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ENHANCING ENGAGEMENT OF EMPLOYEES

WITH AUTISM SPECTRUM DISORDER THROUGH LEADERSHIP

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ABSTRACT

The focus of this study was to identify leader behaviors, styles, and competencies which elicit successful engagement of employees with ASD, a population which is powerfully emerging into the workplace. The ultimate goal of this effort was to improve the quality of life of employees with ASD by facilitating an environment which can lead to their success. Through a series of interviews with 54 employees with ASD and 15 supervisors managing employees with ASD, results indicated that leadership has a great effect on employee attitudes and performance, the relationship between leadership preferences is quite complex culminating in several important behaviors rather than one superior leadership theory, and performance of employees with ASD is very effective. Implications and future research directions are discussed.

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Introduction

Within the past decade, the number of individuals diagnosed with autism spectrum disorder (ASD) has increased dramatically. Current estimates from the Center for Disease Control indicate that 1 in every 110 children meet the diagnostic criteria for ASD (Center for Disease Control & Prevention, 2009). Other independent research efforts indicate the prevalence rates may be even higher. Specifically, Kogan and colleagues (2009) report a ratio of 1 in 91 (95% CI = 78 – 106) overall and for males, the ratio was even more drastic with 1 in 59 (95% CI = 48 – 69) being diagnosed. However, along with this growth in diagnosis, the number of people receiving services for ASD has also greatly increased providing individuals with ASD more opportunities for independent living (Volker & Lopata, 2008). As this growing population seeks employment to improve the quality of their lives and make a contribution to society, it is necessary to better understand what supports will facilitate successful employment.

At present, the majority of research on ASD has focused on young children, with very little attention given to adolescents and young adults (Hendricks, 2010). The limited research examining young adults with ASD and opportunities for employment has studied the impact of vocational rehabilitation services, supported employment issues, and job coaches (e.g., Hillier et al., 2007; Schaller & Yang, 2005; Howlin, Alcock, & Burkin, 2005; Rogan, Banks, & Howard, 2000). However, growing evidence indicates that vocational rehabilitation services and job coaches are not as effective for employees with ASD in the long-term as originally purported (e.g. Hendricks, 2010; Lawer, Brusilovskiy, Salzer, & Mandell, 2009; Cimera & Cowan, 2009; Hagner & Cooney, 2003).

One source of support that has been largely overlooked is the impact supervisors can have on their employees with ASD. Supervisors can serve as a critical support to help

individuals with ASD successfully engage and perform in their job. Leaders serve as role models, select task assignments, make accommodations to work roles, and provide task and emotional support to employees as well as create a climate of openness to promote acceptance among all employees. All of these behaviors and skills can potentially increase the likelihood of worker success. Though the impact that a leader can have on employees with ASD is seemingly great, there are no empirical studies examining specific behaviors and styles of leaders which result in successful work engagement of employees with ASD.

The aim of the current study is to address this gap in the literature by identifying leader behaviors, styles, and competencies which elicit successful engagement of employees with ASD. Specifically, this study seeks to test three leadership theories, authentic leadership, transformational leadership, and the two-factor model of leadership, to determine which perspective produces the best outcomes for employees with ASD. Ultimately, by understanding the best practices of leaders, the goal is to be able to improve the quality of life of employees with ASD by facilitating an environment which can lead to their success.

Literature Review

Overview of Autism Spectrum Disorder (ASD)

Autism spectrum disorders (ASD) are a group of pervasive developmental disorders which range from a severe form, autistic disorder, to a milder form, Asperger Syndrome. According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Text Revision, ASD is broadly characterized by impairments in social interaction, deficits in verbal and nonverbal communication, as well as the presence of restricted, repetitive, and stereotyped patterns of behavior and interests (American Psychiatric Association,

2000). ASD is thought to be a permanent developmental disorder creating lifelong challenges for the individual (Hendricks, 2010).

At the more severe end of the spectrum, autism presents much more profound impairments in socialization and communication and occurs very early in life. Typically, individuals with autism have stronger nonverbal or performance skills than verbal skills. Additionally, autism is highly comorbid with mental retardation, anxiety disorder, and depression (Volker & Lopata, 2008). At the milder end of the spectrum, Asperger Syndrome is characterized by deficits in social interaction and restrictive behaviors as well but do not show a delay in language or communication skills. Additionally, Asperger Syndrome has a much later onset than autism (VanBergeijk, Klin, & Volkmar, 2008).

Though the degree of the symptoms may vary from individual to individual, it is important to identify some of the general symptoms related to ASD. First, associated with the social interaction impairments, individuals with ASD may exhibit difficulties in understanding social rules and nonverbal cues, reciprocating social interactions, and inferring others' emotions (Hurlbutt & Chalmers, 2004). Individuals with ASD are very routine- and rule-oriented and therefore may have problems adapting to change. Related to the impairments in communication, individuals with ASD may have a language delay making it challenging to interact with others. Furthermore, individuals with ASD may have difficulty interpreting metaphors and abstract language resulting in confusion when conversing with others (VanBergeijk, Klin, & Volkmar, 2008). Finally, in regards to the repetitive and stereotypical patterns of behaviors and interests, individuals with ASD may have sensitivity to different stimuli including noise, lighting, textures, smells, and so forth. Additionally, individuals with ASD may engage in repetitive behaviors or

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self-stimulation in order to reduce anxiety or provide comfort from the external environment (Hurlbutt & Chalmers, 2004).

Despite all of these impairments, individuals with ASD have attributes which can enable them to excel when given an appropriate task and placed in the right environment. Some of these strengths include a keen attention to detail, willingness for repetitive activities, trustworthiness, reliability, and timeliness (Hillier et al., 2007). Furthermore, having a focused interest can allow them to serve as an expert on a particular topic. Finally, several studies have found that most, if not all, supervisors rated the job performance of their employee with ASD as average or above average (e.g., Hagner & Cooney, 2005; Unger, 2003; Hillier et al., 2007). Taken together, with sufficient accommodations and supports, individuals with ASD possess the capabilities to have an independent lifestyle. One of the defining features of independent living is employment, which will be discussed below.

ASD & Employment Issues

One of the primary ambitions of all individuals is successful employment. A meaningful and productive work-life has the potential to improve quality of life by increasing independence, self-efficacy, and self-determination. This is not an exception for individuals with ASD and successful employment may be even more meaningful for this population because of the inherent challenges they face on a daily basis.

Many studies have demonstrated the benefits associated with successful employment for individuals with ASD. For example, in an eight-year follow-up on individuals with ASD who were successfully placed in a job using a supported employment service, Howlin and colleagues (2005) found that the majority of employees who remained in their jobs reported

overall job satisfaction and greater confidence. Additionally, Garcia-Villamisar and Hughes (2007) found that individuals with autism who were placed in jobs that matched their strengths and interests to ensure a good fit had higher performance on a series of executive functioning tasks as compared to individuals with autism who did not receive supported employment services. Thus, these studies show that gainful employment can not only improve quality of life but can also improve cognitive functioning.

Despite these benefits associated with a meaningful and productive work-life, there are many obstacles to successful employment that individuals with ASD face. Some of these obstacles include difficulties in communication; problems with attention, response shifting, organization, and adapting to change; behavioral issues; and sensitivity to sensory stimuli (Hendricks, 2010). These obstacles can result in high levels of stress and anxiety thereby creating a barrier to effective performance at work.

In an effort to offset these obstacles, vocational rehabilitation programs seek to ease individuals with ASD into jobs by ensuring a good match. Some of the functions of vocational rehabilitation programs include matching a client's strengths and interests with a job, job training to ensure an understanding of job tasks and workplace rules, diversity awareness training in the workplace, and so forth (Hillier et al., 2007).

Despite initial positive results from the use of vocational rehabilitation services, more recent evidence indicates that the outcomes from use of these services for individuals with ASD are less than optimal and do not provide the necessary support for successful employment (Müller, Schuler, Burton, & Yates, 2003). In particular, Lawler and colleagues (2009) looked at the employment outcomes of individuals with ASD who used the United States vocational rehabilitation system. Of the cases closed in 2005, the researchers found that individuals with

ASD were much more likely to be denied services because their cases were considered too severe to benefit from the services as compared to individuals with other disabilities. Additionally, Cimera and Cowan (2009) found that individuals with ASD who received vocational support services worked fewer hours and were paid lower wages than other disability groups. These researchers also showed that the services for individuals with ASD were one of the most expensive of all the disability groups surveyed thereby suggesting that they may not be cost effective for individuals with ASD. Therefore, it is possible that the initial positive results from the use of vocational rehabilitation services may apply to individuals with other disabilities but that these services do not work as effectively for individuals with ASD.

Another strategy that has been implemented is the use of job coaches. Job coaches are meant to increase independence by working one-on-one with clients to help them understand the job tasks, learn the rules of the workplace, and feel comfortable in the work environment. While support of this kind is necessary for integration, research has shown that overuse of job coaches can stigmatize employees with disabilities and hinder their acceptance into work culture (Hagner & Cooney, 2003). Furthermore, overuse of job coaches has been found to limit the interaction between employees with ASD and their coworkers thereby reducing opportunities for socialization (Hagner & Cooney, 2003).

Drawing from what is known regarding successful employment for individuals with ASD, it is crucial to first ensure a good match for the individual and then to provide support for that individual on the job. Given the evidence which suggests job coaches may not be as helpful as they are harmful, it is important to look towards another potential source of support: the supervisor. Supervisors serve as role models, select task assignments, make accommodations to work roles, and provide task and emotional support which all can potentially increase the

likelihood of worker success. Research indicates that the more natural the process of job acquisition, training, and support, the better the outcomes in regards to wages, integration, and benefits (Mank, Cioffi, & Yovanoff, 1997). Therefore, a turn to supervisors as a source of support may be the crucial linkage to enable successful engagement of employees with ASD in the job.

Given the unique characteristics this population displays, it is important to consider whether there are specific behaviors or styles of leaders which will be most effective for supervising employees with ASD. The following section describes three leadership theories in an attempt to elucidate which perspective might produce the best outcomes for employees with ASD.

Overview of Leadership Theories

Leaders can serve as an integral force in encouraging and facilitating both individuals and groups to achieve a goal. Provided the vast influence they can have on individuals—either for the better or for the worse—leadership has been a topic of interest since the early 1930s (Yukl, 2010). Throughout the history of leadership research, several models and theories have been proposed stressing various aspects of the leader, the follower, and the situation (e.g., leader traits and behaviors, follow traits, dyadic relationships, characteristics of the situation). This dynamic history demonstrates the complexity of leadership and why it is necessary to take into account all aspects of the leadership process including the leader, the follower, and the situation. Given the unique characteristics of the followers' population of interest, employees with ASD, it is important to call into question which leadership theory is most appropriate for leading employees with ASD.

In a theoretical piece, Fairchild and colleagues (2011) examined how different leadership models may apply to employees with autism. Specifically, the researchers' paper analyzed how authentic leadership, transformational leadership, and the two-factor model of leadership may or may not be effective for leading employees with autism. Though the researchers suggest that other leadership theories may apply to employees with ASD, they choose to focus on these three theories because they represented future, current, and past models of leadership. In addition to this, the researchers used four specific criteria when choosing these theories: (1) popularity in terms of research volume, (2) effectiveness as being linked to organizational outcomes, (3) inclusion of subordinates in the theory, and (4) emphasis on interactions with subordinates rather than on specific leadership qualities or leader cognition. Suggesting that the two-factor model of leadership may be the most suitable of the three leadership theories for leading employees with autism, they linked how specific leader behaviors may be a better match for employees with autism. Importantly, Fairchild and colleagues urged the pressing need to focus more attention to better understand leader behaviors and styles which may be best for successfully engaging employees with autism. The current study seeks to test and extend some of the perspectives in the manuscript. First, a description of each leadership theory will be described below.

Authentic leadership. Authentic leadership, one of the most recent leadership models proposed, was developed by Luthans and Avolio (2003) and originated from the tenets of the positivist leadership movement (Fredrickson, 2001). During a time when society was strife with challenges, developers of the model felt that individuals were looking for a leader who could restore confidence, hope, and optimism, help people search for meaning, and relate to all people in order to come together for a common purpose (Avolio & Gardner, 2005). This model

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proposes that leaders should be self-aware of how they think and behave as well as have confidence and high morals to garner the trust necessary to lead effectively.

Authentic leadership is defined as "a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development," (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008, p. 94). As indicated in the definition, authentic leadership is composed of four elements: (1) balanced processing, (2) internalized moral perspective, (3) relational transparency, and (4) self-awareness (Avolio, Walumbwa, & Weber, 2009). First, balanced processing characterizes leaders who objectively consider all elements before making a decision. Oftentimes, leaders may solicit opinions from others who have different points of view to gain a broader perspective of the situation (Avolio, Walumbwa, & Weber, 2009). Internalized moral perspective defines leaders who are guided by highly integrated moral standards which are used to self-regulate behavior. This model suggests that by acting in accordance with their values and convictions, leaders will evoke commitment and trust from followers thereby increasing their effort to work towards common objectives (Walumbwa et al., 2008). The third component of authentic leadership, relational transparency, characterizes leaders who openly share their thoughts and feelings to display their true self. Leading transparently is also thought to elicit greater trust in followers (Walumbwa et al., 2008). Finally, leaders who are self-aware understand their strengths and weaknesses and are able to recognize the impact they have on others (Avolio, Walumbwa, & Weber, 2009).

Proponents of authentic leadership suggest that not only can the leader benefit from being authentic (e.g., higher levels of self-esteem, higher levels of well-being, enhanced feelings

of friendliness, elevated performance) but can also positively impact followers by acting as role models. There is also evidence indicating authentic leadership is related to positive outcomes. For example, Walumbwa and colleagues (2008) demonstrated a positive relationship between authentic leadership and satisfaction as well as performance. Subsequent studies have found that authentic leadership is a positive predictor of other outcome criteria including organizational citizenship behavior and organizational commitment (Avolio, Walumbwa, & Weber, 2009). Ultimately, this model proposes that leaders who consider all perspectives, have high morals, act transparently, and are self-aware can make a difference by helping individuals find a purpose at work, building optimism, confidence, and hope, developing trust and commitment, and facilitating positive and ethical work climates (Avolio & Gardner, 2005).

Transformational leadership. Following a period in which leadership research lagged, Burns (1978) introduced transformational leadership. The theory of transformational leadership rejuvenated leadership research because it provided a new and intriguing perspective focusing on vision-based leadership (Yukl, 2010). Since its original introduction, transformational leadership has been further developed by Bass (1985) as well as other researchers (Bass & Avolio, 1990; Howell & Avolio, 1993). The foundation of this theory stems from the distinction between transformational and transactional leadership. Essentially, transformational leaders offer a purpose focusing on higher order intrinsic needs in hopes that followers will go beyond their own interests for the common good (Judge & Piccolo, 2004). In contrast, transactional leaders focus on an exchange process and are less likely to motivate followers to go beyond expectations (Yukl, 2010). Bass (1990) suggested that these two forms of leadership are not mutually exclusive and it is possible for a leader to exhibit behaviors from both.

Transformational leadership is composed of four dimensions: (1) idealized influence (charisma), (2) inspirational motivation, (3) intellectual stimulation, and (4) individualized consideration. Idealized influence, or charisma, is the degree to which the leader behaves in ways that causes followers to identify with the leader (Bass, 1990). Leaders high on idealized influence show conviction and relate to followers on an emotional level (Judge & Piccolo, 2004). Inspirational motivation is the extent to which leaders communicate an appealing vision using symbols and abstract ideas thereby inspiring followers. Intellectual stimulation is the degree to which leaders challenge traditions and encourage participation from followers to inspire scholarly growth and creativity. Finally, individualized consideration is the extent to which leaders provide support, encouragement, and mentoring to followers (Yukl, 2010). Thus, leaders high on individualized consideration attend to the needs of their followers and show concern in an effort to gain trust and commitment from them.

Transactional leadership is also broken down into three dimensions including contingent reward, active management by exception, and passive management by exception. First, contingent reward includes behaviors that clarify work expectations necessary to obtain a predetermined reward. Thus, in exchange for good performance, leaders provide followers a reward in order to influence motivation. In general, management by exception is the extent to which leaders monitor followers' actions for mistakes. Leaders using an active form of management by exception continuously monitor the environment, anticipate potential problems, and intervene before a problem occurs. In contrast, leaders using a passive form of management by exception intervene after a problem has occurred (Yukl, 2010). As compared to transformational leadership which attempts to increase intrinsic motivation, transactional leadership attempts to increase extrinsic motivation by focusing on a social exchange process.

A final form of leadership, laissez-faire leadership, is characterized by deferring responsibilities to others and avoiding decision-making. Essentially, laissez-faire leadership is the absence of effective leadership (Yukl, 2010). Given the nature of this form of leadership and the purpose of the current study, not much emphasis will be placed on this style.

Numerous empirical studies as well as meta-analyses have demonstrated the positive impacts of transformational leadership (e.g., Howell & Avolio, 1993; Judge & Piccolo, 2004). Specifically, in a critique of transformational and charismatic leadership, Yukl (1999) found support that transformational leadership, as measured by the Multifactor Leadership Questionnaire, was positively related to several outcome criteria including subordinate satisfaction, motivation, and performance. Additionally, there is evidence that transformational leadership is effective across contexts and cultures (Bass, 1997).

Though transformational leadership and authentic leadership seem quite similar, there are key concepts differentiating the two models. The major difference between the two models is that authentic leaders may or may not be "transformational" in the sense that they are actively attempting to develop the follower. Rather, follower development may occur by proxy as a result of role modeling in authentic leadership (Avolio & Gardner, 2005). Additionally, authentic leaders seek to build enduring relationships and are less focused on inspirational appeals. In contrast, transformational leaders tend to rely on powerful, positive visions, stimulating ideas, and inspirational metaphors to gain commitment from followers. Thus, although there is overlap between authentic leadership and transformational leadership, the models are meaningfully distinguishable from each other (Walumbwa et al., 2008).

Two-factor model of leadership. During the 1950s, a team of researchers at Ohio State University conducted a series of studies seeking to uncover the behavioral indicators of

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leadership. After identifying several behavioral examples, the researchers ultimately isolated two primary factors: consideration and initiating structure (Stogdill, 1950; Fleishman, 1953). Around the same time when the Ohio State University studies were being conducted, researchers at the University of Michigan also sought to determine effective and ineffective supervisor behaviors. Similarly, the University of Michigan studies identified two dimensions, relationship-oriented and task-oriented behaviors (different wording though similarly operationalized; Likert, 1961). The overlap in the findings across the different studies provided considerable support that these two behavioral dimensions are important for leadership.

The first dimension, consideration, is the extent to which leaders show concern and respect, express appreciation and support, and act friendly towards their followers (Judge, Piccolo, & Ilies, 2004). A leader high on consideration may show support to their followers by being patient when giving instructions or expressing confidence in the employee's ability to complete a task. Additionally, a leader high on consideration may help to develop followers by coaching and mentoring them to increase their skills and facilitate job adjustment and success. Finally, this leader may recognize the accomplishments of followers by giving them praise and showing appreciation for them in order to encourage desirable behaviors and increase task commitment (Yukl, 2010).

The second dimension, initiating structure, is the extent to which leaders define and clarify work roles, maintain a standard of performance, and plan and coordinate work activities (Judge et al., 2004). A leader high on initiating structure may spend a great deal of time planning and coordinating work assignments and then communicating those assignments to followers in order to ensure efficient and effective work unit performance. Furthermore, a leader high on initiating structure may clarify job expectations by clearly defining responsibilities,

establishing performance goals, and assigning explicit tasks. Finally, this leader may monitor the performance of followers in order to identify problems and make modifications to strategies if necessary (Yukl, 2010).

Given its long history, several studies have examined how consideration and initiating structure affect organizational outcomes. In a meta-analysis, Judge and colleagues (2004) found that both consideration and initiating structure have moderately strong correlations across leadership outcomes. Specifically, the researchers compared the relationships between the dimensions and different outcomes demonstrating that consideration was more strongly related to satisfaction, motivation, and leader effectiveness whereas initiating structure was more strongly related to leader job performance and organization performance (Judge et al., 2004). While attention to the two-factor model of leadership has waned due to the advent of vision-based leadership theories, support exists for its effectiveness and stability. The two-factor model of leadership is an important perspective for considering its relation to employees with ASD.

The following section will provide a more detailed analysis of how these three leadership theories may apply to and be suitable for leading employees with ASD.

Leadership Theories and Their Application to Employees with ASD

It is first important to recognize that (as inclusive of its name) autism is a spectrum disorder so the characteristics and their degree of intensity may vary across individuals. Thus, the goal of the current study is to focus on the most common characteristics found in individuals with ASD when examining how appropriate each leadership theory is for supervising employees with ASD.

First, authentic leadership is focused on instilling confidence and optimism, helping people search for meaning, and expressing the true self to foster the development of the followers. While this type of leadership may be appealing and effective for neurotypical employees, employees with ASD may struggle when interacting with authentic leaders. Authentic leadership attempts to appeal to their followers by acting in ways that are congruent with their own morals and values in hopes of encouraging followers to understand their vision and common purpose. However, as noted in a study of employees with ASD, this population has difficulty understanding abstract concepts related to their job (Hillier et al., 2007). In particular, these employees had problems grasping the overall picture of how their job role fit within the broader organization. They also had a limited understanding of the importance of employment (Hillier et al., 2007). Additionally, individuals with ASD interpret ideas very literally and may struggle with value-based visions. Thus, when an authentic leader is focused on higher order concepts such as developing employees' confidence, hope, and values to align with the organization's goals, it may leave employees with ASD confused and overwhelmed.

However, at a more surface-level, because individuals with ASD are very literal, it may be important for their leaders to act in ways that display morality. Therefore, value-based visions may be ineffective for guiding employees with ASD, but it may be important for the leader to display honesty, adhere to societal principles, and take into consideration the perspectives of everyone.

Additionally, although authentic leaders may seek feedback from their employees in order to gain a more holistic perspective of the situation, these leaders are much less directive and instead believe that their actions will carry over to their followers. Proponents of the model suggest that leaders naturally and indirectly guide their employees to positive self-development

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(Walumbwa et al., 2008). However, individuals with ASD prefer direction and guidelines

(Hurlbutt & Chalmers, 2004) and may not succeed under conditions which lack structure.

Furthermore, in an interview with supervisors of employees with ASD, Hagner and Cooney

(2005) found consensus among supervisors for the need to be very specific, clear, and direct

when communicating with their employees. In sum, it appears that at a surface-level, authentic

leadership may be in line with what employees with ASD seek in leaders, but underlying

elements associated with authentic leadership may be at odds with this population.

In comparison, transformational leadership is focused on being charismatic,

motivating others with visions, encouraging followers to seek opportunities for intellectual

growth and creativity, and providing support to followers. Similar to authentic leaders,

transformational leaders try to evoke a sense of dedication from followers by appealing to their

emotions and values. Transformational leaders may communicate high standards for moral

conduct as well as optimism for the future and use symbols to guide employees (Yukl, 2010).

These strategies for motivating employees are quite abstract and would not resonate well with

employees with ASD. Individuals with ASD can experience sensory overload very easily which

may contribute to their level of stress and anxiety (Hurlbutt & Chalmers, 2004). The vision-

based, emotionally evocative messages that transformational leaders provide may contribute to

sensory overload and may be overwhelming to individuals with ASD.

On the other hand, transformational leaders also are very supportive and provide

coaching to their employees. Employees with ASD may need this attentiveness. Specifically in

the supervisor interviews by Hagner and Cooney (2005), supervisors mentioned that they needed

to be observant of the employee's cues. Recognizing if the employee was getting agitated and

responding by speaking calmly to reassure the employee is important to deter a potential

breakdown. Additionally, because ASD is largely a social and communication disorder, supervisors may need to provide support and guidance when employees with ASD are interacting with other coworkers or customers. For example, individuals with ASD often have difficulty interpreting nonverbal cues therefore it may be necessary for the supervisor to assist in their understanding of these cues.

However, similar to authentic leadership, transformational leaders lack clear direction and guidance. Transformational leaders communicate high expectations to their employees and encourage employees to consider different perspectives when approaching a problem, but the steps to achieve these goals are not clearly conveyed. Thus, while transformational leadership contains some elements that may be supportive to the needs of employees with ASD, there are many elements which are not suitable for leading employees with ASD.

Transactional leadership, the other style included within the theory of transformational leadership, emphasizes the importance of a social exchange relationship between the leader and follower by using rewards and corrective feedback to guide follower behavior. Although transactional leaders do provide clear expectations for good performance, which is a critical element for leading employees with ASD, transactional leaders do not individualize their actions to the needs of followers (Yukl, 2010). Therefore, expectations are generalized to all subordinates and are not tailored to the individual. Accommodating task expectations specifically for employees with ASD is necessary for facilitating successful performance. Additionally, although using an active form of management by exception may be helpful for employees with ASD, as supervisors of employees with ASD have suggested the importance of continuously monitoring their employees for potential problems or for signs of anxiety (Hagner & Cooney, 2005), management by exception is based on negative reinforcement. Negative

reinforcement may not be the best method to use because while it does correct problematic behaviors, it does not necessarily teach the appropriate behaviors. Schall (2010) suggested that one effective strategy for supervising employees with ASD may be to implement positive behavior support which includes teaching replacement behaviors in order to prevent problematic behaviors. Meaning, simply responding to problem behaviors using management by exception may not be sufficient to facilitate performance. Consequently, while transactional leaders do provide some form of direction and guidance for tasks needed to perform effectively, they may lack the individualized support needed to ensure that the tasks are most appropriate for the employee.

Finally, the two-factor model of leadership proposes that leaders can differ in the degree to which they display consideration and initiating structure. Leaders high in consideration and initiating structure offer support and coaching, provide encouragement to employees working on a difficult task, set specific goals for tasks, and coordinate work activities. First, as commented above, employees with ASD may respond favorably to leaders high on consideration who provide them with support and coaching. Importantly, when employees with ASD are faced with a potentially challenging task, it is essential for the supervisor to recognize this and provide the necessary supports. For example, one of the supervisors interviewed by Hagner and Cooney (2005) managed an employee with ASD who worked the cash register at his store. Noticing that his employee became quickly overwhelmed by people during peak hours, the supervisor reassigned him to work the cash register during non-peak hours. This demonstrates that the supervisor was being responsive and attentive and showing concern for the unique needs of his employee. Additionally, by merely reassigning the employee to a different time slot, the supervisor still showed confidence in his employee.

The critical element that was missing from the former two leadership theories, is present in the two-factor model of leadership. Initiating structure serves to set clear standards and expectations for tasks which is critical for the success of employees with ASD. When asked to give recommendations for enhancing success at work, employees with ASD commented that it is important to clearly describe job duties, responsibilities, expectations, and roles well in advance (Hurlbutt & Chalmers, 2004). Additionally, some effective strategies that supervisors of employees with ASD have used include maintaining a consistent schedule and consistent job tasks, providing organizers to structure work or written instructions for assignments, and being very clear when giving directions (Hagner & Cooney, 2005). All of these strategies align with the behaviors of leaders high on initiating structure.

When considering all of the leadership theories presented, the two-factor model of leadership seems to be the most suitable theory for effectively leading employees with ASD. The two-factor model of leadership fits with the concrete, rule-oriented nature of individuals with ASD but also with their need for support and accommodations. Therefore, it is expected that employees with ASD will have the best outcomes when the behaviors of supervisors are characteristic of the two-factor model of leadership.

> *Hypothesis 1a: Employees with ASD will be more satisfied when their supervisors engage in behaviors associated with the two-factor model of leadership than when their supervisors engage in behaviors associated with transformational leadership or authentic leadership.*
>
> *Hypothesis 1b: Employees with ASD will be more committed when their supervisors engage in behaviors associated with the two-factor model of leadership than when*

their supervisors engage in behaviors associated with transformational leadership or authentic leadership.

Hypothesis 1c: Employees with ASD will be more engaged in their work when their supervisors use behaviors associated with the two-factor model of leadership than when their supervisors engage in behaviors associated with transformational leadership or authentic leadership.

Hypothesis 1d: Employees with ASD will have higher performance ratings when their supervisors engage in behaviors associated with the two-factor model of leadership than when their supervisors engage in behaviors associated with transformational leadership or authentic leadership.

Hypothesis 1e: Employees with ASD will express fewer intentions to turnover when their supervisors engage in behaviors associated with the two-factor model of leadership than when their supervisors engage in behaviors associated with transformational leadership or authentic leadership.

Importance of structure. Two of the key elements that have been reiterated throughout the literature on integrating employees with ASD into the workplace are ensuring a good job match and accommodating the job tasks to meet the needs of the individual. It is well known in organizational research that job fit is important for job outcomes, such as increased satisfaction and performance (Borman, Klimoski, & Ilgen, 2003). Matching the interests and strengths of individuals with ASD to a job to ensure fit is especially important because it can prevent problem behaviors from occurring and promote success by honing in on the skills of each individual. Additionally, it is important to take into consideration the tasks, sensory

characteristics of the environment, the social climate, as well as the flexibility in the workplace

for employees with ASD (Schall, 2010).

However, to guarantee continued success for employees with ASD in the workplace, it

may be necessary to make additional accommodations to the job tasks. These job

accommodations may include providing written or pictorial instructions for job tasks, teaching

tasks by demonstration, using organization sheets to structure tasks, implementing a consistent

schedule, reducing social demands associated with the task, modifying down time, and so forth

(Hagner & Cooney, 2005). ASD is often comorbid with anxiety disorder therefore identifying

potential problems and then adapting tasks to make employees with ASD more comfortable is

important to prevent stress and anxiety. These strategies associated with job accommodations

resemble the behaviors characteristic of initiating structure. For example, a leader who organizes

work activities to improve efficiency would come in the form of using organization sheets and

monitoring performance. Additionally, a leader who resolves problems that might disrupt work

would come in the form of identifying the need to reduce social demands or modify down time.

Making these accommodations is essential to prevent work disruptions, avoid anxiety from the

employee, and promote successful performance on the task at hand. Thus, in order for the two-

factor model of leadership to be effective, it is necessary for high initiating structure to be

present. It is expected that initiating structure will have a moderating effect on the relationship

between consideration and outcome criteria.

> *Hypothesis 2: Initiating structure will moderate the relationship between*
>
> *consideration and employee effectiveness such that when initiating structure is high,*
>
> *consideration will be positively related to (a) satisfaction, (b) commitment, (c) work*

engagement, (d) performance ratings, and will be negatively related to (e) intentions

to turnover of employees with ASD. Alternatively, when initiating structure is low,

consideration will be weakly or negatively related to (a) satisfaction, (b) commitment,

(c) work engagement, (d) performance ratings, and will be weakly or positively

related to (e) intentions to turnover of employees with ASD.

Perceptions of social support. It is often the case that supervisors or neurotypical employees do not have a good understanding of ASD and therefore may not know how to interact with employees with ASD. One of the employees with ASD interviewed by Hurlbutt and Chalmers (2004) commented on this issue as well as the topic of disclosure: "I wish I could disclose the information up front, but I think that it would just prevent me from being hired because people don't know enough about it [ASD] and are frightened," (p. 220). This quote clearly reiterates the point that people may be unaware of the disorder and may not know what is the best way to work with employees with ASD. When equipped with little knowledge on a topic, people often resort to the use of stereotypes or what little information they have on the topic.

At the most general level, ASD is associated with impairments in communication and socialization. After a few interactions with individuals with ASD, people may pick up on the social impairments associated with ASD including deficits in understanding social norms and verbal and nonverbal cues, interpreting metaphors and emotions as well as regulating behavior. These interactions may lead neurotypicals to assume that individuals with ASD do not prefer to socialize because it may make them uncomfortable. However, Hagner and Cooney (2005) found the majority of supervisors interviewed described their employees with ASD as social and

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interactive. When provided the opportunity to socialize or when invited to participate in conversations or work events, the supervisors said their employees were quite responsive and social. Therefore, when not familiar with the intricacies of ASD, neurotypicals may wrongfully assume that because individuals with ASD have impairments in the social domain, this population would rather not have the social support and develop relationships in the workplace.

This perception of the need to underemphasize social aspects of the work environment was supported in a study examining the types of accommodations supervisors provided to employees with disabilities. Gates, Akabas, and Kantrowitz (1996) interviewed both supervisors and employees with disabilities and asked them to identify their own or their employee's perceived functional limitations (e.g., task-related, routine, relationship, and access) as well as the degree of accommodation given for each limitation. The researchers found that employees perceived more relationship-oriented limitations than supervisors but that both employees and supervisors perceived similar levels of task limitations. Interestingly, supervisors reported providing significantly more task accommodations than relationship-oriented accommodations. This demonstrates that despite the employees' apparent "need" for more relationship-oriented accommodations, supervisors tended to focus on task accommodations instead. Even though the most common disabilities of employees were physical limitations (e.g., musculoskeletal injuries after a sensory impairment) or neurological problems, this notion can be transferred to employees with ASD. Employees with ASD are aware of their limitations in the social domain and may prefer to have their supervisors provide them with support and encouragement to help alleviate their deficits. However, supervisors may believe that it is more important to focus on task-related issues and in turn place less importance on relationship-related issues.

Therefore, it is expected that neurotypicals will rate leader behaviors associated with consideration as less important than employees with ASD.

Hypothesis 3: Employees with ASD will rate consideration as more important than supervisors.

Additionally, Gates and colleagues (1996) found that the longer supervisors worked with their employee with a disability, the less discrepancy there was between the limitations perceived and the accommodations provided. Therefore, it is possible that experience may eliminate these misperceptions. With increased experience, neurotypicals may realize that while individuals with ASD do have social impairments, they may appreciate the support and coaching provided by a leader high on consideration. As interactions increase between supervisors and employees with ASD, supervisors may begin to feel more comfortable interacting with this population and this ease may transfer over to employees with ASD thereby making the interaction more meaningful. Supervisors may then realize that employees with ASD do find these behaviors important but that they might take a different form than when interacting with neurotypical employees. Taken together, it is expected that with increased experienced, the mismatch of rated importance of consideration between supervisors and employees with ASD will decrease.

Hypothesis 4a: Experience with ASD will moderate the relationship between rater source (i.e., neurotypicals and employees with ASD) and perceived importance of

consideration such that when supervisors have little experience with ASD, supervisors

will rate consideration less important than employees with ASD.

Hypothesis 4b: When supervisors have greater experience with ASD, they will rate

consideration equally important as employees with ASD.

Method

Present Study

To gain a better understanding of what facilitates the success of employees with ASD in their jobs, the present study sought to identify leader behaviors and styles that produce the best work outcomes for employees with ASD. For the current study, interviews were conducted with employees with ASD as well as supervisors managing those with ASD to determine the frequency and importance of leader behaviors characteristic of specific leadership theories. Employee job satisfaction, organizational commitment, work engagement, performance, and intentions to turnover were measured as outcome variables.

Participants

Participants for the study were recruited through e-mail and webpage announcements sponsored by various autism advocacy organizations. The first sample of participants included 54 employees with ASD. There was roughly an equal distribution of males and females (46.3% and 53.7%, respectively) who participated in the interview. The majority of the workers were employed as human service workers, research support staff, or cleaning and support staff. Furthermore, participants indicated having a more mild form of ASD, on average. Finally, 59%

of the sample had self-disclosed their condition to their employer. For a complete description of the employee sample, please refer to Table 1.

Insert Table 1 about here

The second sample of participants included supervisors managing individuals with ASD. In addition to the e-mail and webpage announcements, several of these participants were identified and recruited from the employees with ASD who were interviewed. This sample included 15 supervisors, 6 of which are linked to an employee with ASD. The majority of supervisors were male (73.3%) and worked with the identified employee with ASD for an average of 3.0 years ($SD = 1.9$ years). For a complete description of the supervisor sample, please refer to Table 2.

Insert Table 2 about here

Although both of these samples are small by traditional sample size estimates, these are the largest sample sizes for a study using this population in the work setting to date. Regardless, several steps were taken to increase the sample size of the study. Aside from what the participant experienced regarding recruitment (detailed below), several methods and attempts were made at identifying contacts, agencies, and other avenues to gain the appropriate sample. The majority of recruitment efforts were directed at contacting local and national autism agencies as well as broader agencies serving individuals with all developmental disabilities. If possible, these agencies posted an advertisement on their website or sent announcements directly

on their listservs. Otherwise, they provided alternative resources to aid in recruitment. Also, local support groups for adults with ASD were identified and attended.   Finally, numerous researchers and authors advocating for adults with ASD were contacted directly to explore additional avenues for recruitment. After 9 months of recruitment and data collection, there were diminishing returns on finding participants and, therefore, the recruitment phase of the study was terminated.

Procedure

After receiving an e-mail announcement from a listserv or reading a webpage announcement including a description of and the goals for the study, interested participants contacted the researcher directly to establish a time to conduct a telephone interview. Following, all employees with ASD were e-mailed a copy of the interview protocol (see Appendix) as well as the verbal consent form. Additionally, supervisors were e-mailed a copy of the verbal consent form for their records.

At the beginning of the interview, the researcher reiterated the purpose of the study and what the interview would entail. Additionally, the researcher ensured that the participants met all inclusion criteria (i.e., English-speaking, adult without a legal guardian) before proceeding. After hearing this information, all participants consented to be involved in the study. All employees with ASD were deemed capable of consenting to the study by the researcher.

Participants then responded to a series of interview questions about themselves and their place of work as well as specific behaviors used by their supervisors (or themselves) at work. Participants were also asked to freely respond to a series of questions regarding supervisor behaviors they believe facilitate the success of employees with ASD. After completing the

interview protocol, participants were thanked for their involvement. The interview took an average of 30 minutes to complete.

Materials

  Interview protocol. The interview protocol included questions examining basic demographics, supervisor behaviors, outcome criteria, and other work-related issues. First, the demographics questions were open-ended that gathered information on the participant's organization and role in the organization. Example questions included: "What is your position at this organization?" and "Does your organization provide diversity awareness training (specific to ASD or otherwise)?" Additionally, employees with ASD were asked whether or not they work with a job coach.

  The next section of the interview included a list of supervisor behaviors characteristic of authentic leadership, transformational leadership, and the two-factor model of leadership. Two separate responses were made on a 5-point Likert scale to assess frequency and importance of the behavior. To assess frequency, the scale ranged from 1 (*never*) to 5 (*always*). To assess importance, the scale ranged from 1 (*not important*) to 5 (*very important*). The list of behaviors was created by adapting some of the characteristic behaviors of each leadership style included in Yukl's (2010) textbook, *Leadership in Organizations*. For a complete list of the behaviors, refer to Appendix.

  Job satisfaction was assessed using three items from the Michigan Organizational Assessment Questionnaire satisfaction subscale (Cammann, Fichman, Jenkins, & Klesh, 1979). Responses were made using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Items included: (a) "All in all, I am satisfied with my job," (b) "In general, I

like working here" and (c) "In general, I don't like my job." Cronbach's alpha for this scale was 0.88.

Organizational commitment was assessed using eight items from the Allen and Myer (1990) Affective Commitment Scale. Responses were made using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Example items included: (a) "I do not feel like 'part of the family' at my organization," (b) "I enjoy discussing my organization with people outside it," and (c) "This organization has a great deal of personal meaning for me." The internal consistency for the scale was 0.84.

Work engagement was assessed using six items from the shortened form of the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006). Participants identified how much they agreed with all six statements as a group. Responses were made using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Example items included: (a) "When I get up in the morning, I feel like going to work," (b) "I am enthusiastic about my job," and (c) "I am immersed in my work."

Intentions to turnover was assessed using three items from the Michigan Organizational Assessment Questionnaire (Cammann et al., 1979). Responses were made using a 7-point Likert scale ranging from 1 (*strongly disagree/not at all likely*) to 7 (*strongly agree/extremely likely*). Items include: (a) "It is likely that I will actively look for a new job in the next year," (b) "I often think about quitting," and (c) "How likely is it that you could find a job with another employer with about the same pay and benefits you now have?" Internal consistency for the scale was 0.53.

Performance was assessed using a self-rating as well as an evaluation by the supervisor. Employees with ASD were asked to respond to one item using a 7-point Likert scale

ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The item was "My supervisor would probably rate my overall performance as above average." Additionally, supervisors were asked to respond to one item using a 5-point Likert scale ranging from 1 (*unsatisfactory*) to 5 (*excellent*). The item was "How would you rate this employee's performance in his or her job?"

The last section of the interview included open-ended questions about strategies for managing employees with ASD as well as any other advice. Example questions included: (a) "What do you think are the most important behaviors or styles when engaging employees with autism in their work?" and (b) "How would you describe your interaction or communication style with your employee with ASD [or with your supervisor]?" In order to quantify the participants' answers according to the level of importance placed on each leadership style, responses were coded on a scale from 1 (*not important*) to 5 (*very important*) for each of the leadership theories. Ratings were made for each dimension of transformational leadership and authentic leadership as well as for initiating structure and consideration. Following, the dimension-level ratings were aggregated to the construct-level. Four coders were trained on each leadership theory to evaluate participants' responses to ensure adequate inter-rater reliability. Inter-rater reliabilities ranged from 0.64 to 0.89 for all dimensions, with an average of 0.81.

Covariates. Leader liking has been shown in several studies to influence ratings of leaders. In particular, Brown and Keeping (2005) found that about 32% of the variance in ratings of leaders could be attributed to leader liking. Therefore, leader liking was measured using two items from Wayne & Ferris' (1990) Member Liking of the Leader scale. Items included: (a) "I like my supervisor very much as a person" and (b) "I think my supervisor would make a good friend." Internal consistency for the scale was 0.89.

Furthermore, several individuals with ASD also experience symptoms of anxiety disorder. A recent study by Gillott and Standen (2007) compared a group of 34 adults with autism and intellectual disabilities with a matched group of 20 adults with intellectual disabilities without autism on their levels of anxiety. The researchers found the group with autism had significantly higher overall levels of anxiety than the control group. Their results indicated that 73.1% of the group with autism had scores outside the range of the control group. Moreover, it has also been suggested that due to the nature of the spectrum disorder, these individuals may not have the coping skills to manage the stress or cognitively appraise the situations they find anxiety-provoking (Groden et al., 2001). Thus, given the implications anxiety can have on the impact of leadership and work-related outcomes, anxiety was included as a covariate. Five items from the Generalized Anxiety Disorder-7 Scale (GAD-7) were used (Spitzer, Kroenke, Williams, & Lowe, 2006). Employees with ASD were asked to rate how often they experience those five statements as a group on a scale from 1 (*never*) to 5 (*always*).

Additional covariates were included for exploratory purposes. These variables included the use of a job coach, whether a diversity awareness training program is in place and has been taken, the type of the organization (industry and size), the amount of time the supervisor spends with his or her direct subordinates, the nature and complexity of the job tasks (i.e., level of intelligence required for the job), the number of hours worked per week, and the length of employment at the organization.

Analysis

Data collected for this study were entered and analyzed using *SPSS 19.0*. Before performing any analyses, data were cleaned through a series of steps. First, frequencies were run

to determine whether any data were missing or out of range. This check revealed that there were a few missing data points. However, after confirming with the original survey materials, it was determined that the participants chose not to answer specific questions because they did not feel as though they could properly respond to it. Second, appropriate items for the outcome criteria were reverse coded according to the instructions from the instruments. Third, composite measures were computed for the independent variables (i.e., transformational leadership and authentic leadership), covariates (i.e., leader liking), and dependent variables (i.e., satisfaction, organizational commitment, and intentions to turnover). Finally, all scales were tested for reliability using Pearson r correlations. Following cleaning of the data and testing for the reliability of the measures, several steps were taken to analyze the proposed hypotheses.

To test whether the two-factor model of leadership was more effective than both authentic leadership and transformational leadership (hypothesis 1), correlations were run and then a t-test was conducted to assess whether the differences between the correlations were significant. To follow-up with these analyses, multiple regression was run to test the unique contribution of each leadership style when controlling for the effects of the other leadership styles. Next, moderated multiple regression was conducted to test whether the relationship between consideration and outcome criteria was influenced by initiating structure (hypothesis 2). In the first step, appropriate controls were entered, then consideration and initiating structure were entered in the second step, and, finally, the interaction term of consideration and initiating structure was entered in the third step. Third, to test whether employees with ASD rated consideration as more important than supervisors, an independent samples t-test was conducted (hypothesis 3). Finally, ANOVA was used to determine whether experience with ASD had a moderating effect on perceived importance of consideration (hypothesis 4).

Results

Means, standard deviations, and intercorrelations for the study variables are presented for employees with ASD in Table 3 and for supervisors in Table 4. For the sample of employees with ASD, the frequency self-ratings of leadership styles as well as importance self-ratings of leadership styles were moderately to highly intra-correlated. The content-coded importance ratings of leadership styles are similarly highly related, especially when examining the associations between consideration, transformational leadership, and authentic leadership. Because these leadership styles stress aspects of building relationships with followers (e.g., showing respect and providing support, individualized consideration, relational transparency), it is not surprising that they have a moderate association. Self-ratings and content-coded ratings of importance for similar leadership styles were not strongly correlated indicating the possibility that individuals were more discriminating in stressing the importance of leadership styles in their open-ended responses. Furthermore, the outcome variables, with the exception of performance ratings, were moderately to highly correlated.

Insert Table 3 about here

Unlike the sample of employees, the leadership styles within frequency and importance self-ratings as well as content-coded ratings of importance among the sample of supervisors were not highly intra-correlated. Also, similar to employees with ASD, self-ratings and content-coded ratings of importance for each leadership style were not correlated.

Insert Table 4 about here

As a note of caution, several of the means in the self-reported data are quite high with low variance indicating the possibility of range restriction. This is especially true for the sample of supervisors. These high values are possibly resulting from either social desirability ("of course my boss does this" or "of course I do this") or not being able to discriminate the level of importance associated from each set of behaviors ("all seem to be important"). This will be examined further in the discussion section.

Covariates

Using a stepwise regression analysis procedure, all covariates were assessed for their applicability to include in the final analyses based on their significance and the benefit of maximizing degrees of freedom. For the sample of employees with ASD, leader liking was used as a covariate for the outcome variables including satisfaction ($F(1, 52) = 6.82, p \leq .05$), organizational commitment ($F(1, 51) = 11.45, p \leq .01$), and performance ($F(1, 51) = 4.61, p \leq .05$). Additionally, anxiety was used as a covariate for the outcome variables including satisfaction ($F(1, 52) = 10.10, p \leq .01$), organizational commitment ($F(1, 52) = 6.61, p \leq .05$), and intentions to turnover ($F(1, 52) = 23.69, p \leq .01$).

Tests of Hypothesis 1

The first hypothesis suggested that employees with ASD would be more satisfied, committed, and engaged, receive higher performance ratings, and have fewer intentions of

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turnover when their supervisors engaged in behaviors associated with the two-factor model of leadership than when their supervisors engage in behaviors associated with transformational leadership or authentic leadership. Thus, it was expected that there would be higher correlations between the frequency ratings of initiating structure and consideration and the outcome variables than with the frequency ratings of transformational leadership and authentic leadership and the outcome variables. For the outcome variable intentions to turnover, consideration had the greatest correlation when compared to the other leadership styles ($r = -0.43$, $p \leq .01$). However, authentic leadership had the highest correlations with satisfaction, organizational commitment, and engagement (for satisfaction, $r = 0.36$, $p \leq .01$, for organizational commitment, $r = 0.39$, $p \leq .01$, and for engagement, $r = 0.41$, $p \leq .01$) while transformational leadership had the highest correlation with performance ($r = 0.36$, $p \leq .01$). Follow-up William's t-tests for the correlations associated with each outcome variable, determined that none of the differences were significant. Please refer to Table 5 for a complete listing of all correlations.

Insert Table 5 about here

Follow-up tests. As an alternative method to test the importance of initiating structure and consideration for work-related outcomes, regression was conducted to determine the incremental effects of initiating structure and consideration behaviors over and above authentic leadership and transformational leadership behaviors. When controlling for leader liking and anxiety for the respective outcomes (i.e. leader liking for satisfaction, organizational commitment, and performance and anxiety for satisfaction, organizational commitment, and intentions to turnover), the incremental effects associated with initiating structure and

consideration were not significant for the outcomes. However, they were trending towards

significance for the outcome intentions to turnover. The frequency of initiating structure and

consideration explained about 5% of the variance in intentions to turnover, over and above

anxiety, authentic leadership, and transformational leadership. Thus, while there is partial

support that the two-factor model of leadership is important for reducing intentions to turnover

(Hypothesis 1e), there is no support that the frequency of the two-factor model of leadership is

more important for increasing levels of satisfaction, organizational commitment, engagement,

and performance (Hypotheses 1a-1d) than transformational leadership and authentic leadership.

Tests of Hypothesis 2

The second hypothesis proposed that initiating structure would have a moderating

effect on the relationship between consideration and outcome criteria. Thus, it was expected that

when initiating structure was used often, consideration would be positively related to

satisfaction, organizational commitment, work engagement, and performance and would be

negatively related to intentions to turnover. Alternatively, when initiating structure was less

frequent, consideration would be negatively related to satisfaction, organizational commitment,

work engagement, and performance and would be positively related to intentions to turnover.

Multiple regression was used to test this hypothesis and results for each of the outcome criteria

can be found in Tables 6-10. In the analyses, appropriate controls (if applicable) were entered in

the first step, followed by the main effect variables, frequency ratings of consideration and

initiating structure. Finally, the interaction term was entered in the third step. A significant

change in the variance explained by the regression step and a significant beta coefficient for the

interaction term constituted a moderating effect (Aiken & West, 1991; Baron & Kenny, 1986).

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Job satisfaction. While 33.7% of the variance in job satisfaction was accounted for by leader liking, anxiety, consideration, initiating structure, and the interaction term, the majority of the variance explained was attributed to the control variables (23.7%). Adding consideration and initiating structure significantly increased the variance explained and were trending towards exerting positive, significant effects on job satisfaction. However, the interaction term of consideration and initiating structure was not significant ($B = -0.039$, $SE = 0.120$, $p > .10$) nor did it add sizable variance to the model. Therefore Hypothesis 2a was not supported.

Insert Table 6 about here

Organizational commitment. The control variables, leader liking and anxiety, in the first step explained 27% of the variance in organizational commitment ($p < .01$). Adding the main effects significantly increased the variance explained in organizational commitment by 10%. Additionally, initiating structure was a significant predictor ($p < .05$) of organizational commitment. However, neither consideration nor the interaction term were significant predictors. Additionally, the interaction term of consideration and initiating structure did not add a significant change in the variance explained and therefore Hypothesis 2b was not supported for organizational commitment.

Insert Table 7 about here

Work engagement. For the first step, both main effects were entered and accounted for 13.6% of the variance in work engagement ($p < .01$). While initiating structure was a

significant predictor of work engagement ($B = -0.407$, $SE = 0.181$, $p < .05$), the interaction term was not a significant predictor nor did it add incremental validity to work engagement. Therefore, Hypothesis 2c was not supported.

Insert Table 8 about here

Performance. For the outcome criteria, performance, leader liking was entered in the first step and explained 9.2% of the variance in performance. However, steps two, which included the main effects, and three, which included the interaction term, were not significant predictors nor did they add incremental validity to performance. Thus, Hypothesis 2d was not supported.

Insert Table 9 about here

Intentions to turnover. Anxiety, which was entered in the first step, explained 28.3% of the variance in intentions to turnover ($p < .01$). The second step, which included the main effects of consideration and initiating structure, explained an additional 11.7% of the variance ($p < .05$), and consideration was a significant predictor of intentions to turnover ($B = -0.521$, $SE = 0.169$, $p < .01$). Additionally, the interaction term of consideration and initiating structure was significant ($B = -0.244$, $SE = 0.117$, $p < .05$) and increased the variance explained in intentions to turnover significantly by 5.0% ($p < .05$). Finally, this model explained a total of 45% of the variance in intentions to turnover. Therefore, initiating structure was found to be a moderator

but, contrary to Hypothesis 2e, initiating structure served as a moderator in the opposite direction. Please refer to Figure 1 for a depiction of these trends.

Insert Table 10 about here

Insert Figure 1 about here

Follow-up tests. In a follow-up set of tests, all analyses were rerun after centering the independent variables to minimize mutlicollinearity concerns. Performing the regressions with centered variables did not change the results of the original analyses.

Test of Hypothesis 3

Hypothesis three proposed that employees with ASD would rate consideration as more important than supervisors. Both importance self-ratings and content-coded ratings of consideration were compared between groups. In regards to self-ratings, supervisors ($M = 4.53$, $SD = 0.74$) rated consideration as more important than employees with ASD ($M = 4.36$, $SD = 0.76$) but this difference was not statistically significant ($t(66) = -0.79$, $p = .43$). Additionally, in regards to the content-coded ratings, supervisors ($M = 3.72$, $SD = 1.38$) rated consideration as more important than employees with ASD ($M = 3.21$, $SD = 1.21$) but this difference was not statistically significant ($t(65) = -1.38$, $p = .17$) either. Therefore, Hypothesis 3 was not supported.

Test of Hypothesis 4

The fourth hypothesis proposed that experience with ASD would moderate the relationship between rater source (i.e., neurotypicals and employees with ASD) and perceived importance of consideration such that when supervisors have little experience with ASD, supervisors will rate consideration as less important than employees with ASD. Alternatively, when supervisors have greater experience with ASD, supervisors will rate consideration equally as important as employees with ASD. To test this hypothesis, both importance self-ratings and content-coded ratings of consideration were analyzed as dependent variables. Additionally, two proxy variables of experience, length of time supervising employees with ASD as well as knowledge of ASD, were analyzed as moderator variables.

While the third hypothesis did not show support that employees with ASD rated the importance of consideration higher than supervisors, follow-up tests were conducted to determine whether there was an associated trend in supervisors' ratings of importance such that as experience with ASD increases, importance ratings of consideration also increases. Mean levels of consideration were compared between supervisors of limited experience with supervisors of extensive experience by using a median split. First, analyses using importance self-ratings of consideration as the dependent variable were performed. Using the proxy variable, length of time supervising employees with ASD, supervisors who reported fewer years managing employees with ASD ($M = 4.25$, $SD = 0.89$) rated consideration as less important than supervisors who reported more years managing employees with ASD ($M = 4.86$, $SD = 0.38$). Additionally, this difference was trending towards significance ($t(13) = -1.68$, $p = 0.11$). Please see Figure 2. Furthermore, using the proxy variable, knowledge of ASD, supervisors with less knowledge ($M = 4.50$, $SD = 0.76$) also rated consideration as less important than supervisors

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with more knowledge ($M = 4.57$, $SD = 0.79$) but this difference was not significant ($t(13) = $ -

0.18, $p = 0.86$).

Insert Figure 2 about here

Next, similar steps were taken for examining importance content-coded ratings of

consideration as the dependent variable. First, using the proxy variable, length of time

supervising employees with ASD, supervisors who reported fewer years managing employees

with ASD ($M = 3.63$, $SD = 1.51$) rated consideration as less important than supervisors who

reported more years managing employees with ASD ($M = 3.86$, $SD = 1.46$) but this difference

was not significant ($t(13) = -0.30$, $p = 0.77$). Additionally, using the proxy variable, knowledge

of ASD, supervisors with less knowledge ($M = 3.25$, $SD = 1.49$) also rated consideration as less

important than supervisors with more knowledge ($M = 4.29$, $SD = 1.25$) but this difference was

not significant ($t(13) = -1.45$, $p = 0.17$).

Exploratory Results

Aside from the specific tests of the hypotheses proposed for the current study,

additional exploratory tests were performed to better understand trends resulting from the

dataset. In the sections that follow is an explanation of these exploratory tests.

Predictors of outcome variables. The first set of exploratory tests sought to better

understand which leadership variables, as rated by their frequency and importance, best predicted

work outcomes in employees with ASD. All of the data used in these analyses were performed

using the sample of employees with ASD. Using a series of stepwise regression analyses,

appropriate controls were entered in first step, followed by the set of leadership variables of interest (i.e., self-ratings of frequency, self-ratings of importance, and content-coded ratings of importance).

First, analyses were conducted to examine the frequency of leadership styles as predictors of work-related outcomes. To begin, when all frequency ratings of initiating structure, consideration, transformational leadership, and authentic leadership were entered into a stepwise regression, it was found that authentic leadership was the best predictor of satisfaction ($B = 0.79$, $SE = 0.29$, $p < .01$; $R^2 = 0.34$), organizational commitment ($B = 0.76$, $SE = 0.26$, $p < .01$; $R^2 = 0.37$), and engagement ($B = 0.93$, $SE = 0.26$, $p < .01$; $R^2 = 0.20$). Alternatively, consideration was the best predictor of intentions to turnover ($B = -0.46$, $SE = 0.16$, $p < .01$; $R^2 = 0.39$).

The next set of regression analyses separately compared importance ratings of leadership behaviors based on whether they were self-ratings or content-coded ratings. First, a series of stepwise regressions were performed using self-ratings of importance associated with initiating structure, consideration, transformational leadership, and authentic leadership for the various outcome measures. Analyses revealed that placing importance on initiating structure best predicted satisfaction while controlling for leader liking and anxiety ($B = 0.43$, $SE = 0.20$, $p < .05$; $R^2 = 0.30$). No other leadership variables resulted as significant predictors in the remaining work outcomes.

The second series of stepwise regressions were performed using content-coded ratings of importance associated with initiating structure, consideration, transformational leadership, and authentic leadership. Unlike self-ratings, initiating structure did not emerge as a significant predictor. Instead, importance ratings of authentic leadership best predicted organizational commitment while controlling for leader liking and anxiety ($B = 0.77$, $SE = 0.32$, $p < .05$; $R^2 =$

0.31). This finding that different predictors emerged for the importance ratings reemphasizes the notion from prior analyses that the closed-ended questions and open-ended questions may have been answered and interpreted differently in this sample.

        Matched-pair sample trends. Within the study, there were six matched supervisor and employee pairs. While this number of pairs does not allow for the use of robust statistical analyses, correlations and general trends were be performed and garnered as a preliminary means of analysis. However, these results should be interpreted with caution.

        All the correlations of the self-reported leadership variables between supervisors and employees were moderate to high ranging from $r = 0.31$ to $r = 0.75$, with an average of $r = 0.44$. None of these correlations were significant, as expected from the small sample. Of particular interest, the correlation between self-reported performance between supervisors and employees was high and trending towards significance ($r = 0.77$, $p = 0.07$). Thus, it seems that the employees were able to provide a good assessment of their performance at work.

        Aside from correlational analyses, the small number of pairs provided the opportunity to closely examine the data for trends. Overall, supervisors tended to overestimate the frequency and importance of their behaviors as compared to employees in the self-reported data suggesting the possibility of a positive halo in ratings. However, when supervisors were freely responding to questions in the open-ended section, they tended to underestimate the importance of initiating structure and consideration to a greater degree than employees with ASD.

        Additionally, the employee with ASD who had the greatest discrepancy in the content-coded importance ratings of the leadership behaviors with his or her supervisor, reported the lowest levels of organizational commitment, compared to the other pairs. On the contrary, the employee with ASD who had the least discrepancy in the content-coded importance ratings of

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the leadership behaviors with his or her supervisor, reported the highest levels of organizational commitment, compared to the other pairs. While it is difficult to make generalizations for these results, it does provide an exploratory and tentative outlook on how employees with ASD and supervisors may view how the leader should act while working with one another. Furthermore, it contributes to the use of the employee's self-reported performance measure given the high correlation between performance indices.

Discussion

The aim of the current study was to elucidate critical leader styles and behaviors necessary for enhancing work-related outcomes for employees with ASD. The results of the study challenged many of the hypotheses proposed for the study. However, given that much is unknown about the preferences and needs for this specific population, several key findings aided in building a foundation for how leaders can successfully engage their employees with ASD. In particular, results from the study emphasize that leadership is critical for satisfaction, commitment, engagement, intentions to turnover, and performance of employees with ASD; highlight the idea that leadership is a complex phenomena and that individuals, especially those on the spectrum, have different needs and preferences for their leaders; and demonstrate that employees with ASD are excellent performers but quite often are an untapped potential in the employment arena. Finally, results from the study identify potential measurement issues and also illuminate important avenues for additional research.

Study Findings

  Impact of leadership. Several meta-analyses reviewing the impact of leadership have demonstrated the large effect leadership has on work outcomes of neurotypical employees (e.g., Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011; Judge & Piccolo, 2004; Judge, Piccolo, & Ilies, 2004). This study reiterates the notion that leadership is important, and possibly even more so, for the work attitudes and performance of employees with ASD. As indicated from the results of this study, leadership, and in particular, initiating structure and consideration, accounted for a sizable portion of the variance in employee satisfaction, organizational commitment, work engagement, performance, and intentions to turnover. While some of the variance in the outcomes can be attributed to the covariates, anxiety and leader liking, the additional variance is not trivial. Specifically, the variance attributed to leadership across the outcome variables ranged from 11.6% to 45.0% (for satisfaction: 33.7%; for organizational commitment: 38.0%; for work engagement: 13.8%; for performance: 11.6%; for intentions to turnover: 45.0%), with an average of 33.1%.

  To gain an accurate understanding of how these values compare, it is useful to consider meta-analyses examining the impact of leadership on neurotypical employees. Most relevant to these findings, Judge, Piccolo, and Ilies (2004) reviewed the relative effect of consideration and initiating structure on several outcome criteria. Across 76 studies, the researchers found consideration and initiating structure accounted for 21.2% of the variance in job satisfaction. Using a similar procedure and the same criteria, Judge and Piccolo (2004) conducted a meta-analysis on the impact of transformational and transactional leadership on outcomes. They found that transformational leadership accounted for approximately 33.6% of the variance in follower satisfaction and transactional leadership (in the form of contingent

reward) accounted for 41.0% of the variance in follower satisfaction. As a final source of comparison, Dulebohn and colleagues (2011), conducted a review on the effects of leader-member exchange (LMX) on several work criteria. The researchers found that LMX accounted for 24.0% of the variance in job satisfaction, 22.1% of the variance in organizational commitment, 15.2% of the variance in turnover intentions, and 11.6% of the variance in job performance. While LMX is not the focus of this study, it does highlight the relative effects of leadership on other outcome variables included in this study.

Taking this into consideration, it is apparent that leadership is not trivial for employees with ASD. The relative impact of leadership on work outcomes is great and reiterates the notion that leaders do have the ability to enhance engagement and improve the quality of work experiences for individuals with ASD.

Complex nature of leadership preferences and their relationship with work outcomes. Overall, while the results demonstrated that leadership is critical for employees with ASD, there was not one style of leadership that was superior to the others. This reveals the complex nature of individuals with ASD. By its definition, autism is a spectrum disorder; individuals may exhibit a range of symptoms. Thus, individuals may have different needs and preferences for leadership depending on their limitations and strengths.

In particular, results from the study revealed there were no significant differences in the correlations between the frequency of leadership styles used and the outcome variables.   In spite of this, the frequency of authentic leadership was most strongly related to satisfaction, organizational commitment, and work engagement, the frequency of transformational leadership was most strongly related to performance, and the frequency of consideration was most strongly related to intentions to turnover. Additionally, exploratory analyses supported the finding that

greater frequency of authentic leadership best predicted higher levels of satisfaction, organizational commitment, and work engagement. Also, regression analyses revealed higher levels of consideration was the best predictor of reduced intentions to turnover.

While initiating structure did not emerge as being highly related to the outcomes as predicted, it is possible that some of the more relationship-oriented aspects of leadership is important to help employees with ASD navigate in the "unknown" social arena. To be more specific, exhibiting behaviors associated with consideration is especially important for reducing intentions to turnover. However, to increase feelings of satisfaction, organizational commitment, and engagement more elements may be important for the leader to exhibit. In particular, in addition to establishing an open and individualized relationship, morality, a dimension specific to authentic leadership, was one of the critical elements driving the effects of authentic leadership. Therefore, even though exhibiting consideration is important for the more cognitive-driven aspects of work outcomes (i.e. intentions to turnover), displaying morality may be important for the cognitive and affective-driven aspects of work outcomes (i.e. satisfaction, organizational commitment, and work engagement).

One of the reasons why this may be true stems from individuals with ASD viewing concepts in a very concrete, black-and-white nature (Hurlbutt & Chalmers, 2004). In this regard, it is important for a role model to be right and always adhere to the "golden rule." It may be possible that their level of moral reasoning does not afford them the ability to take into account broader ideals and social perspectives, which may otherwise allow for some discretionary behaviors given the situation. Therefore, strict adherence to values seems to be important for the leader to display.

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While it was originally suggested that initiating structure would serve as a moderator for the relationship between consideration and work-related outcomes, there was only partial support for this relationship for the outcome intentions to turnover. Although initiating structure served as a moderator, it drove the relationship in the opposite direction. Interestingly, higher frequency of consideration was associated with lower levels of intentions to turnover regardless of the frequency of initiating structure. However, when there were lower levels of consideration it was better to have lower levels of initiating structure in order to reduce feelings of turnover. These findings reiterate the notion that it is important for supervisors to provide support and coaching to their employees with ASD. Alternatively, it is not as important for supervisors to display task-oriented behaviors.

It is possible that since the majority of the sample interviewed included adults who have held different jobs, many of the participants self-selected themselves into a position that allowed them the flexibility to structure their own job tasks. Therefore, they did not need their supervisors to provide intense levels of structure for them. In support, research support staff was one of the more frequent occupation types among the sample. It is probable that this type of job allows greater independence for employees to structure their work. Rather, leaders displaying more supportive, relationship-oriented behaviors seems to be of greater importance to this sample since they face unique problems associated with communication and social interactions (Hendricks, 2010). It may be possible that younger, newly employed workers may need more task structure as well as consideration.

Therefore, while there was not one leadership theory that exceeded the others, it is apparent that various aspects of the leadership styles may be necessary for successful engagement and integration into work activities. For example, results indicate that

demonstrating support and consideration, upholding values and a balanced perspective, and providing some degree of structure may all be important. In this respect, leaders are demonstrating an understanding of their employees' limitations in social arenas and communication; providing support to help these employees better navigate this territory; showing respect to everyone (an element which they might not always be given resulting from discrimination); and implementing structure to meet their employees' needs of having an organized, concrete, and systematic method to complete tasks. All of these elements complement the strengths, tend to the limitations, or align with the values of individuals with ASD and therefore should lead to better engagement.

Importance of consideration. Although it was speculated that supervisors would place less importance on consideration than employees with ASD and instead place greater emphasis on initiating structure, as demonstrated in a similar study by Gates, Akabas, and Katrwitz (1996), this hypothesis was not supported. On the contrary, supervisors rated consideration as being more important than employees with ASD in both self-report and content-coded data.

There are a few possible explanations for this finding. It should first be recognized that there were only 15 supervisors included in the sample and it may not be completely representative of all supervisors managing individuals with ASD. This sample did include a range of experience levels with ASD in general and so should provide a window into this population's perspectives. In spite of this, one possible reason for this finding is due to range restriction. This was of particular concern for the sample of supervisors as they exhibited a positive halo in the self-report ratings. Given the sensitive nature of the topic, supervisors may

have responded in a socially desirable way to ensure that they come across as using and emphasizing all the seemingly important leader behaviors for their employees with a disability.

Recognizing that this was a potential problem, open-ended responses were also content-coded and the trend of supervisors having higher ratings was still displayed. Therefore, this pattern may instead be explained by employees with ASD being able to better discriminate the best behaviors that aid them at work. Specifically, employees, rather than the supervisors, were able to recognize that while consideration is necessary for supervisors to display, it is not sufficient. Moral consistency may be another factor they feel is important for a leader to display.

Looking at this relationship between the importance ratings of consideration and the supervisors' experience with ASD, there were preliminary results suggesting that experience did affect how supervisors rated the importance of consideration. First, all of the means were in the expected directions. Second, examining the self-report importance ratings for consideration and experience, as defined by the length of time managing employees with ASD, the difference in ratings was trending towards significance. Therefore, similar to the study conducted by Gates, Akabas, and Katrwitz (1996), it is possible that with experience, supervisors may better understand the important role of consideration in managing employees with ASD. It is possible that with a larger sample of supervisors with a broader range of experience levels, the difference would become statistically significant.

Skilled performance. Another major finding emerging from this study was that employees with ASD perform well in their jobs. All the supervisors rated their employees as meeting expectations, with several supervisors indicating that their employees exceeded expectations. Additionally, employees with ASD agreed with the statement that their performance was above average. Despite this being a self-rating, the high correlation found

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between performance ratings of matched supervisors and employees with ASD bolster the reliability of the self-ratings. These results indicating successful performance among employees with ASD support prior research which has demonstrated that supervisors rate the job performance of their employee with ASD as average or above average (e.g., Hagner & Cooney, 2005; Unger, 2003; Hillier et al., 2007).

Taking into consideration their high performance at work and the high unemployment rate in the broader population, it becomes apparent that individuals with ASD are unfortunately an untapped potential. Despite their limitations, individuals with ASD do have strengths which enable them to be critical forces in the workplace. More importantly, their leaders can serve as a bridge to guide and provide them with the support and tools needed to elicit those strengths to lead to their success.

Impact of anxiety and leader liking. As a final point of discussion, it is important to highlight the role of leader liking and anxiety given the high correlations they had with leadership styles and outcomes (please refer to Table 3 for detailed values) as well as the large effects they had on the outcomes resulting from the regression analyses (please refer to Tables 6-10 for detailed values).

First, as demonstrated in numerous other research studies, a large degree of the variance associated with leadership ratings can be attributed to leader liking (Brown & Keeping, 2005). In keeping with this finding, leader liking was shown to have an effect on the work outcomes. While this is typically controlled for in studies, it may be possible that leader liking has meaningful variance associated with leadership ratings in this population. As individuals with ASD often look to role models (i.e., their leaders) to guide their behaviors for social interactions, how leaders behave and respond to their subordinates may be important for how

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receptive individuals with ASD are to the leader. The leaders' behaviors may drive the degree of liking to the leader thereby affecting how well the employee takes the cues from the leader. Thus, it may be possible that leader liking serves as a partial mediator in the relationship between leader behaviors and work outcomes such that leader behaviors directly impact leader liking thereby impacting work outcomes. Leader behaviors may also have a direct relationship with work outcomes. Testing this model would be an important avenue to pursue in the future.

In addition to leader liking, anxiety was found to have an effect on the dependent variables. As mentioned previously, anxiety is very common in adults with ASD (Gillott & Standen, 2007) and some of the symptoms associated with ASD may prevent them from executing appropriate coping skills to manage stress and appraise anxiety-arousing situations (Groden et al., 2002). In their study examining the prevalence of anxiety and stressors leading to anxiety in adults with ASD, Gillott and Standen (2007) found that change, anticipation, positive events, and sensory/personal contact were all rated significantly higher as sources of stress in the group of adults with autisms than in the matched sample. Given that the modern work environment is increasingly more dynamic and team-based, it is likely that the workplace can be a stressor. Unless mechanisms are in place to help them better cope with these stressors, it is likely they will impact their attitudes towards work and job performance.

Alternatively, leaders can serve as mechanisms to help employees with ASD better cope and appraise the anxiety-provoking situations. For example, knowing that individuals with ASD become anxious when routines change, leaders can prepare their employees for future changes and make subtle, rather than abrupt, changes. Providing support throughout the change event would be critical. If not appropriately addressed, this could have significant implications on work outcomes. Thus, it is possible that anxiety may serve as a mediator in the relationship

between leadership styles and work outcomes. Meaning, leaders have the ability to ease (or possibly enhance) anxiety levels in employees with ASD, which may ultimately impact their work attitudes and performance.

While it is possible that some of this variance may be attributed to nervousness during the interview, several steps were taken to ensure the interview was conducted in a comfortable environment. First, all participants approached the researcher after reading an announcement thereby showing initiative and desire from the participant (i.e., no one was approached and convinced to participate). Second, all questions were given to them ahead of time so they could anticipate and prepare for the questions during the interview. Finally, if the participant was uncomfortable holding the interview on the phone, alternative mediums were suggested. While it cannot be disproved that some of the anxiety is not due to measurement effects, it is more likely that the work environment has a stronger influence. A more targeted study examining sources of anxiety in employees with ASD while at work may illuminate some of the reasons why this has an impact on work outcomes.

Limitations

There are a few limitations of this study which should be noted. First, the size of the sample is quite small relative to other studies in organizational behavior. In particular, the sample of supervisors was limited. It was hoped that interviewing employees with ASD would afford the ability to talk with their supervisors. However, several of the employees with ASD either had not self-disclosed their condition or did not feel comfortable asking their supervisors to participate in the study. In spite of this, several steps were taken to recruit as many

participants as possible, as detailed in the methods section. Despite the low numbers, this sample is larger than any other study of its kind.

After a brief analysis of peer-reviewed research studies involving employees with ASD, the largest sample sizes were composed of six individuals with ASD (e.g., Burke, Andersen, Bowen, Howard, & Allen, 2010; Hurlbutt & Chalmers, 2004), with the majority of the studies only including three or four individuals with ASD (e.g., Bennett, Brady, Scott, Dukes, & Frain, 2010; Burt, Fuller, & Lewis, 1991; Lattimore, Parsons, & Reid, 2002). Aside from these studies which exclusively focused on ASD and were published in specialized journals, a brief search was conducted to determine typical sample sizes of employees with broader physical and mental disabilities within organizational behavior journals (e.g., *Journal of Applied Psychology, Journal of Organizational Behavior, Academy of Management Journal, Personnel Psychology*). Overall, the majority of studies in these journals tended to direct research to beliefs and stereotypes of individuals with physical and mental disabilities by conducting survey-based research rather than directly utilizing individuals with disabilities as the participants thereby not gaining the insights of the specific population of interest. Thus, while this sample size is relatively small in comparison to typical work-setting studies, it is large in comparison to studies with a similar focus and population. In sum, it does provide a glimpse into the perspectives of both employees with ASD and supervisors managing individuals with ASD.

Second, one of the issues observed with the self-report data is that there was range restriction. In particular, supervisors tended to inflate their ratings when responding to the frequency and importance of their behaviors. It is possible that supervisors may have been responding in a socially desirable way. Employees with ASD also exhibited a degree of range restriction but it was not as severe as the supervisors. However, open-ended responses were

gathered and content-coded reducing the reliance on these data. These data had greater variance and supplemented the self-report data. While it is unreasonable to assume that one set of results is superior to the other, it is important to take into consideration both sets of data to determine whether trends emerge.

Third, the reliability of the intentions to turnover scale was very low ($\alpha = 0.53$). Closer inspection of the scale revealed that the third item was driving this low value. The internal consistency of the scale removing this item would be 0.73. This item, "How likely is it that you could find a job with another employer with about the same pay and benefits you now have?" may have resulted in the poor internal consistency either because of the state of the economy and job market or potentially because job outlook for individuals with ASD is particularly poor (Müller et al, 2003).

On a similar note with regard to methodology and scaling issues, much is unknown about scale development for individuals with ASD. Ghaziddin (2005) noted that there are no standardized psychometric measures designed or validated specifically for adults with ASD. Therefore many questions about measurement still exist. For example, throughout the interview process, it was garnered that reverse-coded items are challenging for individuals with ASD, based on their response time as well as comments from the participants. Taking this into account, responses for these items were closely examined but it was found that the majority of the participants responded consistently within each scale. While most of the participants were higher functioning, it is possible that those with a more severe form of ASD would struggle with these items. As most scales in the field of psychology are developed with reverse-wording to avoid response sets, it is of particular importance for future research to ensure that these scales are appropriate for individuals with ASD.

A few other limitations should be stated. First, there was no direct evaluation of the employees with ASD. Therefore, it is unknown as to how mild or severe their disorder may be. However, in the demographics section, employees with ASD were asked to state whether they had been diagnosed with ASD by a professional and to indicate the severity of their disorder on a Likert scale as compared to other individuals with ASD. Additionally, participants were asked to indicate their level of adaptive behaviors (i.e., need for assistance) on specific activities. Therefore, even though an exact diagnosis was not obtained, this information provided a proxy measure of the severity of their disorder. Triangulation of these items revealed that most participants were higher on the spectrum. Finally, only three leadership theories were chosen as part of this study but there are other theories which may apply to employees with ASD. Future research is encouraged to examine how other leadership theories may apply to this population.

Theoretical Contributions

Despite the limitations listed above, the results from this study have several implications for leadership research and workplace issues for individuals with ASD. First, this study helped to elucidate how specific leadership theories apply to employees with ASD. It was found that both the frequency of and importance attributed to authentic leadership increased work outcomes including job satisfaction, organizational commitment, and work engagement. While frequency of consideration, in support of the two-factor model of leadership, did aid in reducing turnover intentions, it is probable that employees with ASD need more than just supportive and coaching behaviors. It is proposed that morality and consistency of values, which is one of the defining features of authenticity, in addition to individualized consideration and

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perspective taking, is one of the driving factors as to why this theory rose above the other theories.

A second implication of this study is that findings support the principle that is it important to use multiple methods of data collection, especially in the case of nascent research topics, in order to avoid common method bias. Method bias has been demonstrated to be problematic in survey research and, in particular, leadership research, as it predicates conditions in which methods are a result of the variance rather than true variance (Friedrich, Byrne, & Mumford, 2009; Hunter, Bedell-Avers, & Mumford, 2007). Had this study only interviewed either employees with ASD or supervisors or had only used self-report data, a much narrower view of the story would have been gained and could have potentially biased the results. Therefore, by triangulating sources and methods of data collection to avoid common method bias, a more complete story was achieved.

Practical Contributions

The results from this study also have practical implications as well. First, by applying leadership behaviors associated with authentic leadership, employees with ASD are likely to be more engaged in their work. In turn, if they do feel successfully engaged in their work endeavors and feel as though they are contributing to the organization, it is likely that their quality of life will be improved because a sense of independence, self-efficacy, and self-determination will be achieved.

Second, understanding these behaviors may have implications not only for employees with ASD but also for the organization. These effects of greater work engagement and productivity are likely to trickle up to the organizational level. By having employees who are

more successfully engaged in their work, it is likely that organizational effectiveness will also be improved. Individuals with ASD can uniquely contribute to the organization because of their distinct skill sets. Thus, they can ultimately provide a competitive advantage for the organization.

Finally, while most of the attention has been focused on employees with ASD, there are some direct benefits to supervisors as well. In particular, if supervisors understand behaviors that work best for engaging individuals with ASD, they can more effectively tailor their actions to those behaviors which have been found to increase worker outcomes. Thus, rather than experiment using various behaviors, they can more definitively use a set of behaviors thereby increasing the efficiency of their actions, which may produce feelings of efficacy of their leadership skills and may allow them to devote their energy to other matters.

Future Directions

The results and limitations from this study highlight the need for future research in this domain. While the majority of ASD research has focused on children, there is a critical need to conduct more studies using an adult population to facilitate their successful integration into adulthood and independent living. As employment is one of the defining features of independent living and has implications for quality of life, it is important to direct more research projects towards adults with ASD in the work environment.

As a first step, it is especially important to replicate these results with a broader sample. In particular, using a matched-pair sample would aid in more definitively knowing whether the perspectives of employees and supervisors regarding leader behaviors are similar

and whether supervisors have a misunderstanding of the life circumstances and needs for individuals with ASD.

Not only would it be helpful to have a sample of matched-pairs but it would also be important to sample employees with ASD who are recently entering the workplace. The majority of the sample in this study already held several jobs, which may explain why they did not need as much structure from their supervisors. It would be important to understand whether preferences for leader behaviors differ in employees with ASD who are newly entering their careers.

Additionally, as indicated previously, it is important to better understand what types of items and measures are best for achieving an accurate response from individuals with ASD. From this study, it was found anecdotally that providing questions prior to the interview helped immensely. Furthermore, it was also found that reverse-worded items were challenging for this sample to interpret. A more targeted study examining which methodology (e.g., type of administration, type of response, wording of items) is most appropriate and effective for individuals with ASD is necessary. This is especially important in employee selection given that several organizations include psychometric or cognitive ability tests in their selection systems. If selection tests are administered in a manner which puts individuals with ASD at a disadvantage due to the test, rather than based purely on qualifications, then underemployment for this population may perpetuate. Not to mention, organizations may be losing out on employees who are well qualified for the position.

Related to the notion of selection, it is important to study self-disclosure among employees with ASD. More specifically, it is necessary to understand if and when individuals decide to self-disclose and how their employers react. It is possible that individuals may be

resistant to self-disclose because they are fearful that they will be discriminated against or put at a disadvantage. Slightly more than half of the current sample had self-disclosed their condition to their employer. By not self-disclosing their condition, these employees are not receiving simple accommodations that may facilitate successful performance. Moreover, they may be misunderstood by their employers and coworkers thereby impacting socialization at work.

Additionally, understanding when employees self-disclose has implications for selection as well as job placement. For example, if individuals self-disclose their condition prior to selection, they can receive accommodations during the selection process and then be appropriately placed in a job with tasks that will match their interests and strengths. They may also be offered reasonable accommodations to help make the transition into the job more successful. Better understanding the nature of self-disclosure is important not only for helping the employee to better transition into the job but also to create a work climate that is more open and receptive to ASD and other disorders.

Furthermore, while this study only focused on three leadership theories, there are other leadership theories that may be applicable to employees with ASD. For example, Path-Goal Theory, which emphasizes how the leader removes obstacles for the subordinate, may be helpful in understanding the sources of the obstacles employees with ASD face and what leaders can do to remove those. Or, Leader-Member Exchange Theory, which emphasizes the reciprocal relationship between the leader and the subordinate, may be appropriate in terms of better understanding the individualized relationship with the subordinate and how this relationship may evolve over time.

As mentioned earlier, there is also an opportunity to gain greater clarity on how the covariates, leader liking and anxiety, surface and present their effects on leadership behaviors

and associated work outcomes. For both variables, it would be valuable to test whether they are sources of measurement error or whether they do exert meaningful variance on the outcomes.

Finally, there are several opportunities for industrial-organizational psychologists to more broadly apply what they know to individuals with ASD. By expanding beyond the area of leadership, it would be quite fruitful to research how selection, socialization, training, and performance management is most optimally utilized for employees with ASD. For example, it may be necessary to include training on applied social skills for employees with ASD so they feel more comfortable navigating the workplace.

Overall, this area is a fertile ground for new research endeavors and has the potential to positively impact not only employees with ASD, but also their supervisors, coworkers, and the broader organization.

Conclusion

The aim of this study was to better understand how leaders can effectively engage employees with ASD in order to improve work-related outcomes for these employees. Through a series of interviews with employees with ASD and supervisors managing individuals with ASD, this study provided a better perspective on how leaders can influence employees with ASD. Specifically, it was found that leadership exerts a great influence on employees with ASD, the relationship between leadership preferences and work outcomes is very complex arising in various important behaviors rather than one best leadership theory, and performance of employees with ASD is very effective. Overall, this study integrated the separate fields of autism research, vocational rehabilitation, and organizational leadership to provide a clearer picture of what can be done internally in the organization to aid employees with ASD at work. It

is hoped that this study will not only provide a better perspective to both employees with ASD

and their supervisors to aid their success at work but also bring awareness to this important topic

and arouse future discussion and research in this under-researched area.

Table 1
Sample Characteristics of Employees with ASD

	n	M (SD)	Min	Max	Frequency
Hours Worked Per Week	54	34.26 (11.27)	8.00	52.50	
Tenure	54	6.59 (7.27)	0.08	31.00	
Severity of ASD	53	1.72 (0.77)	1.00	4.00	
Help with Meals	54	1.61 (1.00)	1.00	4.00	
Help with Money	54	2.22 (1.25)	1.00	5.00	
Help with Transportation	54	1.61 (1.04)	1.00	5.00	
Anxiety	54	3.48 (0.80)	1.00	5.00	
GENDER	54				
Male					25 (46.3%)
Female					29 (53.7%)
OCCUPATION TYPE	54				
Cleaning & Support Staff					7 (13.0%)
Clerical Staff					5 (9.3%)
Educator					5 (9.3%)
Engineer					6 (11.1%)
Human Service Worker					12 (22.2%)
Manager					2 (3.7%)
Physical Laborer					1 (1.9%)
Professional Service Worker					3 (5.6%)
Research Support Staff					10 (18.5%)
Service/Sales Employees					3 (5.6%)
INDUSTRY TYPE	54				
Accommodation & Food Services					4 (7.4%)
Administrative & Support Services					1 (1.9%)
Arts, Entertainment, & Recreation					3 (5.6%)
Education					11 (20.4%)
Financial Services					5 (9.3%)
Government					8 (14.8%)
Health Care & Social Assistance					6 (11.1%)
Information					2 (3.7%)
Manufacturing					6 (11.1%)
Professional, Scientific, & Technical Services					1 (1.9%)
Retail					7 (13.0%)
SELF-DISCLOSURE	54				
Yes					32 (59.3%)
No					21 (38.9%)
Missing					1 (1.9%)
USE OF JOB COACH	54				
Yes					3 (5.6%)
No					51 (94.4%)

Table 2
Sample Characteristics of Supervisors

	n	M (SD)	Min	Max	Frequency
Tenure	14	14.96 (11.78)	3.00	42.00	
Severity of Emp. w/ ASD	5	1.40 (0.89)	1.00	3.00	
Number of Subordinates	15	15.60 (10.16)	0.	30.	
Leadership Experience	15	19.94 (14.11)	2.00	46.00	
Time Supervising Emp. w/ ASD	15	3.01 (1.87)	0.13	7.00	
Frequency of Contact	15	4.00 (1.13)	2.00	5.00	
Intensity of Contact	15	3.40 (0.99)	2.00	5.00	
Time Working with Emp. w/ ASD	14	4.90 (4.39)	0.13	17.00	
Knowledge of ASD	15	3.40 (0.99)	2.00	5.00	
GENDER	15				
Male					11 (73.3%)
Female					4 (26.7%)
INDUSTRY TYPE	15				
Accommodation & Food Services					3 (20.0%)
Education					1 (6.7%)
Financial Services					2 (13.3%)
Government					2 (13.3%)
Health Care & Social Assistance					4 (26.7%)
Manufacturing					3 (20.0%)
TIME SPENT W/ SUBORDINATES	15				
Less than 2 hours					1 (6.7%)
2-5 hours					5 (33.3%)
5-8 hours					0 (0.0%)
8-11 hours					1 (6.7%)
More than 11 hours					8 (53.3%)
EMP. USE OF JOB COACH	15				
Yes					6 (40.0%)
No					9 (60.0%)
ORG DIVERSITY TRAINING	15				
Yes					6 (40.0%)
No					8 (53.3%)
Missing					1 (6.7%)
PART. IN TRAINING	15				
Yes					4 (26.7%)
No					8 (53.3%)
Missing					3 (20.0%)

Table 3

Means, Standard Deviations, and Intercorrelations for Study Variables Among Employees with ASD

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Initiating Structure: Frequency	3.21	1.17	1.00																		
2	Consideration: Frequency	3.36	1.06	.38**	1.00																	
3	Transformational Leadership: Frequency	2.98	0.94	.67**	.70**	1.00																
4	Authentic Leadership: Frequency	3.22	0.73	.48**	.64**	.74**	1.00															
5	Initiating Structure: Importance Ratings	4.49	0.82	.25	-.01	.02	.11	1.00														
6	Consideration: Importance Ratings	4.36	0.76	.15	.20	.07	.29*	.48**	1.00													
7	Transformational Leadership: Importance Ratings	3.90	0.75	.14	.15	.20	.24	.30*	.60**	1.00												
8	Authentic Leadership: Importance Ratings	3.89	0.66	.12	.10	.04	.31	.23	.56**	.60**	1.00											
9	Initiating Structure: Importance Codings	2.91	1.22	.09	.09	-.01	.20	.16	.14	-.08	.01	1.00										
10	Consideration: Importance Codings	3.21	1.21	-.01	.02	-.03	-.05	.10	.33*	.24	.32*	.17	1.00									
11	Transformational Leadership: Importance Codings	1.84	0.64	.12	.30*	.16	.17	-.09	.40**	.27	.29*	.19	.55**	1.00								
12	Authentic Leadership: Importance Codings	1.77	0.44	-.08	.08	-.04	.05	-.01	.35*	.24	.25†	.30*	.60**	.68**	1.00							
13	Satisfaction	5.38	1.35	.39**	.44**	.45**	.49**	.22	.25	.21	.14	.07	.04	.26†	.11	1.00						
14	Org. Commitment	4.31	1.23	.44**	.49**	.55**	.56**	.14	.16	.15	.13	.08	.17	.35*	.20	.64**	1.00					
15	Intention to Turnover	3.32	1.50	-.09	-.43**	-.36**	-.42**	.00	-.13	-.09	-.09	.08	.06	-.09	-.04	-.57**	-.36**	1.00				
16	Engagement	4.89	1.53	.34*	.21	.41**	.44**	-.08	-.00	-.02	-.03	.24†	.06	.24†	.17	.56**	.59**	-.36**	1.00			
17	Performance	5.02	1.84	.23	.29*	.45**	.36**	-.01	-.14	.17	-.26	.14	-.17	-.05	-.09	.16	.21	.00	.32*	1.00		
18	Leader Liking	4.98	1.68	.41**	.70**	.65**	.63**	.13	.09	.17	.16	-.14	-.02	.17	-.12	.34*	.43**	-.27*	.16	.29*	1.00	
19	Anxiety	3.48	0.80	-.15	-.21	-.31*	-.19	.18	.02	.09	.09	.24†	.26†	-.05	.17	-.40**	-.34*	.54	-.24†	-.05	-.18	1.00

Note. N = 53; **p < .01, *p < .05, †p<.10.

Table 4

Means, Standard Deviations, and Intercorrelations for Study Variables Among Supervisors

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Initiating Structure: Frequency	4.07	0.88	1.00												
2	Consideration: Frequency	4.20	0.68	.10	1.00											
3	Transformational Leadership: Frequency	3.89	0.82	.33	.31	1.00										
4	Authentic Leadership: Frequency	3.87	0.69	.19	-.02	.64*	1.00									
5	Initiating Structure: Importance Ratings	4.60	0.91	.75***	.02	.31	.25	1.00								
6	Consideration: Importance Ratings	4.53	0.74	.38	.63*	.53*	.25	.34	1.00							
7	Transformational Leadership: Importance Ratings	4.20	0.81	.55*	.05	.83***	.63*	.50	.52*	1.00						
8	Authentic Leadership: Importance Ratings	4.13	0.60	.48	.19	.61*	.85*	.46	.51	.77***	1.00					
9	Initiating Structure: Importance Codings	3.05	1.35	.00	-.23	-.30	-.44†	-.04	-.47†	-.40	-.45†	1.00				
10	Consideration: Importance Codings	3.72	1.38	.05	.16	-.09	-.12	-.24	-.14	-.26	-.28	.00	1.00			
11	Transformational Leadership: Importance Codings	2.06	0.50	.00	.57*	.12	-.06	-.47†	.19	-.10	-.07	-.15	.77***	1.00		
12	Authentic Leadership: Importance Codings	2.00	0.51	.00	.48†	.18	.29	-.05	-.02	-.15	.14	-.11	.46	.46†	1.00	
13	Performance ª	3.73	0.96	-.48	.09	-.11	-.03	-.21	-.19	-.34	-.27	.01	-.06	-.05	.16	1.00

Note. ª Performance measured on a scale from 1 to 5, unlike employees rating on a scale from 1 to 7; N = 15; ***p < .01, *p < .05, †p<.10.

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Table 5

Correlations Between Leadership Style and Outcome Variables with Controls Among Employees with ASD (n=49)

Leadership Style	Outcome Variable				
	Satisfaction[a]	Organizational Commitment[a]	Engagement[b]	Performance[c]	Intentions to Turnover[d]
Initiating Structure	.28*	.31*	.32*	.13	-.09
Consideration	.27†	.27*	.17	.12	-.43**
Transformational Leadership	.25†	.35*	.37**	.36**	-.36**
Authentic Leadership	.36**	.39**	.41**	.24†	-.42**

Note. **p < .01 *p < .05 †p<.10. [a] Controlling for Liking and Anxiety. [b] No controls. [c] Controlling for Liking. [d] Controlling for Anxiety.

Table 6

Regression Results for Initiating Structure and Consideration Predicting Satisfaction (n=52)

Independent Variables	B	SE	Beta	*p*	ΔR^2
Step 1: Controls					.24**
Leader Liking	.23*	.10	.28	.03	
Anxiety	-.59**	.21	-.35	.01	
Step 2: Main Effects					.10*
Consideration	.37†	.21	.28	.09	
Initiating Structure	.27†	.15	.23	.08	
Step 3: Interaction Effects					.00
Consideration X Initiating Structure	-.04	.12	-.17	.75	
Total R^2					.34

Note. **p < .01 *p < .05 †p<.10.

Table 7

Regression Results for Initiating Structure and Consideration Predicting Organizational Commitment (n=54)

Independent Variables	B	SE	Beta	*p*	ΔR^2
Step 1: Controls					.27**
Leader Liking	.27**	.09	.38	.00	
Anxiety	-.46*	.18	-.30	.02	
Step 2: Main Effects					.10*
Consideration	.30	.19	.26	.12	
Initiating Structure	.27*	.13	.26	.04	
Step 3: Interaction Effects					.01
Consideration X Initiating Structure	.09	.10	.42	.38	
Total R^2					.38

Note. **p < .01 *p < .05 †p<.10.

Table 8

Regression Results for Initiating Structure and Consideration Predicting Engagement (n=54)

Independent Variables	B	SE	Beta	*p*	ΔR^2
Step 1: Main Effects					.14*
Consideration	.28	.20	.09	.52	
Initiating Structure	.41*	.18	.32	.03	
Step 2: Interaction Effects					.00
Consideration X Initiating Structure	.06	.14	.23	.68	
Total R^2					.14

Note. **p < .01 *p < .05 †p<.10.

Table 9

Regression Results for Initiating Structure and Consideration Predicting Performance (n=52)

Independent Variables	B	SE	Beta	*p*	ΔR^2
Step 1: Control					.09*
Leader Liking	.32*	.14	.30	.02	
Step 2: Main Effects					.02
Consideration	.23	.32	.13	.49	
Initiating Structure	.19	.23	.12	.41	
Step 3: Interaction Effects					.00
Consideration X Initiating Structure	-.02	.17	-.05	.93	
Total R^2					.12

Note. **p < .01 *p < .05 †p<.10.

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Table 10

Regression Results for Initiating Structure and Consideration Predicting Intentions to Turnover (n=54)

Independent Variables	B	SE	Beta	*p*	ΔR^2
Step 1: Control					.28**
Anxiety	.98**	.22	.53	.00	
Step 2: Main Effects					.12*
Consideration	-.52**	.17	-.38	.00	
Initiating Structure	.16	.15	.12	.31	
Step 3: Interaction Effects					.05*
Consideration X Initiating Structure	-.24*	.12	-.99	.04	
Total R^2					.45

Note. **p < .01 *p < .05 †p<.10.
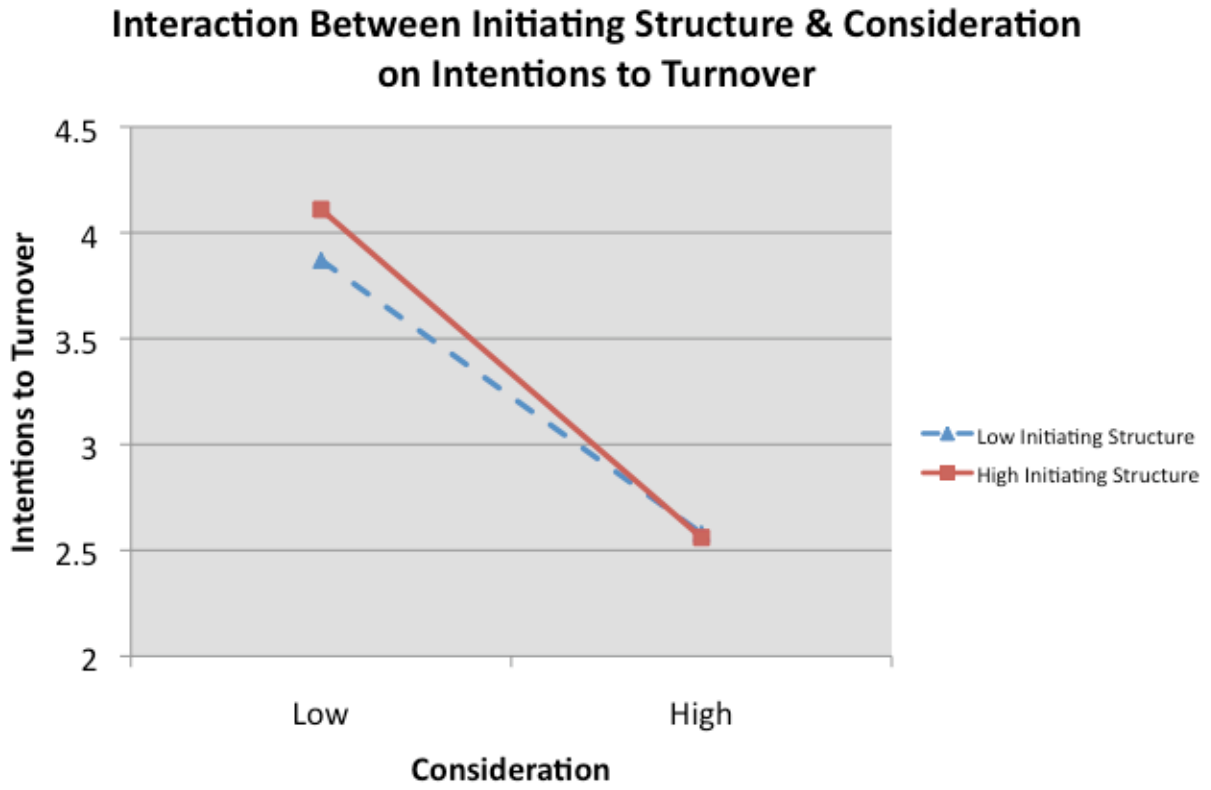
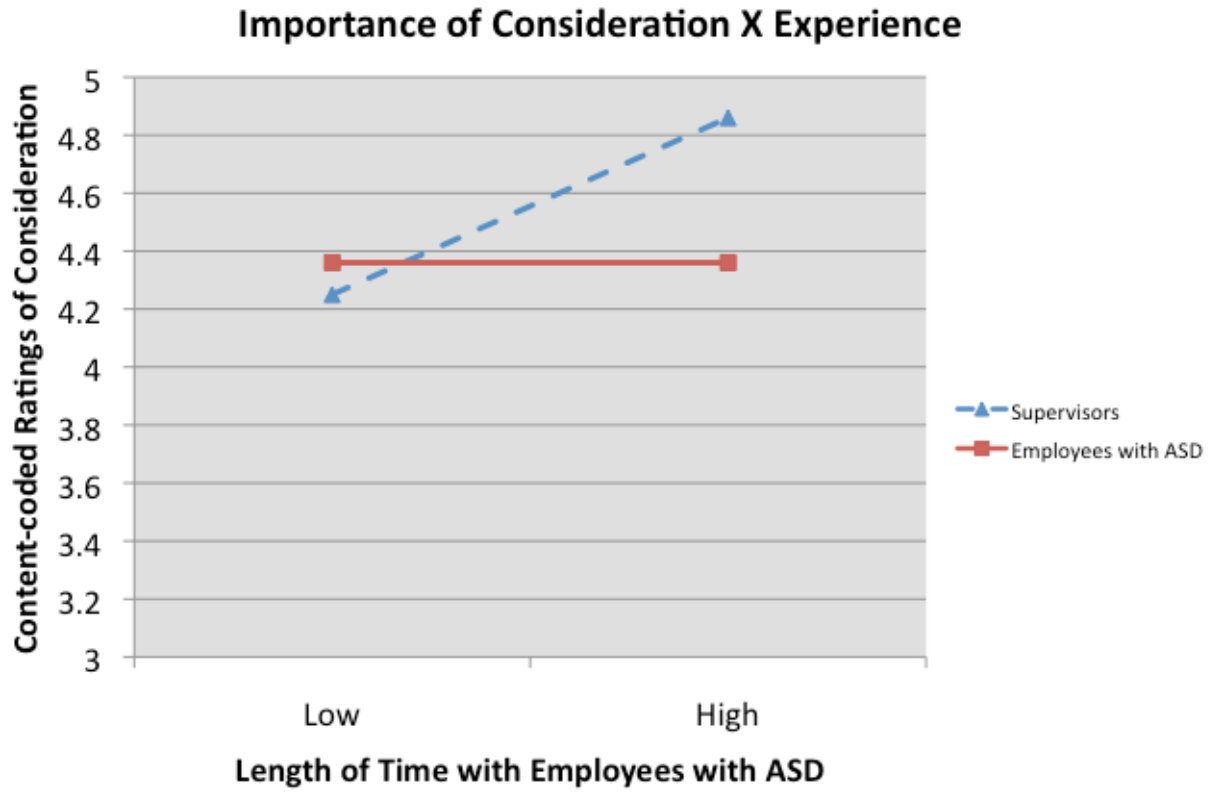Figure 1. Interaction of initiating structure and consideration on intentions to turnover.

Figure 2. Interaction of rating source and experience with ASD on importance ratings of consideration.

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Appendix

Interview Protocol

Background Questions for Supervisors
1. What is your position at your organization (or XXX, if you know where they work)?
2. How long have you been working there?
3. How many people are employed there?
4. How many people do you directly supervise?
5. For the next question, I'm going to ask you how frequently you interact with your direct subordinates. On a scale from 1 to 5, with 1 indicating less than 2 hours, 2 indicating 2-5 hours, 3 indicating 5-8 hours, 4 indicating 8-11 hours, and 5 indicating more than 11 hours, how much time do you spend with your direct subordinates *per week*?
6. What is your organization's industry type [e.g., sales, factory work, computer work, human services, physical labor, etc.]?
7. How long have you been in a position of leadership (including prior employment experiences)?
8. Do you currently supervisor an employee with autism? If so, how long have you been supervising this person?
9. Does he or she work with a job coach?
10. On a scale from 1 to 5, with 1 meaning not very severe and 5 meaning very severe, please answer the following question. Compared to other individuals with ASD, how would you rate the severity of your employee's disorder?
11. On a scale from 1 to 5, with 1 indicating no knowledge, 2 indicating little knowledge, 3 indicating some knowledge, 4 indicating moderate knowledge, and 5 indicating extensive knowledge, how would you describe the level of knowledge you have of the conditions and life circumstances of those with ASD?
12. On a scale from 1 to 5, with 1 indicating very infrequent, 3 indicating occasionally, and 5 indicating very frequent, how would you describe your frequency of contact with employees with ASD at your workplace?
13. On a scale from 1 to 5, with 1 indicating not at all intense, 3 indicating moderately intense, and 5 indicating very intense, how would you describe the intensity of your contact with employees with ASD at your workplace?
14. What is the average length of time you have worked with someone with ASD? [months or years]
15. Does your organization provide diversity awareness training (specific to ASD or otherwise)?
16. [If yes]: Have you participated in the diversity awareness training program? What type?

Background Questions for Employees with ASD
1. What is your position at work (or XXX, if you know where they work)?
2. What types of tasks do you do at work [e.g., computer work, interact with customers, etc.]?
3. Please describe in detail the two most important tasks of your job.
4. How many hours per week do you work?

5. How long have you been working there?
6. How many people are employed there?
7. What is your organization's industry type [e.g., sales, factory work, computer work, human services, physical labor, etc.]?
8. Does your company provide diversity awareness training (specific to ASD or otherwise)?
9. Do you work with a job coach?
10. Have you held any jobs before this one?
11. Have you self-disclosed your condition to your employer at this job or at previous jobs?
12. Has a professional given you a formal diagnosis of autism?
13. On a scale from 1 to 5, with 1 meaning not very severe and 5 meaning very severe, please answer the following question. Compared to other individuals with ASD, how would you rate the severity of your disorder?
14. One a scale from 1 to 5, with 1 meaning never need help, 3 meaning sometimes need help, and 5 meaning frequently need help, please tell me how much help or assistance you need for each of the following behaviors:
    a. Meal preparation
    b. Managing your money
    c. Using transportation
15. We are also interested in learning about how *nervous or anxious* you are. For this question, I am going to read a list of statements. I would like you to rate how often you have been bothered with the statements **as a group**. Please rate the items on a scale from 1 to 5, with 1 never, 3 meaning sometimes, and 5 meaning always. These items include:
    a. Feeling nervous, anxious, or on edge
    b. Not being able to stop or control worrying
    c. Worrying too much about different things
    d. Trouble relaxing
    e. Becoming easily annoyed or irritable

Leader Behavior Questions for Supervisors & Employees with ASD (presented in Supervisor form)

Two-factor model of leadership items
1. Clearly explains what results are expected for a task
2. Sets specific goals for task performance
3. Explains rules, policies, & standard procedures
4. Fixes immediate problems that would disrupt the work
5. Directs & coordinates work activities
6. Provides necessary supplies, equipment, and technical help
7. Provides support & encouragement to an employee with a hard task
8. Provides coaching & mentoring to employees when needed
9. Recognizes contributions & accomplishments
10. Consults with employees on decisions affecting them
11. Builds relationships with employees
12. Is willing to accept suggestions from someone you supervise

Transformational leadership items
1. Acts as a strong role model for employees
2. Shows high standards for ethical and moral conduct
3. Communicates a vision which is exciting and motivating
4. Communicates high expectations to employees
5. Uses symbols to focus employee efforts toward the organization's goals
6. Communicates optimism about reaching these goals
7. Promotes team spirit
8. Encourages employees to challenge old traditions and beliefs
9. Encourages employees to look at problems in new ways
10. Emphasizes the importance of being creative and innovative
11. Provides a supportive environment for employees
12. Listens to the needs of employees
13. Coaches and advises employees
14. Provides rewards when specific performance goals are met
15. Clearly states expectations and negotiates benefits upon successful completion of expectation
16. Continuously monitors employees' behaviors for mistakes
17. Corrects employees before mistakes occur
18. Consistently enforces rules to avoid mistakes
19. Gets involved only after problems have occurred
20. Waits to take action until problems become serious
21. Provides little feedback to employees
22. Delays decision-making
23. Makes little effort to help employees

Authentic leadership items
1. Asks for feedback from employees to improve interactions
2. Shows an understanding of your own strengths and weaknesses
3. Demonstrates an understanding of your own impact on employees
4. Openly shares feelings to employees when appropriate
5. Expresses your true thoughts to employees
6. Admits mistakes to others
7. Acts in ways that are the same as your values
8. Makes decisions that are guided by your core beliefs
9. Behaves according to your own values and is not influenced by employees
10. Encourages employees to express their points of view before making a decision
11. Considers all points of views, even those that challenge your own positions
12. Objectively analyzes all information before coming to a conclusion

Dependent Measure for Supervisors: Job Performance
How would you rate this employee's performance in his or her job?

Dependent Measures for Employees with ASD: Job Satisfaction, Intention to Turnover, Organizational Commitment, Job Performance, Work Engagement

1. All in all, I am satisfied with my job
2. In general, I like working here
3. In general, I don't like my job
4. It is likely that I will actively look for a new job in the next year
5. I often think about quitting
6. How likely is it that you could find a job with another employer with about the same pay and benefits you now have?
7. I would be very happy to spend the rest of my career with this organization
8. I enjoy discussing my organization with people outside it
9. I really feel as if this organization's problems are my own
10. I think that I could easily become as attached to another organization as I am to this one
11. I do not feel like 'part of the family' at my organization
12. I do not feel 'emotionally attached' to this organization
13. This organization has a great deal of personal meaning for me
14. I do not feel a strong sense of belonging to my organization
15. My supervisor would probably rate my overall performance as above average
16. At my work, I feel bursting with energy
17. When I get up in the morning, I feel like going to work
18. I am enthusiastic about my job
19. I am proud of the work that I do
20. I am immersed in my work
21. I feel happy when I am working intensely

Control Measure for Employees with ASD: Leader Liking

1. I like my supervisor very much as a person
2. I think my supervisor would make a good friend

Control Measure for Employees with ASD: Anxiety

1. Feeling nervous, anxious, or on edge
2. Not being able to stop or control worrying
3. Worrying too much about different things
4. Trouble relaxing
5. Becoming easily annoyed or irritable

Open-Ended Questions for Supervisors

1. Is there anything special you do to supervise your employee with ASD?
    a. Probes: strategies for teaching new skills, techniques to keep him/her on task, accommodations to job, etc.
2. How would you describe your interaction or communication style with your employee with ASD?

3. What do you think are the most important behaviors or styles when engaging employees with autism in their work?
4. What do you think are some behaviors or styles that may not work as well?
5. Do you have any advice for other supervisors?

Open-Ended Questions for Employees with ASD
1. Is there anything special your supervisor does to make your job easier?
   a. Probes: strategies for teaching new skills, techniques to keep him/her on task, accommodations to job, etc.
2. How would you describe your interaction or communication style with your supervisor?
3. What do you think are the most important behaviors or styles when engaging employees with autism in their work?
4. What are some things that you think do not work as well for engaging employees with autism in their work?
5. Do you have any advice for supervisors?
6. Do you have any advice for other employees with ASD regarding work issues?