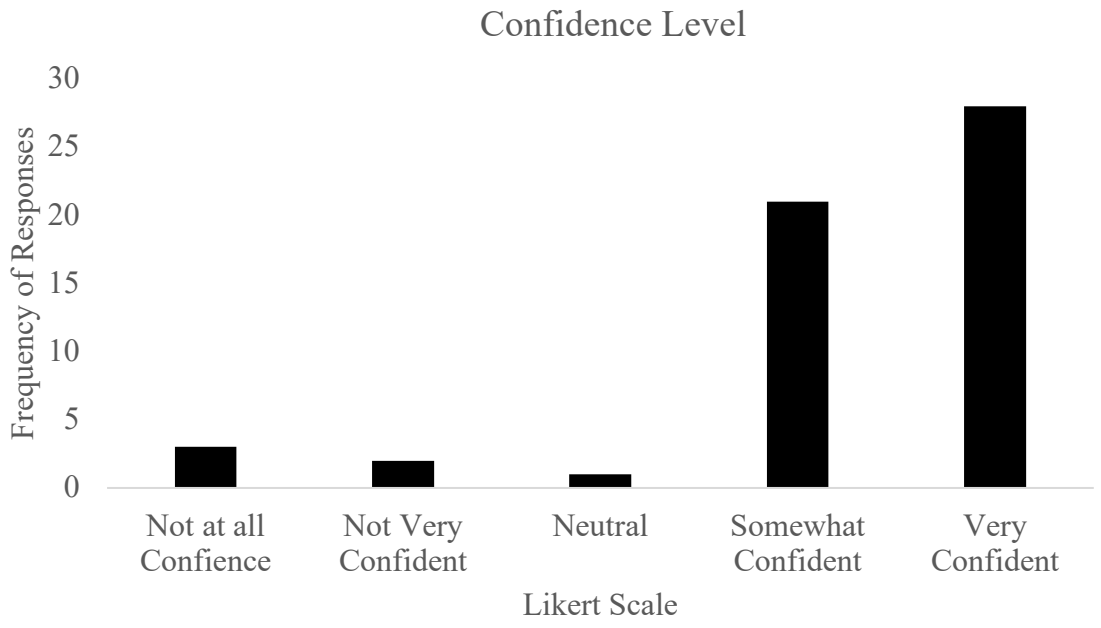
Training Provided with the Skills Needed



Participants were also asked to report their levels of confidence in working with adults with autism on a Likert scale ranging from [0] not at all confident, [1] not very confident, [2] neutral, [3] somewhat confident, [4] very confident. Average participant confidence levels were higher than self-reported skills and knowledge (n=55, *M*= 3.26, *SD*=1.06) indicating that participants were 'somewhat confident' to 'very confident' in their ability to work with adults with autism. Figure 4 depicts information on participant confidence level. Participants reported higher confidence levels that knowledge and skill in supporting this population.

Figure 4

Confidence in Ability to Work with Adults with Autism



Self-Reported Receipt of Training

Participants self-reported the amount of training they received in a total of 23 identified competencies broken into three different domains. Competency areas to report on the receipt of training were broken down into general autism characteristics (seven competencies), behavioral

support competencies (nine competencies), and skills to facilitate integrated employment (seven competencies). Responses were recorded on a Likert Scale from 0-4 with [0] being 'None', [1] being 'A little', [2] being 'Some', [3] being 'Moderate' and [4] being 'Extensive'. Overall, average training in the area of behavioral competencies was the lowest (M= 2.16) indicating slightly more than 'some' relative training followed by general autism characteristics (M=2.48) and skills to facilitate CIE (M=2.74). On average, participants did not report receiving moderate amounts of training in any of the overall competency areas.

Receipt of Training Across Competency Areas

General Autism Characteristics. Participants reported receiving the most training in characteristics of autism (M=2.83, SD=.93), patterns of communication (M=2.67, SD=.95), social skill characteristics (M=2.67, SD= 1.11), and sensory processing characteristics (M=2.59, SD=1.05). The lowest levels of training received in autism characteristics were medical issues associated with autism (M= 1.98, SD=1.07), other disabilities and conditions (M = 2.09, SD=1.03), and learning styles (M=2.54, SD=.96). Self-reported scores in general autism characteristics indicate that participants receive more training in characteristics of autism and less training in co-morbidities and medical issues. However, averages indicate that no training area edged into the moderate or extensive amounts of training.

Participant response patterns in the general autism characteristics domain are reported in Table 9. Most participants reported receiving moderate levels of training in characteristics of autism (43%, n=24), communication patterns (41%, n=23), and sensory processing characteristics (41%, n=23). Participants reported receiving 'a little' training in medical issues associated with autism (36%, n=20) and 'some' training in co-morbidities (38%, n=21) and learning styles (36%, n=20).

Table 9

Response Patterns Self- Reported Receipt of Training in Characteristics of Autism

Competency	*Score*									
	None		A Little		Some		Moderate		Extensive	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Characteristics of Autism	1	2	3	5	13	23	24	43	13	23
Medical Issues	2	3	20	36	14	25	13	23	5	9
Patterns of Communication	1	2	5	9	15	27	23	41	10	18
Learning Styles	2	3	4	7	20	36	19	34	9	16
Sensory Processing	2	4	7	12	12	21	23	41	10	18
Co-morbidities	3	5	12	21	21	38	13	23	5	9
Social Skills	2	4	7	13	12	21	19	34	14	25

Behavioral Assessment and Supports. Participants reported receiving the highest amount of training in behavioral characteristics associated with autism (*M*=2.63, *SD*= 1.14), describing events that precede challenging behavior (*M*=2.49, *SD*=1.14), and describing behaviors in objective and measurable terms (*M*= 2.44, *SD*=1.06). Self-reported lowest level of training received in behavioral assessment and supports were in developing a multi-component behavior intervention plan (*M*=1.77, *SD*=1.26), implementing a multi-component behavior intervention plan (*M*=1.77, *SD*= 1.27), conducting a functional behavior assessment to identify behavioral function (*M*=2.04, *SD*=1.36), analyzing data as part of the functional behavior assessment process (*M*=2.04, *SD*=1.34), and collecting data (*M*=2.11, *SD*=1.32). The lowest

average scores across the 23 competencies were found in the area of behavioral assessment and supports.

Table 10 presents information on participant response patterns in the Behavioral Assessments and Supports Domain. In the area of behavioral competencies, participants reported higher levels of training in behavioral characteristics, describing behaviors, and describing events that precede challenging behavior. Response patterns in this domain demonstrated a higher number of participants reporting that there were areas in this domain in which no training was received. For example, the number of participants that reported 'none' to 'some' training in the competencies of conducting functional behavior assessment, collecting and analyzing data, assessing consequences, and developing and implementing behavior intervention plans were higher.

Table 10

Response Patterns Self-Reported Receipt of Training in Behavioral Competencies

Competency	*Score*									
	None		A Little		Some		Moderate		Extensive	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Behavioral Characteristics	2	4	9	16	9	16	21	34	13	23
Describing Behaviors	2	4	9	16	14	25	21	38	8	14
Preceding Events	3	5	8	14	12	21	20	36	10	18
Conducting FBA	9	16	12	21	8	14	16	29	8	14
Collecting Data	9	16	8	14	12	21	16	29	8	14

Analyzing Data	10	18	8	14	13	23	14	25	8	14
Identifying Consequences	8	14	4	7	18	32	16	29	7	13
Developing a BIP	10	18	13	23	13	23	11	19	5	9
Implementing a BIP	12	21	9	16	15	27	13	23	4	7

Skills to Facilitate Integrated Employment. Average scores in this competency area were the highest out of any of the three overall domains. Participants reported receiving moderate training in prompting (*M*=3.19, *SD*=.65) and prompt fading (*M*=3.08, *SD*=.81), and close to moderate amounts of training in modeling (*M*=2.92, *SD*=.87). Lowest levels of received training were in the following areas: shaping (*M*=2.02, *SD*=1.29), generalization across environments (*M*=2.47, *SD*=1.15), and task analysis (*M*=2.72, *SD*=1.20). Skills that were identified in this competency area are not necessarily specific to supporting individuals with autism, despite being identified as helpful in the literature.

Table 11 presents information on participant response patterns in the area of employment competencies. As indicated in average response score participants report higher levels of received training in skills to facilitate placement in integrated employment. Over half of participants (52%, n=29) reported receiving moderate levels of training in prompting. Overall, response patterns in this competency domain tended towards ‘moderate’ or ‘extensive’ amounts of received training. Fewer participants reported receiving ‘no’ training in this domain.

Table 11

Response Patterns Self-Reported Receipt of Training in Employment Competencies

Competency	*Score*									
	None		A Little		Some		Moderate		Extensive	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Task Analysis	2	4	9	16	8	14	17	30	17	30
Shaping	9	16	13	23	9	16	12	21	10	18
Modeling	0	0	3	5	13	23	22	39	15	27
Generalization	2	10	10	18	14	25	15	27	12	21
Prompting	0	0	0	0	7	13	29	52	17	30
Prompt Fading	0	0	2	4	9	16	25	44	17	30
Cultural Norms	2	4	6	11	10	18	17	30	18	32

Training Need

Self-Reported Training Needs

Competency domains for respondents to report their training needs were the same as categories to report level of training received. Identified skills and competencies were broken down into general autism characteristics, behavioral assessment and support, and skills to facilitate placement in integrated employment. In general, respondents reported slightly higher levels of training need than levels of training received. Skills to facilitate integrated employment received the highest average training need score (M=2.78) followed by general autism characteristics (M=2.48) and behavior supports (M= 2.30). This indicates that participants generally report some to moderate levels of training needs despite reporting receiving some to moderate amounts of training in these areas.

Self-Reported Training Need Across Competency Areas

General Autism Characteristics. Highest levels of self-reported training needs in general autism characteristics were learning styles (*M*=2.67, *SD*=1.09), sensory processing characteristics (*M*=2.62, *SD*=1.09), and patterns of communication (*M*=2.58, *SD*=1.16). Competency areas participants reported the lowest level of training need are medical issues (*M*=2.19, *SD*= 1.08), other disabilities and conditions (*M*=2.34, *SD*=1.09), and characteristics of autism (*M*=2.43, *SD*=1.07). Participant response patterns in characteristics of autism are reported in Table 12. Participant response patterns in this domain are skewed towards reporting 'some' to 'extensive' training needs while lower percentages of respondents reported needing 'no' to 'a little' training.

Table 12

Response Patterns Self- Reported Training Need in Characteristics of Autism

Competency	*Score*									
	None		A Little		Some		Moderate		Extensive	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Characteristics of Autism	2	3	9	13	14	20	20	29	8	11
Medical Issues	3	4	12	17	14	20	18	26	5	7
Patterns of Communication	2	3	8	11	14	20	14	20	14	20
Learning Styles	1	1	8	11	12	17	17	24	14	27
Sensory Processing	1	1	8	11	12	17	17	24	14	20
Co-morbidities	3	4	8	11	15	21	17	24	7	10
Social Skills	3	4	8	11	12	17	15	21	14	20

Behavioral Assessment and Supports. Participants reported the highest levels of training need in describing behaviors in objective and measurable terms (*M*=2.47, *SD*=1.12), describing events that precede challenging behavior (*M*=2.43, *SD*=1.12), and behavioral characteristics associated with autism (*M*=2.40, *SD*= 1.31). Lowest reported training needs were in developing a multi-component behavior intervention plan (*M*=2.11, *SD*=1.37), implementing a multi-component behavior intervention plan (*M*=2.19, SD= 1.35), and analyzing data (*M*=2.21, *SD*= 1.37).

Participant response patterns in Behavioral Competencies are more dispersed, specifically across the response options of 'A Little' to 'Moderate'. However, few participants report that 'no' training is needed in any of these competencies. Table 13 presents an overview of responses in Behavioral Competencies.

Table 13

Response Patterns Self-Reported Training Need in Behavioral Competencies

Competency	*Score*									
	None		A Little		Some		Moderate		Extensive	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Behavioral Characteristics	1	1	12	17	9	13	17	24	8	11
Describing Behaviors	1	1	11	16	9	13	17	24	9	13
Preceding Events	0	0	12	17	12	17	14	20	9	13
Conducting FBA	4	5	13	19	7	10	11	16	12	17
Collecting Data	4	6	11	16	11	16	10	14	11	15

Analyzing Data	5	7	12	17	10	14	8	11	12	17
Identifying Consequences	2	3	11	16	12	17	13	19	9	13
Developing a BIP	7	10	11	16	8	11	12	17	9	13
Implementing a BIP	6	9	10	14	10	14	11	16	10	14

Skills to Facilitate Integrated Employment. Top reported training needs in skills to facilitate employment were prompt fading (*M*=2.98, *SD*=1.09), cultural norms (*M*=2.89, *SD*=1.20), and prompting (*M*=2.87, *SD*=1.15). Lowest reported training needs were shaping (*M*=2.55, *SD*=1.21), generalization across environments (*M*=2.64, *SD*=1.19), and task analysis (*M*=2.74, *SD*=1.24). Average participant responses were higher in participant self-reported training need in the area of Skills to Facilitate Placement in Integrated Employment. Again, participant response patterns are skewed toward 'some' to 'extensive' reported training needs. Response patterns are presented in Table 14.

Table 14

Response Patterns Self-Reported Training Need in Employment Competencies

Competency	*Score*									
	None		A Little		Some		Moderate		Extensive	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Task Analysis	4	6	4	6	7	10	17	24	15	21
Shaping	4	6	6	9	7	10	20	29	10	14
Modeling	2	3	2	3	13	19	16	23	14	2
Generalization	3	4	6	9	8	11	18	26	12	17

Prompting	3	4	3	4	7	10	18	26	16	23
Prompt Fading	2	3	3	4	7	10	17	24	18	26
Cultural Norms	4	6	2	3	6	9	18	26	17	24

Comparison of Amount of Training Received and Reported Training Needs

Table 15 presents a comparison of participants average self-reported receipt of training and training need across the three over-arching competency areas. Out of the 23 identified competencies, participants tended to report higher levels of training need across most competency areas with the exception of: characteristics of autism, communication patterns, and social skill characteristics, behavioral characteristics associated with autism, describing antecedent events, modeling, prompting, and prompt fading. Participant self-reported amount of training received and amount of training needed tended to align. For example, areas in which participants reported not receiving training also tended to be areas with lower self-reported training need. Likewise, areas in which participants reported receiving high amounts of training also tended to be competency areas where participants reported high amounts of training need. This is most evident in the employment skills domain.

In the general autism characteristics domain participants reported receiving low levels of training and low levels of training need in medical issues and comorbidities. However, participants reported receiving higher levels of training in sensory and social skills and this is also an area where higher training needs were reported. Learning styles reported receiving the lowest amount of training but were the top training need in this domain. Characteristics of autism received the highest amount of training and were a lower reported training need.

The lowest average levels of training received and levels of training need were reported in the behavioral assessment and supports domain. Participants reported receiving the most training and the highest training needs in the same three competency areas in the behavioral assessment and supports domain (behavioral characteristics associated with autism, identification of antecedent events preceding challenging behavior, and describing behavior in objective and measurable terms). There was also alignment between lowest levels of received training and training need. Developing and implementing behavior intervention plans and analyzing data received the lowest amounts of training but also were not rated as high need areas either. This indicates that participants perhaps do not feel that these competency areas are as influential in supporting adults with autism in employment.

Participants reported receiving the highest amounts of training and highest training needs in the same three competencies in the employment skills domain. Prompting and prompt fading received some of the highest average scores both as competency areas that received training and also competency areas that are in need of training. This may be indicate that the majority of survey respondents are supporting individuals to access integrated employment and prompting is a major part of not only skill acquisition but also in the plan to facilitate independence in the worksite which is an overarching goal of SE services. Additionally, identifying cultural norms and supporting an individual to acquire skills and meet social and behavioral expectations of a workplace, received higher amounts of training and also reported training need. Again, direct alignment was also observed here in lowest reported areas of training need and areas of received training (generalization, shaping, and task analysis).

Table 15

Comparison of Average Scores in Self-Reported Receipt of Training vs. Training Need

Competency	Self-Reported Receipt of Training		Self-Reported Training Need	
	M	*SD*	*M*	*SD*
Characteristics of autism	2.83	.93	2.43	1.07
Medical issues associated with autism	1.98	1.07	2.19	1.08
Patterns of communication development	2.67	.95	2.58	1.16
Learning styles associated with autism	2.54	.96	2.67	1.09
Sensory processing characteristics	2.59	1.05	2.62	1.09
Other disabilities and conditions	2.09	1.03	2.34	1.09
Social skill characteristics	2.67	1.11	2.56	1.21
Average	2.46		2.48	
Behavioral characteristics	2.63	1.14	2.40	1.31
Describing behaviors in objective and measurable terms	2.44	1.06	2.47	1.12
Describing events that precede behavior	2.49	1.14	2.43	1.09
Conducting FBA	2.04	1.36	2.30	1.35
Collecting data	2.11	1.32	2.28	1.30
Analyzing data	2.04	1.34	2.21	1.37
Identifying consequences maintaining behavior	2.19	1.27	2.34	1.17
Developing a BIP	1.77	1.26	2.11	1.37
Implementing a BIP	1.77	1.27	2.19	1.35
Average	2.16		2.30	
Task Analysis	2.72	1.20	2.74	1.24
Shaping	2.02	1.29	2.55	1.21
Modeling	2.92	.87	2.81	1.06
Generalization across environments	2.47	1.15	2.64	1.19
Prompting	3.19	.65	2.87	1.15

Prompt Fading	3.08	.81	2.98	1.09
Identifying cultural norms and supporting an individual to meet social and behavioral expectations	2.81	1.14	2.89	1.20
Average	2.74		2.78	

Participants were asked to choose the most important training topic out of the three overarching competency domains: autism characteristics and symptoms, behavioral assessment and supports, and skills to facilitate placement in competitive integrated employment. More than half of participants identified skills to facilitate integrated employment as the most important training topic (55.4%, n= 31). This aligns with this domain receiving the overall highest average scores in both receipt of training and training needs. The second most important training topic domain was behavioral assessment and supports (19.6%, n=11) followed by autism characteristics and symptoms (14.3%, n= 8).

Additional Training Needs

Participants had the option to share additional training needs in an open-ended section of the survey. Thirteen participants filled out the "other" category for additional training topic needs. Four participants reported that no additional training was required at this time. Additional training requests fell into needs related to the provision of employment services to individuals with autism, training needs on a system wide level, and autism and behavior related supports. Employment training related topics demonstrated a need in providing training to co-workers working alongside individuals with autism (n=1), making strong job matches and developing goals for employment based on the *ability* to identify someone's skills interests (n=2), and training to increase support on a broader level rather than placing the onus on employment

service providers (n=1). Additional requests for training involved dual diagnoses such as supporting individuals with autism and mental health (n=1), training for social/emotional needs to include dating (n=1) and recognizing the individuality of persons despite having received the same diagnosis (n=2), participants also reported additional training needs in behavior (n=2).

Challenges and Successes in the Provision of Employment Services

The final portion of the survey asked participants to respond to a series of open-ended questions. Question**s** asked participants to share what challenges they had experienced working with adults with autism and also to share a success story supporting an individual with autism to access employment. Participants were also asked to share if they had ever had someone with autism lose employment due to the presence of a challenging behavior and to report on the responses of both the employer and employment support staff. Responses to questions were read through to identify common themes within each question. Participant responses were then coded according to identified themes. Themes identified in each open-ended question are presented below.

Challenges to Working with Adults with Autism

This question had the highest number of overall responses. Thirty-six participants responded to the open-ended question '*What challenges have you faced when working with adults with autism?*'. Participants report that adults with autism come to them ill prepared for the expectations of employment and that helpful information is not forthcoming from parents and schools. Challenges related to training and knowledge on the part of stakeholders is reported. Participants report that staff do not have the knowledge and training to support this population. Participants also reported challenges related to general infrastructure. For example, funding, identification of resources, and transportation were cited as challenges to working with this

population. These results suggest that while there are challenges to supporting adults with autism at an individual level; that there are larger systemic barriers that impact an agency's ability to serve this population. For example, a lack of funding that may prioritize training for serving this population or providing comprehensive supports to adults with significant support needs and barriers.

Eight over-arching themes were identified in participant responses to this question: behavioral challenges, support needs related to the characteristics of autism, lack of staff training and knowledge, challenges related to a lack of infrastructure, recognition of the individual needs of this population, lack of support from schools and family, employer biases and lack of knowledge, and communication amongst providers/ stakeholders. Often, responses were coded into more than one theme. For example, one statement 'transportation, low reading skills, and employer biases are the three big challenges' was coded into three different identified themes. Behavioral challenges were the most commonly identified theme (30%) followed by needs related to the characteristics of autism (25%) and lack of staff training and knowledge (22%). Table 16 provides example statements in each of the themes related to *challenges faced when working with adults with autism*.

Table 16

What challenges have you faced when working with adults with autism?

Theme	Comments
Behavior Challenges	PWD exhibits undesirable behavior on the job
	Verbal outbursts, hitting, covering ears
	I've worked with adults with autism in the past, but have just started in this position of

	Job Developer. If I can think of one thing off the top of my head, it might be rigidity and difficulty with compromise + flexibility.
	Challenging behaviors on the job (aggression, avoiding work, personal relationships, boundaries, initiative, problem solving)
Support Needs Related to Characteristics of Autism	Non-verbal and has no assistive tech to help him communicate
	Not knowing enough about their behavior challenges, learning style, and preferences
	Misunderstanding communication styles
Staff Training and Knowledge	Lack of communication and sensory training
	Staff with lack of knowledge of how to support individuals with autism
	Understanding that strategies are a toolbox and when one doesn't work, don't be afraid to try something else.
Infrastructure	Finding appropriate resources (which relate back to funding)
	Transportation
	Government infrastructure doesn't fund or support
Understanding the individualized nature of individuals on the spectrum and developing appropriate supports	Understanding that it is not a "one size fits all" approach and that working with individuals who are on the autism spectrum requires a truly individualized approach
	Understanding that autism is a spectrum and no two people on that spectrum are the same,

	but at the same time there are common characteristics that are helpful to understand. Each and every individual is different
Preparation from parents and schools	Lack of schools and parents teaching skills for independence prior to seeking out employment opportunities. We have worked with people 18-25 who have never been in public without their mother, never crossed the street without their mother, never wiped a table, picked up a toy or personal item, never walked from class independently….. We have also had have had schools providing students with one on one para support for all of their school careers and then expect Employment Specialists to get this person a job being competitively employed in the community.
Lack of knowledge and bias of employers	Employers/coworkers lacking knowledge of disability and reacting negatively Getting employers to open up to the idea of hiring our people
Communication among providers	How best to work with that person. A lot of times when they get to the employment piece of their plan, they just hand it off to us without introductions, background information. Transparent communication between consumers and families

Job Loss as a Result of Behavior

Thirty-three participants provided answers to the open-ended question *'Have you ever had a person with autism lose employment due to the presence of a challenging behavior? If so, please describe the behavior and the response of employment support staff and the employer.*"

Of the thirty-three responses, ten (30%) of the responses were 'no's' or similar indications that this was not something they had experienced. One participant reported that while challenging behavior occurred many times, the employer was open to education and training on the part of the employer/co-workers and retraining on the part of the person with a disability. Five themes were identified in relation to challenging behaviors causing job loss: general disruptive behaviors (30%), challenging behaviors (27%), social/ communication behaviors (21%), mental health or co-occurring disorders (9%) and a general affirmation that the participant has had individuals lose employment due to the presence of a challenging behavior (9%). General disruptive behaviors were identified as behaviors that were more likely to relate to having a diagnosis of autism such as rigidity or impulsivity. Challenging behaviors were identified as aggression, yelling, or disrupting property. Table 17 has examples of responses from participants related to job loss due to the presence of a challenging behavior.

Nine (27%) of the thirty-three responses shared information on how the job coaches and employers responded in these situations, outside of termination, as related to the over-arching question. Sixty-six percent of the responses on behalf of the employment specialists involved additional meetings with the employer and additional coaching on site to address and clarify the issues. For example, one participant reported '*we attempted additional coaching support on-site to help navigate the scenarios and possibly identify the preceding events/situations but the client was unable to participate in the process*.' Forty-four percent of the responses mentioned different interventions to try and prevent job loss. For example, '*I tried a social story to help her understand. She was caught again and then fired*.' Additional factors related to job loss due to the presence or perception of behaviors are worth noting. One job loss was reported due to the individual with ASD '*forming a negative relationship outside of work*' after five years of success

in integrated employment. Another participant mentioned bullying from HR and co-workers on-site, '*She was "tested" by dep staff leadership on her level of autism by throwing a metal bowl to the floor to see if the sound affected her.*'

Table 17

Loss of employment due to the presence of a challenging behavior

Theme	Comments
General Disruptive Behavior	A young man I worked with struggled with controlling impulsive behaviors and it became too much for the employer.
	After 5 years of success in a community job, with coaching/fading, this individual was let go for noncompliance at work (falling asleep, poor hygiene, in appropriate attire) this occurred after forming a negative relationship outside of work.
	Trouble accepting constructive criticism
Challenging Behavior	Yes, due to physical aggression toward others which wasn't tolerated.
	Yelling at the employer and being frustrated in the front of the store at the service desk.
Social Communication Challenges	She tried to tell people when to put items in the recycling versus the trash cans, but often came off as abrasive.
	Difficulty dealing with co-workers
	Yes, the consumer was hugging and touching his coworkers in ways that made them uncomfortable.

Mental health/ co-occurring	Yes, due to anxiety and people exposing him to COVID-19. We are not able to save his job, nor was his employer able to carve him a job he felt safe in.
Not experienced job loss due to behavior	I have worked with many people who have had challenging behaviors at work and have had disciplinary responses from their employer, but the employer was open to education and working with the employee and their coach to retrain and ensure the expectations were understood so that they could be met.

Success Story Supporting Adults with Autism to Access Integrated Employment

Thirty-three participants shared success stories they had supporting an individual(s) with autism to access employment. These responses tended to be longer, provide more information, and were multi-faceted in the information that the participants chose to reflect. A strong theme of the importance of the job coach and the importance of the job coach in making a job match were clearly evident. Identified themes in this category were: the importance of the job coach (48%), making a strong job match (36%), benefits to the person with autism as a result of employment (27%), overcoming challenges/ reports of barriers to employment (24%), usefulness of supports (18%), general successes with placement (18%), retention of employees (12%), and the impact of co-occurring disorders (12%). General success stories did not provide sufficient detail to be assigned to any of the identified themes. The majority of participant responses were coded into more than one theme. Of particular interest are some of the positions that were identified for persons with autism in this section, usually as a result of customized employment strategies such as Discovery, such as a wedding event assistant, website designer, and security guard. Also, the terminology that participants used to share their success stories stood out while reviewing

responses for common themes and unique aspects such as: *flourishing, thriving, and excelling*. Retention rates ranging from 8 months- to 10 years were reflected in participant comments. Table 18 shares some of the success stories identified within themes.

Table 18

Success Story Supporting an Individual with Autism to Access Employment

Theme	Comment
Importance of Job Coach	Working with an appropriately trained CRP who knows how to assess for and implement supports as well as being able to adjust on the fly I have a young man who has extreme difficulty with verbal expression. Job accommodation is to use the chat feature and email for all communication. Prior to meetings, he is given an agenda with highlighted places that require his involvement. He prepares with job coach ahead of meeting what he needs to share and shares via written or pictorial responses. He is employed in website design.
Importance of a Strong Job Match	Had a client that was high functioning, but limited in social skills and avoided eye contact entirely. He completed Project SEARCH internship program prior to seeking independent employment. We were able to identify conversational topics that seemed to relax his anxiety and engage him more. One of these topics was movies, so we navigated him a position with a local movie theatre where he was naturally more comfortable…..
Benefits of Employment	An autistic employee would become so anxious before and during work shifts that he would vomit. It took 3 jobs before landing one that he was comfortable enough with. He is now making friends from work and getting good reviews. He has been employed for about 6 mo.

	I was given a case of an adult woman that was in her 50's and have not had previous employment history. At first she did not want to engage, and was hesitant to have have the conversation about employment. After many months of working with her and her feeling comfortable with me she is now gainfully employed and had told me tht she is very grateful for the work I did with her, that it has change her life. She is happy, and has a sense of purpose that she did not have prior
	Jonny got a job and made friends there
Overcoming Reports/ Challenges	I was asked to do a vocational evaluation with a young lady with ASD and "on paper" it seemed she was not going to be successful…I suggested rather than doing paper tests that we try a hands on work experience……
	I found a job for a client who I was told would not work unless he was completely invested in the task. The training was difficult initially, but the client has been employed for more than a year and is satisfied with his job.
Usefulness of supports	I have one client who I was told would be a difficult case and that he would not engage in a task unless he was sincerely interests in it. Through the help of his natural supports as well as visual aids, he has been successfully employed for 8 months. He and his supervisor are both satisfied and he has a provided a valuable service to the business.
General successes with placement	We have supported numerous individuals in finding and maintaining employment, some for over 10 years.
	I have had great success at the ___ Project SEARCH site placing graduates into full-time federal employment with full federal benefits.
Retention of employees	Supported employment for 2+ years; however, still struggles due to lack of residential supports.

Impact of co-occurring disorders	I am currently working with a veteran who has autism and PTSD. He is flourishing as a security guard in a medical mall setting. He has a set routine and interacts well with incoming patients as needed. We supported a young adult woman with autism and major depression pursue her employment goal of cashiering…. With the support of a job coach, she obtained PT employment… she received job site training and is thriving in this position

Participant's open-ended responses reflected the importance of identifying the needs of the person being supported- whether related to the presence of challenging behavior, having a diagnosis of autism, or co-occurring disorders such as anxiety and depression- and responding appropriately. Additionally, while these were all mentioned as challenges in working with this population, they were reflected in at least a third of the success stories as well.

Differences in Reported Training Need by Provider

There were no significant differences found between providers (VR counselors, VR manager, ES manager and ES) and training needs in the categories of autism characteristics, behavioral assessment and supports, and employment competencies. However, when these four professional groups were collapsed into two groups based on a professional designation (VR or ES manager) and serving in a non-managerial position (ES/ direct service) there were significant differences in the following self-reported training needs: learning styles associated with autism, sensory processing characteristics, generalization across environments and in the identification and training of cultural norms. Across all four competencies ES reported more extensive training needs while managers reported moderate training needs. Forty-eight percent of managers reported moderate training needs whereas 38% of ES reported extensive training needs

($\chi 2$=9.538, *df*=4, *p*=.048) in learning styles associated with autism. Relationships between provider roles were most significant in the area of sensory processing characteristics; 55% of managers reported moderate training needs whereas 37% of ES reported extensive training needs, ($\chi 2$=12.797, *df*=4, *p*=.012). A majority, 56% of managers reported moderate training needs in generalization across environments and 38% of ES reported extensive training needs, ($\chi 2$=9.758, *df*=4, *p*=.045). Fifty-two percent of managers reported moderate training needs in the identification of cultural norms and supporting an individual to meet the social and behavioral expectation of the workplace and 44% of ES reported extensive training needs in this area, ($\chi 2$=9.539, *df*=4, *p*=.049).

Additional analysis explored if there were significant differences based on professional designation, VR/ES manager and ES, and their average self-reported training needs. Two competency areas had significant differences at $p < .05$: Developing a Behavior Intervention Plan and Implementing a Behavior Intervention Plan. ES reported higher training needs in developing a BIP (*M*=2.44, *SD*=1.38) compared to managers (*M*=1.76, *SD*=1.300), *t*(44)=1.69, *p*=.048. Likewise, ES reported higher training needs in implementing a BIP (*M*=2.56, *SD*=1.261) compared to managers (*M*=1.81, *SD*=1.365), *t*(44)=1.937, *p*=.030. Table 19 provides information on relationships between service providers in self-reported training needs and differences in self-reported average training needs between service providers.

Table 19

Comparison of Provider Differences in Training Needs

Competency	Provider	*M*	t/df	*p*	X^2/ df	*p*
Char ASD	ES	2.25	-1.264/50	.106	7.81/4	.098
	Manager	2.63				

Medical Issues	ES Manager	2.11 2.25	-.451/49	.327	8.688/4	.069
Communication	ES Manager	2.56 2.58	-0.84/49	.467	5.541/4	.236
Learning Styles	ES Manager	2.63 2.71	-.251/49	.401	9.583/4	.048*
Sensory Processing	ES Manager	2.56 2.67	-.358/49	.361	12.797/4	.012*
Comorbidities	ES Manager	2.23 2.43	-.640/47	.263	7.817/4	.099
Social Skills	ES Manager	2.59 2.50	.268/49	.395	1.806/4	.771
Behavioral Characteristics	ES Manager	2.44 2.43	.034/44	.486	4.269/4	.371
Describing Behaviors	ES Manager	2.56 2.43	.396/44	.347	2.363/4	.669
Antecedent	ES Manager	2.52 2.38	.435/44	.333	2.444/3	.485
FBA	ES Manager	2.48 2.14	.840/44	.203	1.229/4	.873
Data Collection	ES Manager	2.48 2.10	1.002/44	.161	2.453/4	.653
Data Analysis	ES Manager	2.32 2.14	.433/44	.334	.782/4	.941
Consequences	ES Manager	2.52 2.19	.957/44	.172	4.453/4	.348
Developing BIP	ES	2.44	1.699/44	.048*	3.331/4	.504

	Manager	1.76				
Implementing BIP	ES	2.56	1.937/44	.030*	4.169/4	.384
	Manager	1.81				
TA	ES	2.84	.450/34.513	.328	6.063/4	.195
	Manager	2.67				
Shaping	ES	2.72	.935/44	.177	2.471/4	.650
	Manager	2.38				
Modeling	ES	2.92	.626/32.220	.268	5.983/4	.200
	Manager	2.71				
Generalization	ES	2.76	.634/31.006	.265	9.758/4	.045*
	Manager	2.52				
Prompting	ES	2.76	-.835/44	.204	6.031/4	.197
	Manager	3.05				
Prompt Fading	ES	3.00	.00/36.783	.500	8.488/4	.075
	Manager	3.00				
Cultural Norms	ES	3.08	.978/30.404	.168	9.539/4	.049*
	Manager	2.71				

Summary

Overall findings indicated that participants received the most training in the domain entitled ‘Skills to Facilitate Integrated Employment’, followed by ‘General Autism Characteristics’, and the least amount of training in the domain ‘Behavioral Assessments and Supports.’ Average scores in training need followed the same pattern. Study findings indicated that competencies in which participants reported higher and lower amounts of training tended to align with competencies in which participants reported higher or lower training needs. In general, lower average scores were reported in the behavioral assessments and supports

categories. Results suggested that competency areas that received lower levels of self-reported training need, such as the development and implementation of behavior intervention plans, did not align with challenges and reasons for job loss that participants shared in the open-ended portion of the survey. Results from the thematic analysis indicated that participants experience a wide array of challenges in working with adults with autism in employment such as behavioral issues, addressing support needs related to the characteristics of autism, in addition to funding and preparation from other stakeholders. Thematic analysis of the question asking participants to share success stories indicated that the role of the job coach is integral to supporting adults with autism in accessing integrated employment. Finally, there were some differences reported between providers that were designated as managers and providers that reported serving in the role of ES. ES reported extensive training needs in four competency areas and managers reported moderate training needs. However, competency areas where relationships were found between provider and training need were differentiated by either moderate or extensive training needs which indicates that these competency areas are in need of training regardless of provider role. Implications of the study findings are discussed in Chapter 5.

Chapter 5

The purpose of this survey was to identify the training needs and challenges in supporting adults with autism to access integrated employment. Despite the importance of employment specialists and vocational rehabilitation providers in facilitating employment- there is surprisingly little research from their perspectives. Yet, we know that employment for individuals with significant needs is directly related to the skill of their providers and the services they are receiving (Gerhardt & Lainder, 2011; Schall, 2010, Wehman et al.,2020). While it is abundantly evident that training and curriculum development as well as an evaluation of current training practices will need to occur; it seems prudent and in good practice to move forward with an indication of the current needs and challenges of a sampling of these stakeholders.

Relevance of the Study

Accessing employment or spending time in meaningful daily activities is a major component and source of livelihood for most adults. As it stands, individuals with significant disabilities are often left out of this major milestone. Adults with autism tend to fare worse; whether it is transition age youth with autism or adults who have previously been denied employment services, it is important for this population to have both access and the requisite supports to obtain meaningful employment (Roux et al., 2016). Two identified studies in the past three decades have attempted to assess the needs of employment service providers. Everson

(1980) assessed educational experiences and training needs of employment specialists supporting adults with disabilities. Kester et al. (2019) assessed educational and VR staff in transition and autism specific competencies. To date, the current study is the first study to ascertain information on the receipt of training, training needs, and experienced challenges from the perspective of key stakeholders in the provision of employment services; particularly for adults with significant support needs. The direct report of employment specialists is particularly meaningful due to the integral role that these providers play in supporting individuals with autism throughout the entirety of their employment journey- from beginning, middle, and end.

The review of the extant literature indicates several key research gaps and needs. Stakeholders, such as VR counselors and ES, play a key role in providing employment services and improving employment outcomes. It is helpful for professionals providing direct services to adults with autism and significant needs in employment settings to have an array of skills in their repertoire to include: skills integral to SE as a service (prompting, TA, generalization) and skills that allow them to address challenging behavior (assessment of behavior, implementation of behavior plans, and data collection) (Wehman et al., 2020). Currently, research indicates that despite the identification of best practices in employment they are not consistently implemented by employment support staff (Cohen- Hall et al., 2018). Implications of the current study and their relation to the identified gaps will be reviewed.

Summary of Findings

Participant Demographics

The majority of participants in this survey were white and also highly educated. Participants were also more likely to be working for CRPs or ESOs rather than working for state agencies as VR professionals. Out of the 56 total survey participants only three were VR

providers. While, it would have been nice to hear more from the perspective of professionals who act as the gateway to employment services and also have the ability to decree that adults with autism are 'too disabled by their disability to benefit from employment services'; it is also important to hear from professionals providing employment services in the field. While there is little research on the perspectives of VR professionals supporting adults with autism there is even less research from the perspective of ES' and ES managers, who were likely ES prior to advancing to management positions. It is a benefit to the study and the field of employment that the participant makeup of this survey included a large majority of ES and their managers. However, as mentioned earlier this was not a very diverse sample and this is a drawback to the study and has implications for future research and practice that are discussed later in the chapter.

The overall level of education of survey participants is also likely not representative of the at large population of ES and managers. VR providers are more likely to have a college level or graduate degree (bls.gov). However, there are no post-secondary educational requirements that are mandated for ES. In fact, only a high school diploma or equivalent is required to sit for the APSE employment specialist exam. While this has implications for the generality of results; it is important to mention that the current study's findings indicate that there are significant training needs across competency areas for professionals supporting adults with autism to access employment. It may also be possible that professionals with less education or training would likely have similar, if not higher, training needs than those indicated in the results.

Finally, participants in this survey reported serving adults with autism to access integrated employment. One major reason for this are the sampling and recruitment methods of the research study. Both organizations that were recruited for participation were founded with the intention of promoting employment first as a primary outcome for individuals with disabilities

and also in promoting the importance of training for employment service professionals, along with an acknowledgement of the various training requirements, or lack thereof, that are currently in place for providers. National statistics indicate that while there has been some improvement in rates of CIE for adults with disabilities, integrated employment is not the primary service option for adults with disabilities (Winsor et al., 2019). Again, it is possible that the participants that filled out this survey may not reflect the training needs of the field as a whole. This is further discussed in the study limitations.

Training Received in Autism, Behavior, and Skills to Facilitate Employment

Survey respondents reported the amount of training they received in 23 identified competencies that were broken down into three overarching domains. In addition to reporting the amount of training they received participants were also asked to reflect on how their training instilled them with the knowledge, skills, and confidence to support adults with autism to access CIE. Other aspects of training such as preference for training modality, certificates of completion and barriers were also explored. Overall, participants report that they agreed that their training provided them with the knowledge and skills to work with adults with autism. Self-reported confidence levels were even higher than their skills and knowledge. As a whole, this indicates that participants felt that their training was adequate to support individuals with autism.

A large percentage (37.5%) of participants report that training was not offered. This finding has significant implications for the importance of finding the time and resources to provide training to professionals supporting adults with ASD. Outside of this finding, participants tended to receive their training while ‘on-the-job’. This may indicate that most participants do not receive formal training and it is more of a learn as you go style. This is further supported by the fact that only 33% of participants report receiving coaching or consultative

services. Research on training tells us that knowledge dissemination is insufficient to change implementation practices (Cohen-Hall et al., 2018), the second most common type of training format is a workshop or through on-line curriculum. This indicates that providers are not receiving training that will change nor increase implementation of the competencies in which they are receiving training. It is also of note that participants report that workshops are their preferred training format followed by learning on-the-job; again, this further emphasizes the need to reevaluate the methods in which professionals are prepared to enter and serve in these professions.

Training Received in Competency Areas. Participant response patterns across competencies indicate that training for providers is more likely to occur in competencies that are related to the primary characteristics of autism (e.g., communication, sensory processing characteristics, social skills). Participants reported receiving less training in secondary characteristics such as medical issues that tend to be associated with autism or co-morbidities. Response patterns in the behavior supports domain tended to be a bit more stratified rather than skewed towards receiving more or less training. In general, participants report that they receive more training in some of the more basic aspects of behavior; such as behaviors that may be more common in adults with autism or how to describe behaviors. However, there was a decrease in the amount of training participants reported receiving in competencies related to assessing and addressing behavior in employment settings as well as collecting and analyzing data. Literature on supporting adults with autism indicates that the ability to respond to behavior in employment settings is a need for professionals supporting adults with autism; results indicate that providers are not receiving training in many of the competencies related to addressing behavior.

The highest reported levels of training receipt were in the skills to facilitate employment domain. This domain reflects competencies that align with competencies identified by professional organization but also in the extant literature base on supporting adults with autism to access employment (Wehman et al., 2020). This may be indicative of the fact that the majority of survey respondents are supporting individuals to access integrated employment, skills in this domain are intended to promote integration and reduce dependence on the presence of support staff, overarching goals of SE services. It is likely that participants would have exposure to competencies in this area during general employment trainings that were not necessarily specific to supporting adults with autism.

Training Needs in Autism, Behavior, and Skills to Facilitate Employment

Average participant self-reported training needs tended to be *slightly* higher than self-reported receipt of training. Average scores across participant responses provide a general idea of which competency areas are in higher need. However, it is important to note that overall response patterns in areas of training need indicate that very few of the 23 competency areas are in need of 'none' or even just 'a little' training. In fact, participant response patterns for training need indicate that the majority of competency areas fall in the range of 'some' to 'extensive' training needs. Participants are more likely to report 'extensive' training needs in all competency areas than 'none'.

While it may have been anticipated that participants would self-report higher levels of training need in competencies in which they did not receive high levels of training, this was not reflected in a comparison of most competency areas. In fact, there was general alignment between competency areas in which participants receive high levels of training and areas where participants report high levels of training need. Similarly, there was also alignment between

competencies in which participants report low levels of training need and in which they report receiving low levels of training. A few exceptions to this pattern were in the general autism characteristics domain. For example, participants report receiving the most training in the characteristics of autism and this was a competency that received a lower average training need. Likewise, participants report that learning styles associated with autism to be an area in which they did not receive high amounts of training but it was a competency that was scored higher in training need. This suggests that most participants feel that while they understand the general characteristics of autism spectrum disorder; they may feel that additional training is warranted to understand how individuals with autism learn. This is relevant given that these providers are responsible for supporting individuals with autism to acquire skills in employment settings. This finding is further supported in participant training scores in the competency entitled '*Identifying cultural norms of an individual's workplace and supporting an individual to acquire the skills to meet social and behavioral expectations'*. Participants report high levels of training in this competency but also reported high levels of training need. Additionally, there were provider differences in this competency. ES were more likely to report extensive training needs and managers were more likely to report moderate training needs. However, findings indicate that overall participants report a training need in facilitating skill acquisition for adults with autism, particularly within the specific needs of employment settings.

Training topic areas that participants requested in addition to the 23 surveyed competencies also indicate that participant self-reported training needs may not have captured the entire picture of provider needs. Most of the participant requests for additional training tended to fall into needs related to the primary or secondary characteristics of autism, such as training for social/ emotional well-being or co-occurring mental health diagnoses. A few

participants reported that training was needed in how to apply employment supports to individuals with autism; for example, making a strong job match based on being able to identify a job seeker's interests. Identification of needs and preferences could be difficult for an employment service provider that is not aware of how to support adults with communication barriers. Another training need that was not captured in the survey is the ability to train employers and develop supports on a broader systems level. Many of the training requests that participants felt were not captured in the competency areas are also reflected in their responses to the challenges and reasons for job loss.

Alignment of Training Received and Training Needs

Alignment in average participant responses between receipt of training and training need suggests that participant familiarity with competency areas and/ or terminology could be influencing their responses. It is possible that once participants received some training in an area or were exposed to the benefits or uses of a technique then they may be more likely to request additional training. If you are not aware of an FBA or a BIP or the components that these competency areas consist of then you may not be aware of how these competency areas could support employment nor be useful in employment settings. The similar scores across participant report of training need and receipt of training could also indicate that participants did not necessarily differentiate between reporting the amount of training they received across the 23 competencies and then subsequently being asked to report their level of training need in the same 23 competencies. While this has implications for limitations in the overall survey design, it does not necessarily detract from overall survey findings. Participants do not receive extensive amounts of training in autism and behavioral assessment and supports. Participants are more likely to report 'some' to 'extensive' training needs. The majority of participants report various

challenges to supporting adults with autism and that the presence of 'behavior' whether challenging, disruptive, or related to the primary diagnostic criteria are causes for termination.

It is interesting that participants report the highest level of both receipt of training but also training need in the area of skills to facilitate employment. By and large, this competency domain was also the area that participants rate as their priority training need. It is possible that these terms are the most familiar to participants. This potentiality aligns with the possibility that exposure to training impacts perceived training need. Participants report receiving the lowest amount of training in the behavioral assessment and supports domain.

Within the behavioral supports domain higher levels of training were received and needed in behavioral characteristics associated with autism, describing behaviors in objective terms and identifying what types of situations are likely to precede the occurrence of challenging behavior. Competencies in which participants report receiving the most training and the most training need are often initial steps into developing and implementing behavior plans. Likewise, the collection and analysis of data is an important component of determining next steps once it has been determined that additional supports are needed for individuals who are engaging in challenging behavior.

Some of the areas in which participants report receiving the lowest amount of training were areas of need that are reflected in their self-reported challenges to supporting adults with autism. For example, mental health diagnoses such as depression and anxiety were frequently cited as challenges and/ or reasons for not being able to sustain employment. Similarly, despite receiving higher levels of training in general autism characteristics, training needs and challenges related to characteristics of autism were also frequently mentioned in the open-ended portion of the survey. Further support for this finding is found in participant requests for additional training.

Additional training needs reflect an overall need for support on a broader level to support employment services, but more importantly additional training request were related to the primary diagnostic characteristics of autism such as social and communication skills, supports for mental health diagnoses which are more common in adults with autism, and in general behavior supports.

Challenges, Reasons for Termination, and Success Stories

More than 50% of survey respondents took the time to provide responses in the fourth and final section of the survey which asked participants to provide open-ended responses describing their challenges to supporting individuals with autism, job loss as a result of challenging behavior(s) on the job-site, and also success stories supporting adults with autism to access integrated employment. The responses in this portion of the survey add a level of detail and information that was not apparent in the Likert style responses. This portion of the survey also provides a clearer picture of the lived experiences of employment support professionals supporting adults with autism in employment settings.

Analysis of challenges in supporting adults with autism and purported reasons for job loss indicate that training in both autism characteristics and behavioral assessment and supports is needed. Fifty-six percent of the challenges reported in this portion of the survey were either directly related to the presence of challenging behavior or behaviors/ support needs that can be attributed to the general characteristics of autism. Other categories of behaviors were related to characteristics of autism such as social and communication challenges. These behaviors tended to be related to interactions with co-workers or patrons of the setting that adults were employed in. The presence of behaviors related to co-morbidities such as additional mental health diagnoses were reflected here- anxiety and depression being heavily reported. It would be

incorrect to assume that jobs could have been saved as a result of additional training in behavioral assessment and support competencies. However, the challenges and causes for termination in employment settings indicate that training in general autism characteristics and behavioral assessment and supports is not only needed but could aid in the preservation and prevention of job loss.

In direct contrast to the challenges and reasons for job loss, many participants also took the time to share success stories they have experienced in supporting adults with autism to access integrated employment. Overwhelmingly, participants spoke to the importance and integral role of the job coach in supporting adults with autism on their employment journey. Survey respondents spoke to the importance of overcoming their perceptions or reports of 'difficult' or hard to place clients and in fact obtaining employment that benefits both their client and the employer- an ultimate outcome goal of employment services. Many challenges that were overcome in the success stories relate to comorbidities such as anxiety and depression. Other success stories reflect biases on behalf of employers and co-workers such as not believing someone was autistic enough or that they were too unfriendly. Often, these situations are remedied by identification of a different employment match. Research indicates that there are characteristics of employers that may be more likely to be inclusive of individuals with diverse needs (Chan et al., 2010).

While not part of the planned analysis, it is worth mentioning the types of positions that were mentioned while respondents shared their success stories. For example: wedding assistant, mall security guard, medical billing specialist, and website designer. These are jobs that are outside of what are considered to traditionally be job matches for individuals with disabilities. Additionally, embedded within the scenarios is an indication of identifying positions using

services and strategies that are embedded in Customized Employment. Respondents mention 'navigating' position based on a participant's mental health needs and employer needs, carrying out a 'full Discovery process' with a client, and using nontraditional assessment, or rather lack of assessment, to identify a person's interests and preferences related to employment.

Acknowledgement of the individuality of personality characteristics and needs is reflected across participants additional requests for training, challenges, and success stories. Current models of employment services are predicated on the ability of a provider to make a job match that is based on a job seeker's interests, preferences, and strengths. Occasionally, if it is not possible to match a job seeker in an already existing position then providers may be asked to negotiate a new position based on the identification of business needs that are a direct match to the job seeker, these are considered Customized Employment services which are above and beyond Supported Employment services. This takes time and training on behalf of the provider. Imagine, the amount of training and preparation it may take to not only learn how to complete this skill for individuals with disabilities, but also for individuals with autism with additional support needs.

Responses to these questions suggest that there are significant barriers and challenges to supporting individuals with autism; however, it would be irresponsible to reflect only on challenges related to the behaviors and support needs of clients. Rather, analysis indicates that many of the challenges are in fact related to system wide barriers such as funding, training, lack of collaboration, as well as bias and lack of training on the part of employers. Participants report that communication among providers is lacking. The importance of collaboration among service providers and major stakeholders such as education agencies, parents, and other adults service needs is a recommendation and evidence-based practice in the literature on improving

employment outcomes (Shattuck et al., 2020). Multifaceted barriers in relation to employers are also reflected across participant responses. Participants report that training is required to adequately support adults with autism while not impacting the employment setting, also in getting employers to be 'open' to employing this population. Occasionally, biases and bullying from coworkers and HR were also shared. Study findings further emphasize that it will be necessary to build capacity across all stakeholders involved in facilitating employment for adults with autism.

Limitations

Limitations related to the overall research design, instrumentation, and dissemination are worth mentioning. Limitations inherent in survey design are response bias and participants may have been more likely to fill out the survey if they were interested and/or knowledgeable in autism. They also could have been more likely to answer in ways that made them appear more knowledgeable or in need of less training. Furthermore, the survey accessed two organizations that are responsible for training individuals in this profession. The majority of this profession are not required to have certifications or professional credentials. Therefore, survey respondents are highly educated compared to the general population of VR and ES employment staff. The results of the current survey may not generalize to the entire population of VR and ES. Generalizability is impacted both in the overall level of education of the survey participants and also their demographic makeup.

There are several limitations in relation to the survey instrument itself. Open-ended questions were not very strengths based and were skewed towards looking to find challenges as a result of challenging behavior. It is also possible, and likely, that additional competencies should have been included, such as the ability to provide reinforcement in employment settings. The

survey also did not ask for participant background and years of experience in the field. The addition of these factors could impact current study findings or future research.

The survey design or language is a possible cause for similar scores in receipt of training and training need. For example, the questions asking participants to self-report on the same Likert scale the amount of training they received and subsequently self-report their perceived level of training need may have been too similar for participants to differentiate or reflect on the true difference between these two constructs. Additionally, the language used in the survey may not have been accessible. While piloting the survey assessed for this, the language used to describe competencies, particularly behavioral competencies, may not have been easily understood to the survey respondents. As mentioned earlier, the survey participants are lacking in diversity in relation to both identified gender and race. It is likely that an additional survey limitation is related to the cultural appropriateness of the language used to assess for knowledge of key competencies and needs. This limitation could be addressed in future research to ensure that language and competencies are understood by a diverse population.

Implications for Practice

Results of the current survey align with findings originally identified in the literature. The high expectations of the performance of employment service providers and the necessity of a particular set of skills is becoming increasingly recognized (Canella-Malone & Schaefer, 2017). While a need for competent employment professionals exists, much remains to be done to both evaluate and ensure the effectiveness of training in improving employment outcomes for all individuals with disabilities. Additionally, there are recent calls for disability specific transition competencies (Kester et al., 2019; Mazzotti & Plotner, 2016). As mentioned earlier, while professional competencies exist, there are no certifications of requirements for disability specific

training in adult services. In spite of this, the reviewed research indicates that a specialized skillset may be required in order to adequately support adults with autism to not only access employment services but also to subsequently obtain and retain employment. Participants in this study generally reported moderate levels of training receipt and training needs across the three domains explored in the current survey. Additionally, despite the level of education of participants, the consensus is that high levels of training are not currently provided in most competencies related to the general characteristics of autism and competencies associated with the assessment, implementation and evaluation of behavioral supports.

Most of the participants in this survey report supporting adults with autism who required the minimal or moderate level of support based on their severity. Individuals with autism are more likely to be deemed ineligible for employment services due to the impact of their disability (Roux et al., 2016). It is possible that participants in this survey have not yet been exposed to individuals with autism who may have the most significant support needs. Individuals who are considered to be more impacted by their autism, or who have a label of Level 3 or 'requiring extensive support are likely to be more in need of competencies that were reflected in the behavioral assessment and supports domain. It is possible that survey respondents did not reflect high training needs in this area because this population is not being deemed eligible for employment services due to the severity of their disability. In order to improve employment outcomes, employment service providers may very well need to become both more aware of and more comfortable in developing and implementing behavior plans and collecting data to assess the effectiveness of supports and plans.

Hearing from the voice of professionals is important; it is important to acknowledge that survey participants top rated training need is in skills related to the provision of employment

supports. Behavioral assessment and general autism training needs did not rate nearly as high. However, an analysis of challenges related to supporting this population indicates that behavioral supports and training could be helpful in addressing the challenges employment service providers shared and also in potentially preventing job loss. It could be that moving towards a consultation model could help direct support personnel to focus on acquiring their priority skillset (employment skills) while having a consultative approach to addressing behaviors as they arise. The literature on addressing behavior in employment suggested that a consultative approach can be successful (Wehman et al., 2012).

Survey participants report that funding and being short staffed are major barriers to receiving training. Systemic barriers related to funding and training can be addressed through changes in policy. Preferences for training format, training need, and priorities provide important information for the development of training material. Additionally, the insight that was gained from challenges to success stories provide a more nuanced view of the experiences of providers providing employment supports to adults with autism.

Additionally, emphasis and preparation of individuals with significant support needs must begin while still enrolled in secondary education. Preparing for transition to employment in middle school is correlated with post-secondary employment (Test et al., 2009). Based on the analysis of the reported challenges in working with adults with autism, it is not just students with autism who may be in need of additional training. Parents and education agencies may not feel prepared nor be aware of employment and the inherent social and behavioral expectations of employment settings. The support and involvement of these stakeholders are influential in obtaining post-secondary employment (Mazzotti et al., 2015).

In addition to implications for training it is important to revisit the demographic makeup of survey respondents. Survey respondents were overwhelmingly white and non-Hispanic. In order to serve individuals with diverse needs and also be representative of the population of adults with autism it is important to recruit, hire, and train a diverse field of professionals. This can also help with outreach to populations who may not have equitable access to VR and employment services. Current research indicates that Black individuals are both less likely to access and benefit from VR services in addition to experiencing less successful employment outcomes when receiving services (Winsor et al., 2021). A diverse set of service providers could improve rates of families choosing to access employment services and thus eventually contributing to increased rates of integrated employment for all adults with autism. In order to recruit diverse professionals, it will be necessary to further understand the current makeup of employment service providers. Currently, this profession is considered 'quasi-professional' and is categorized under the broad heading of Direct Support Professionals (DSPs). In the future, it will be important to treat employment service professionals as their own designation in order to both better understand their demographic makeup, educational backgrounds, and move towards increased recognition and professionalization of these providers.

Implications for Policy

It has been evident since the advent of supported employment four decades ago that the skillset that is required for employment specialists to be considered competent or proficient is varied and complex. The importance of training and preparation is going to become increasingly vital as legislation continues to shift towards promoting employment. If individuals with significant support needs will be expected to access employment, then the identified need for training both in the early literature and in the current study will need to occur. The discrepancy

between the performance expectations of these professionals and their professional standards and preparation is vast. Policy that recognizes this discrepancy and acknowledges the necessity of professional standards and training requirements could begin to move the needle in the direction of the outcomes that current employment first legislation is calling for.

There continues to be wide variation in requirements within and across states for employment service professionals (Roux et al., 2016). Most states now have legislation promoting employment first or are working through the development of legislation to support this outcome (APSE.org). As this legislation shifts to changes in practice, employment service providers will be responsible for implementing employment services to individuals with significant support needs who were previously not found eligible for employment services. It is necessary to prioritize and acknowledge the importance of preparing and educating these stakeholders through the provision of adequate funding, time, and allocation of staff. A move in this direction will also help to ensure that this profession adequately represents the diverse population(s) it is intended to service.

As one participant reported, clients can be handed off with no background information and the onus to provide employment services falls on employment specialists. However, preparation for employment does not start and end with the transition to adulthood. An evaluation of policy, such as WIOA, that aims to increase collaboration amongst employment stakeholders and the implementation of recommended practices could provide an important picture of where the research to practice gap exists and the best approaches to target the gap(s).

Implications for Future Research

The current study provides an important glimpse into the type, amount, and training needs of employment staff. The study assessed the needs of a very small sample size. Future

research could look at accessing VR agencies and CRPs to increase the numbers of participants and to receive a more diverse sample. This research could also emphasize the importance of understanding the current levels of diversity in VR and employment staff in order to target discrepancies in diversity and make targeted recruitment and training efforts. In the future it will be necessary to understand the training needs and challenges of employment service providers with a broader range of educational backgrounds and a broader range of cultural diversity. This could provide a clearer picture of the types of training that employment service professionals received that may not be part of employment first organizations.

Limitations in survey design and language likely contributed to some of the discrepancies between reported training needs and needs identified through analyses of open-ended responses. Sequential mixed methods research could be a viable and important next step for research. This could include focus group and/or interviews to better understand how providers refer to challenges and ensure that terminology is meaningful to participants. This could also help to get an idea of general understanding of training, support needs, and barriers. Developing the survey instrument with an idea of the needs and understanding of supporting adults with autism may allow for the development of an instrument that is more sensitive to assessing training needs.

Based on identified needs it will be important to develop a comprehensive and effective training to improve employment outcomes. In addition to getting an understanding of current state of training and needs- it is also important to understand what type(s) of training leads to the implementation of recommended practices and increases rates of integrated employment. Experimental research that focuses not only on the development and implementation of training but also its effect on rates of employment is needed. Research on how to implement evidence-based strategies, particularly, evidence-based strategies for adults with autism in employment

settings without impacting integrated or employer operations is also an important future direction.

Conclusion

The findings of this study suggest that there are multiple barriers to supporting adults with autism to access employment. These barriers range from systemic issues related to funding, training and preparation of providers to collaboration amongst stakeholders. Study results also indicate that employment support staff do not receive adequate amounts of training in competencies that can support adults with autism and significant support needs to access integrated employment. Overwhelmingly, participants report that skills to facilitate employment are their priority training need. However, an evaluation of challenges and reasons for job loss indicate that training in autism and behavior specific competencies could address challenges and prevent job loss. Results of the current study further emphasize the importance and value of a skilled employment professional. With the support of a job coach, it is possible for adults with significant support needs, whether it be related to behavior, social communication challenges or comorbidities to overcome barriers and obtain and retain employment. Increasing the capacity of employment service providers to simultaneously be aware of the importance of behavioral support strategies in employment settings but also to implement these strategies is necessary, it is also necessary to evaluate the training, capacities, expectations, and behavior of all stakeholders to facilitate the employment of adults with autism and significant support needs.

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Appendix A

Training Needs and Challenges in Supporting Adults with Autism to Access Employment

Please complete the survey below.

Thank you!

Dear VR Counselor or Employment Specialist,

You are being asked to participate in a confidential research study. The purpose of this study is to identify the training you received, your training needs, and experiences in supporting adults with autism to access employment. This research study will ask you to complete a brief survey.

You are being asked to participate in this study because you are currently serving in the role of Employment Specialist or as a Vocational Rehabilitation provider and may have adults with autism on your caseload. The purpose of the study and participation requirements must be fully explained to you before you consent to participate.

You will be asked questions about the training you received and also to report on your training needs in supporting adults with autism to access employment. You will also be given an opportunity to share your experiences in supporting adults with autism to either access or participate in employment. This survey will take approximately 20 minutes. You may discontinue the survey at any time. You may also skip questions and continue the survey after skipping questions. If you feel uncomfortable or distracted when answering these questions near other people, you may go to a room with a closed door to answer these questions.

Participation in research is entirely voluntary. You may refuse to participate or may withdraw from participation at any time without penalty. The investigator may withdraw you from participation at their professional discretion. Your answers on this survey will not be linked to your name, or your email address. If at any time you have questions regarding this research, your participation in it, or your rights as a research subject, you should contact the lead student investigator, Whitney Ham, at hamwa@vcu.edu. You may also reach out to the principal investigator with any additional research questions, Dr. Yaoying Xu, at yxu2@vcu.edu. Dr. Xu is an associate professor at Virginia Commonwealth University.

By consenting to participate, you are verifying that you have read and understand the above description of the research.

If you have any questions regarding this survey, you may contact the lead student investigator, Whitney Ham, at hamwa@vcu.edu. In order to participate you must be 18 years old or older and consent to participate.

This survey will remain open for two weeks.

By checking yes you are 18 years of age or older and are consenting to participate in this research study.

- ◯ Yes
- ◯ No

How old are you in years?

_____

What state do you provide support in?	◯ AL : Alabama ◯ AK : Alaska ◯ AZ : Arizona ◯ AR : Arkansas ◯ CA : California ◯ CO : Colorado ◯ CT : Connecticut ◯ DE : Delaware ◯ FL : Florida ◯ GA : Georgia ◯ HI : Hawaii ◯ ID : Idaho ◯ IL : Illinois ◯ IN : Indiana ◯ IA : Iowa ◯ KS : Kansas ◯ KY : Kentucky ◯ LA : Louisiana ◯ ME : Maine ◯ MD : Maryland ◯ MA : Massachusetts ◯ MI : Michigan ◯ MN : Minnesota ◯ MS : Mississippi ◯ MO : Missouri ◯ MT : Montana ◯ NE : Nebraska ◯ NV : Nevada ◯ NH : New Hampshire ◯ NJ : New Jersey ◯ NM : New Mexico ◯ NY : New York ◯ NC : North Carolina ◯ ND : North Dakota ◯ OH : Ohio ◯ OK : Oklahoma ◯ OR : Oregon ◯ PA : Pennsylvania ◯ RI : Rhode Island ◯ SC : South Carolina ◯ SD : South Dakota ◯ TN : Tennessee ◯ TX : Texas ◯ UT : Utah ◯ VT : Vermont ◯ VA : Virginia ◯ WA : Washington ◯ WV : West Virginia ◯ WI : Wisconsin ◯ WY : Wyoming
To which gender do you most identify?	◯ Male ◯ Female ◯ Other
What is the highest level of education that you have completed? (Choose one.)	◯ Less than high school completion ◯ GED completion ◯ High School ◯ Some college, associate degree, trade school ◯ College degree (BA, BS) ◯ Graduate school (MA, MS, DEd, PhD) ◯ Prefer not to say

Employment Status:	◯ Full-time ◯ Part-time ◯ Retired and working ◯ Other
Please speficiy "Other."	_____
With which ethnicity do you most identify? Choose the one that best applies:	◯ Hispanic ◯ Non-Hispanic
With which race do you most identify?	◯ American Indian or Native American ◯ Asian ◯ Native Hawaiian or Pacific Islander ◯ Black or African American ◯ White or Caucasian ◯ Mixed Race ◯ Unknown ◯ Prefer not to say ◯ Other
Please specify "Other".	_____
What is your employment position?	◯ Vocational Rehabilitation Counselor ◯ Vocational Rehabilitation Manager ◯ Employment Services Manager/ Supervisor ◯ Employment Specialist ◯ Other
Please specify 'other'.	_____
Please speficiy "Other".	_____
What is the primary service that you provide to individuals with disabilities?	◯ Facility-based non-work ◯ Community-based non-work ◯ Facility-based work ◯ Mobile work crew ◯ Enclave ◯ Individual Supported employment ◯ Customized employment ◯ Other
Please specify "Other".	_____
What is the overall level of autism severity among the people with whom you work? (Check all that apply.)	☐ Level 3- "Requiring very substantial support" ☐ Level 2- "Requiring substantial support" ☐ Level 1- "Requiring support" ☐ Unsure
What are the age ranges of adults with autism whom you serve? (Check all that apply.)	☐ 18-25 ☐ 26-64 ☐ 65 or older

What training have you received for working with adults with autism? (Check all that apply.)	☐ Workshops ☐ On-line curricula ☐ Self-study ☐ College courses ☐ On-the-job ☐ Coaching/ consulting from autism specialist ☐ Other ☐ None
Please specify "Other".	_____
To what degree do you agree or disagree that the training you received provided you with the knowledge needed to support adults with autism to access competitive integrated employment?	◯ Strongly disagree ◯ Disagree ◯ Neutral ◯ Agree ◯ Strongly Agree
To what degree do you agree or disagree that the training you received provided you with the skills needed to support adults with autism to access competitive integrated employment?	◯ Strongly disagree ◯ Disagree ◯ Neutral ◯ Agree ◯ Strongly Agree
How confident are you in your ability to work with adults with autism?	◯ Not at all confident ◯ Not very confident ◯ Neutral ◯ Somewhat confident ◯ Very confident

Based on your experience, rate the amount of training you received in the following areas:	None	A little	Some	Moderate	Extensive
The characteristics of autism	○	○	○	○	○
The common medical issues associated with autism, including seizure disorder, inner ear infections, chronic constipation or diarrhea, eating issues, and sleeping issues	○	○	○	○	○
The patterns of communication development associated with autism	○	○	○	○	○
The array of learning styles associated with autism	○	○	○	○	○
The sensory processing characteristics associated with autism	○	○	○	○	○
Other disabilities and conditions that are co-morbid with autism	○	○	○	○	○
The range of social skills characteristics in individuals with autism, including deficits in joint attention, imitation, and emotional reciprocity	○	○	○	○	○

Based on your experience, rate the amount of training you received in the following areas:	None	A little	Some	Moderate	Extensive
The range of behavioral characteristics associated with autism, including aggression, self-injurious behavior, and self-stimulatory behavior	○	○	○	○	○
Describing behaviors in objective and measurable terms to include prioritizing behavior and identifying target behaviors	○	○	○	○	○
Describing the events and situations that precede challenging behavior	○	○	○	○	○
Conducting a functional behavior assessment to identify behavioral function	○	○	○	○	○
Collecting data as part of the functional behavior assessment process	○	○	○	○	○
Analyzing data as part of the functional behavior assessment process	○	○	○	○	○
Identifying consequences maintaining behaviors	○	○	○	○	○
Developing a multi-component behavior intervention plan	○	○	○	○	○
Implementing a multi-component behavior intervention plan	○	○	○	○	○

Based on your experience, rate the amount of training you received in the following areas:	None	A little	Some	Moderate	Extensive
Task Analysis	○	○	○	○	○
Shaping	○	○	○	○	○
Modeling	○	○	○	○	○
Generalization Across Environments	○	○	○	○	○
Prompting	○	○	○	○	○
Prompt Fading	○	○	○	○	○
Identifying cultural norms of an individual's workplace and supporting an individual to acquire the skills to meet social and behavior expectations	○	○	○	○	○

Based on your experience, rate the level of training need for each of the areas listed below:	None	A little	Some	Moderate	Extensive
The characteristics of autism spectrum disorder	○	○	○	○	○
The common medical issues associated with autism including seizure disorder, inner ear infections, chronic constipation or diarrhea, eating issues, and sleeping issues	○	○	○	○	○
The patterns of communication development associated with autism	○	○	○	○	○
The array of learning styles associated with autism	○	○	○	○	○
The sensory processing characteristics associated with autism	○	○	○	○	○
Other disabilities and conditions that are co-morbid with autism	○	○	○	○	○
The range of social skills characteristics in individuals with autism, including deficits in joint attention, imitation, and emotional reciprocity	○	○	○	○	○

Based on your experience, rate the level of training need for each of the areas listed below:	None	A little	Some	Moderate	Extensive
The range of behavioral characteristics associated with autism, including aggression, self-injurious behavior, and self-stimulatory behavior	○	○	○	○	○
Describing behaviors in objective and measurable terms to include prioritizing behavior and identifying target behaviors	○	○	○	○	○
Describing the events and situations that precede challenging behavior	○	○	○	○	○
Conducting a functional behavior assessment to identify behavioral function	○	○	○	○	○
Collecting data as part of the functional behavior assessment process	○	○	○	○	○
Analyzing data as part of the functional behavior assessment process	○	○	○	○	○
Identifying consequences maintaining behaviors	○	○	○	○	○
Developing a multi-component behavior intervention plan	○	○	○	○	○
Implementing a multi-component intervention plan	○	○	○	○	○

Based on your experience, rate the level of training need for each of the items listed below:

	None	A little	Some	Moderate	Extensive
Task Analysis	○	○	○	○	○
Shaping	○	○	○	○	○
Modeling	○	○	○	○	○
Generalization Across Environments	○	○	○	○	○
Prompting	○	○	○	○	○
Prompt Fading	○	○	○	○	○
Identifying cultural norms of an individual's workplace and supporting an individual to acquire the skills to meet social and behavioral expectations	○	○	○	○	○

Of the following training topics, check the most important. (Choose one.)

- ○ Autism characteristics and symptoms
- ○ Behavioral assessment and supports
- ○ Skills to facilitate placement in Competitive Integrated Employment

Are there any other training topics that you feel would be important to include? (text entry)

_____

What training format do you prefer? (Check all that apply.)

- ☐ Workshops
- ☐ On-line curricula
- ☐ Video examples
- ☐ Self-study
- ☐ College courses
- ☐ On-the-job
- ☐ Learning in small chunks with opportunities to practice skills and discuss with others
- ☐ Other

Pleaae specify 'Other'.

_____

What are the challenges to receiving on-the-job training? (Check all that apply.)

- ☐ Funding
- ☐ Time
- ☐ Enough staff
- ☐ Technical Infrastructure
- ☐ Supervisor Support
- ☐ Training not offered
- ☐ Other

Please specify "Other".

_____

Would a certificate of completion or continuing education hours following our proposed training course be beneficial to you?

- ○ Yes
- ○ No

What challenges have you faced when working with adults with autism?	_____
Describe a success story you have supporting an individual with autism to access employment.	_____
Have you ever had a person with autism lose employment due to the presence of a challenging behavior? If so, please describe the behavior and the response of employment support staff and the employer?	_____

Appendix B

Dear VR counselor or Employment Specialist,

This email is a request for participation in a research study, a brief survey that will take approximately 20 minutes. You are being invited to participate in this survey because you may be currently serving in the professional role of Employment Specialist or Vocational Rehabilitation provider and supporting individuals with autism on your caseload.

The purpose of this study is to identify what level of training you received and also your perceived level of training need in ways to support adults with autism to access employment. Participation in this study is anonymous and completely voluntary. Your participation is valued and your responses can help to inform future training and policy for staff who support individuals with autism to access employment. Eventually, your responses can also help to improve rates of employment for adults with autism. You can choose to discontinue the survey after starting it at any time. We greatly appreciate you taking the time to share your perspectives with us on this important topic!

You can access the survey by clicking on this **link.**

If you have any questions please contact Whitney Ham at hamwa@vcu.edu.

Thank you!

Whitney Ham

Appendix C

Dear Employment Specialist or Vocational Rehabilitation Provider,

This is a brief reminder and also an additional request to participate in a confidential research study. If you have already accessed the survey and participated then thank you for your participation, your experiences and input are greatly appreciated and important!

You have been invited to participate in this survey because you are currently serving in the professional role of Employment Specialist or Vocational Rehabilitation provider and may be supporting individuals with autism on your caseload.

The purpose of this study is to identify what level of training you received and also your perceived level of training need in ways to support adults with autism to access employment. Participation in this study is anonymous and completely voluntary. You can choose to discontinue the survey after starting it at any time.

You can access the survey by clicking on this **link.**

If you have any questions please contact Whitney Ham at hamwa@vcu.edu.

Thank you!

Whitney Ham

Appendix D

Dear Employment Specialist or Vocational Rehabilitation Provider,

This is the final reminder and request to participate in a confidential research study. This study is a survey that will take approximately 20 minutes to complete. If you have already completed the survey, then your participation and responses are important and sincerely appreciated!

You are being asked to participate in this study because you are serving in the role of Employment Specialist or VR provider and may currently be supporting adults with autism to access employment. The purpose of this study is to identify what level of training you received and also your perceived level of training need in ways to support adults with autism to access employment. Participation in this study is anonymous and completely voluntary. You can choose to discontinue the survey after starting it at any time.

If you have not already done so, please click **here** to access the confidential research study.

If you have any questions please contact Whitney Ham at hamwa@vcu.edu.

Thank you!
Whitney Ham

Appendix E

Hello,

My name is Whitney Ham and I am a doctoral student working to complete my dissertation study at Virginia Commonwealth University's Special Education and Disability Policy Program. I am here today to invite you to participate in a voluntary survey to assess the type of training VR counselors and employment specialists receive, your level of training need, and also your experiences in supporting adults with autism to access integrated employment.

Your survey responses are anonymous and should not take longer than twenty minutes to complete. You are eligible to participate if you are currently serving in the role of VR counselor or as an employment specialist and currently have or have had individuals with autism on your caseload. The survey is administered through Redcap and you are able to discontinue participation at any point in time.

To date, there is very little research from the perspectives of VR counselors and/or employment specialists on this topic. Your responses are greatly valued and appreciated and could help to inform future policy and training on best practices to support individuals with autism to access employment!

Please let me know if you have any questions- a link to the survey will be posted in the chat, on the APSE page, and you can also e-mail me for a link at hamwa@vcu.edu.

Thank you for your time and I hope you have a great rest of the day!

Appendix F

Survey Invitation and Request:

My name is Whitney Ham and I am a doctoral student working to complete my dissertation study at Virginia Commonwealth University's Special Education and Disability Policy Program. I am inviting you to participate in a voluntary survey study. The purpose of this study is to identify the training you received, your training needs, and your experiences in supporting adults with autism to access employment. The survey should take approximately 20 minutes, your participation is voluntary and your responses are anonymous.

You are eligible to participate in this study if you are currently serving in the role of Employment Specialist or as a Vocational Rehabilitation provider and have or have had adults with autism on your caseload.

Your responses to this study will help to inform future training and policy for staff who support individuals with autism to access employment. Eventually, your responses can also help to improve rates of employment for adults with autism. Your responses and feedback are valued and important.

We greatly appreciate you taking the time to share your perspectives with us on this important topic!

You can access the survey by clicking on this **link.**

Thank you!