Examining Relationships Between Problem-Solving Style and the Autism-Spectrum Quotient (AQ): Leveraging Adaption-Innovation Theory to Support Autistic Adults in the Workplace

Abigail H. Cheng

Thesis submitted to the Faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Master of Science in Life Sciences
in
Agricultural and Extension Education

Curtis R. Friedel, Chair
Hannah M. Sunderman
Leigh A. Holcomb

August 29th, 2025
Blacksburg, Virginia

Keywords: autism, problem-solving, workforce development, workplace, KAI, AQ, adaption, innovation, autistic, leadership.

Examining Relationships Between Problem-Solving Style and the Autism-Spectrum Quotient (AQ): Leveraging Adaption-Innovation Theory to Support Autistic Adults in the Workplace

Abigail H. Cheng

Abstract

Research shows that approximately 85% of autistic individuals are unemployed or underemployed, highlighting the need for workforce development and leadership training to support this marginalized group. While autism spectrum disorders have increased significantly since the early 2000s, limited research exists on supporting autistic adults and their contributions to teams. ASD is a complex, lifelong condition affecting communication, social skills, and involving repetitive behaviors and restricted interests. However, these traits can be beneficial in the workplace, such as having high concentration, being detail-oriented, and possessing specialized knowledge in specific areas. These characteristics may originate from distinct problem-solving styles that could offer insights into how autistic individuals engage in team environments. This study examined the relationship between problem-solving style, as measured by Kirton's Adaption-Innovation (KAI) Theory, and autistic traits, as measured by the Autism-Spectrum Quotient (AQ). KAI aims to improve collaboration and reduce cognitive conflict in work and team settings. The study involved 80 participants ($N = 80$), including 38 non-autistic adults and 42 autistic adults, who completed a demographic survey, the AQ, and the KAI. Simple and multiple linear regression models found that the total KAI score and the KAI sub-score R variation both significantly predicted the presence of autistic traits, as measured by the AQ. These findings provide insight into the problem-solving preferences of autistic adults and highlight the importance of tailoring leadership and team strategies to accommodate autistic and neurodivergent individuals. Understanding these dynamics can foster more inclusive workplaces and may improve employment outcomes for autistic adults.

Examining Relationships Between Problem-Solving Style and the Autism-Spectrum Quotient (AQ): Leveraging Adaption-Innovation Theory to Support Autistic Adults in the Workplace

Abigail H. Cheng

General Audience Abstract

Research shows that around 85% of autistic individuals are unemployed or underemployed, highlighting the need for workforce development and leadership training to support this group. While diagnoses of autism spectrum disorders have risen significantly since the early 2000s, there is limited research on how to support autistic adults as it relates to their contribution to teams. Autism spectrum disorders are lifelong conditions that can affect communication, social skills, behaviors, and interests. However, these traits can be beneficial in the workplace, such as high focus, attention to detail, and specialized knowledge. These qualities may relate to how autistic individuals approach problem-solving, which can provide valuable insights for teams. This study examined the relationship between problem-solving styles, as measured by Kirton's Adaption-Innovation (KAI) Theory, and autistic traits, as measured by the Autism-Spectrum Quotient (AQ). KAI helps improve collaboration and reduce conflict caused by cognitive diversity, which is often used in workplace and team settings. Eighty participants took part in the study ($N = 80$), including 38 non-autistic adults and 42 autistic adults. They completed a demographic survey, the AQ, and the KAI. Simple and multiple linear regression models found that the total KAI score and the KAI sub-score R Variation significantly predicted the presence of autistic traits, as measured by the AQ. These findings shed light on how autistic adults approach problem-solving and emphasize the importance of adapting leadership and team practices to support neurodiverse individuals. Understanding these differences can help create more inclusive workplaces and may improve employment opportunities for autistic adults.

CAUTION TO THE LAY READER:

This paper should not be taken as medical or professional advice. Its purpose is not to minimize the hardships or challenges that autistic adults encounter in the workforce or to overly generalize the autistic experience. While insight into problem-solving style may provide personal understanding and support for working with others, it is only one tool that individuals can use to understand themselves and team members better. If you are diagnosed or seeking an autism diagnosis and are struggling, please seek professional help and support from autism specialists, psychiatrists, coaches, and more.

ACKNOWLEDGEMENTS

I am humbled and honored to write this part of my thesis, as it indicates I am nearing the completion of this journey. I am so grateful for the many incredible mentors and friends who have continuously encouraged, motivated, and supported me throughout my research and personal growth during my master's studies.

To my chair, Dr. Friedel, I sincerely appreciate the countless hours you've dedicated to advising me over the past two years, as well as the opportunities you've provided to enrich my scholarly development and deepen my understanding of KAI. Your support means a great deal to me. To my committee members, Dr. Sunderman and Dr. Holcomb, I sincerely thank you for your valuable guidance and continuous encouragement throughout this entire process; it has been instrumental in my success. Finally, I would like to thank everyone who supported my research question, including Kara Burr, Thomas Wilson, and many others. Thank you for championing research supporting autistic workforce development and leadership education.

In conclusion, completing a thesis is a significant endeavor, one that I could not have accomplished without the strong support system I had in place. To my husband, Ben, thank you for being the initial encourager in my decision to pursue my graduate studies and to follow my dream. You are my best friend and biggest advocate, and our love means everything to me. To my parents, thank you for the sacrifices you made to provide me with an excellent education and a strong foundation. I must also acknowledge my cats—Thunder, Zuko, and Franklin. They can't read, but if they could, I would imagine they would take pride in the support they have offered simply by being themselves. Lastly, to all my friends within the disabled community, I am uncertain where I would be today had I not met you all those years ago. Thank you for reminding me that my needs are valid, to be loud, and that disability is something to be proud of.

TABLE OF CONTENTS

APPENDICES ..... p. viii

List of Figures ..... p. ix

List of Tables ..... p. x

CHAPTER 1: Introduction ..... p. 1 – 2
- Autism ..... p. 2 – 3
- Diagnosis of Autism Spectrum Disorder ..... p. 3 – 4
- Autism in the Workplace ..... p. 4 – 5
- Kirton's Adaption-Innovation Theory ..... p. 5 – 6
- Definition of Key Terms ..... p. 7 – 8
- Problem Statement ..... p. 8 – 9
- Purpose Statement ..... p. 9
- Research Question ..... p. 9
- Hypotheses ..... p. 9 – 10
- Significance of Study ..... p. 10 – 11
- Delimitations ..... p. 11
- Limitations ..... p. 11
- Assumptions ..... p. 11–12
- Summary of Chapter 1 ..... p.12

CHAPTER 2: Literature Review ..... p. 13
- Autism ..... p. 13
- Literature Map ..... p. 14
- History of Autism Spectrum Disorder ..... p. 14 – 15
- Diagnosis of Autism ..... p. 16 – 19
- Self-diagnosis of Autism ..... p. 19 – 20
- Autism in the Workplace ..... p. 20 – 21
- Theoretical Framework ..... p. 22
- Kirton's Adaption-Innovation Theory ..... p. 22 – 24
- Factor Trait Descriptions ..... p. 24 – 25
- Cognitive Gaps and Coping Behavior ..... p. 22 – 23
- Autism: Psychological Dimensions ..... p. 23
- Autism, KAI, and Personality ..... p. 23 – 26
- Autism, Myers-Briggs, and Personality ..... p. 27 – 29
- Autism and Learning Styles ..... p. 30 – 31
- Autism and Co-Morbidities ..... p. 32 – 33
- Autism and Masking ..... p. 33 – 34
- Summary of Chapter 2 ..... p. 35 – 36

CHAPTER 3: Methodology ..... p. 37
- Purpose Statement ..... p. 37
- Hypotheses ..... p. 37 – 38
- Research Design ..... p. 38

Sample and Data Collection....p. 38
Autistic Sample....p. 38 – 39
Non-Autistic Sample....p. 39
Instrumentation....p. 40
Demographic Survey....p. 40
Kirton's Adaption-Innovation Inventory....p. 40 – 41
Autism-Spectrum Quotient....p. 41
Data Analysis....p. 42
Summary of Chapter 3....p. 42 – 43

CHAPTER 4: Results....p. 44
Introduction....p. 44
Rationale for Simple and Multiple Linear Regression....p. 44 – 45
Sampling....p. 45 – 46
Variables....p. 46 – 48
Demographic Survey....p. 48 – 50
Hypothesis One....p. 50 – 53
Hypothesis Two....p. 53 – 57
Hypothesis Three....p. 57 – 60
Limitations....p. 60 – 61
Summary of Chapter 4....p. 61

CHAPTER 5: Discussion....p. 62
Overview....p. 62
Interpreting the Results....p. 63 - 69
Implications....p. 69
Autistic Workforce Development....p. 69 – 70
Leadership Educators and KAI Practitioners....p. 70 – 71
Future Research....p. 71 – 72

REFERENCES....p. 73 – 80

APPENDICES

A. Recruitment Email ..... p. 81

B. Recruitment Flyer ..... p. 82

C. Informed Consent Form ..... p. 83

D. Informed Consent Form ..... p. 84

List of Figures

Figure 1. Adaption-Innovation Continuum ..... p. 6

Figure 2. Literature Map ..... p. 14

Figure 3. Overlap between core ASD dimensions, related factors, and common co-morbidities ..... p. 17

Figure 4. Sub-score Predictor Model for Autistic Traits ..... p. 56

Figure 5. Sub-score Variation Predictor Model for Autistic Traits ..... p. 60

List of Tables

Table 1. Linear Regression Model Variables for Hypothesis One ..... p. 47

Table 2. Multiple Linear Regression Model Variables for Hypothesis Two ..... p. 48

Table 3. Multiple Linear Regression Model Variables for Hypothesis Three ..... p. 48

Table 4. Linear Regression Results Total KAI Scores ..... p. 52

Table 5. Multiple Linear Regression Results KAI Sub-scores ..... p. 56

Table 6. Multiple Linear Regression Results KAI Sub-score Variations ..... p. 59

Chapter 1: Introduction

Diagnosis of autism spectrum disorders (ASD) has increased dramatically since the early 2000s, yet little emphasis is placed on researching how to best support the increasing population of autistic and neurodivergent adults in team dynamics (Center for Disease Control and Prevention [CDC], 2024; LeFevre-Levy, 2023). In 2000, one in 150 children was diagnosed with autism spectrum disorder, compared to an increase in 2020, when the prevalence reached one in 31 children (CDC, 2024). This significant rise underscores the growing prevalence and awareness of autism. Diagnostic rates have also increased in adults, with a 450% rise among those aged 24-36 from 2011 to 2022 (Grosvenor et al., 2024). Although autism diagnoses are increasing, research on how to support this population into adulthood and workplace settings remains limited. More efforts are needed to provide support beyond K-12 environments.

While many autistic traits have historically been seen as barriers, workplaces can benefit from autistic employees and managers, as they often have specific qualities that provide advantages in work environments, such as a keen attention to detail and the ability to give direct feedback (Firth & Happé, 2005; Baldwin et al., 2014; Happé, 2018; LeFevre-Levy, 2023). A deeper understanding of cognitive function, particularly how individuals prefer to solve problems, can serve as a valuable tool for both autistic employees and their neurotypical peers or supervisors when managing the complex nature of the workplace and team dynamics.

During the data collection process of the study, one participant shared their reasoning behind joining the study. They shared:

> "From my perspective, there is a disappointing lack of information on supporting autistic adults, period...*It's as if autistic kids disappear when they turn 18.* The vast majority of what's out there seems to focus on parents of ASD-2 and ASD-3

> children who have greater support needs. While I certainly don't deny that such resources are necessary, there seems to be a significant gap between research on autism in adults and the existence of practical support and resources driven by that research."

This quote highlights the importance of further empirical research on autism workforce development. This research study aimed to support autistic adults by gaining a deeper understanding of their preferred problem-solving approaches and exploring how they can effectively utilize these strategies to enhance workforce development and retention.

Autism

Autism spectrum disorders are complex, lifelong developmental conditions that primarily affect a person's ability to communicate and interact socially and are often characterized by repetitive behaviors and a narrow range of interests. (American Psychiatric Association [APA], 2022). Autism is viewed as a heterogeneous condition, as it can affect individuals in various ways; no two cases are exactly alike. Some common behaviors include, but are not limited to, a lack of social or emotional reciprocity, failure to recognize social norms, and a preference for adhering to routines (Lord et al., 2000).

ASD occurs in all racial, ethnic, and socioeconomic groups; however, it is reported to be four times more prevalent in boys than in girls (CDC, 2024). This statistic is often debated, as research indicates a significant sampling bias towards males (80%) and highlights barriers to female diagnosis, as autistic behaviors often present differently in females (Lockwood Estrin et al., 2021). Additionally, autistic individuals are at risk for intellectual disabilities and mental health conditions such as ADHD, anxiety, and depression (Antshel et al., 2016). As more people are diagnosed with autism, workplaces need to consider how to better understand and support

this growing community. Understanding how this population prefers to solve problems may lead to greater support and respect in stressful work environments and help manage cognitive diversity.

Diagnosis of Autism Spectrum Disorder

Diagnostic criteria from the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) contains specifiers that clinicians use to classify the severity of the disorder, with three classifications: Level 1, requiring support; Level 2, requiring substantial support; and Level 3, requiring very substantive support. These support needs are identified in both repetitive behaviors and social communication domains, with the severity of deficits directing the level of support required (APA, 2022; Gardner et al., 2018). For example, a person diagnosed may have noticeable social and communication impairments, but require less support than those classified with Level 2 or 3. While these measures can help determine criteria for different support levels, prognosis, treatment, and other needs of individuals with ASD, they do not assess other factors related to autism, such as cognitive functioning, comorbidities, and the severity of behavioral problems (Weitlauf et al., 2014). Other critiques of these severity levels suggested that support needs may change over time, and individuals may require higher support in categories that were not included in determining the original degree of severity.

While autism is a spectrum with individuals having varying levels of severity, there are defining traits and behaviors used to identify and diagnose the disorder. Behavioral characteristics include impaired social skills and communication deficits, as well as patterns of behavior and activities. Secondary characteristics of autistic persons include behavior management challenges, mental health disorders, co-morbidities such as epilepsy and genetic conditions, and intellectual disabilities (Hendricks & Wehman, 2009). Most autistic people are

diagnosed during early developmental years, as the average age of diagnosis is 60.48 months (5 years old) (Van'T Hof et.al, 2021). While IEPs and 504 Plans help autistic children in K-12 environments, autistic adults are often faced with significant obstacles when navigating social interactions as they transition into adulthood (Hendricks & Wehman, 2009). With most research and support programming being focused on children with autism, autistic adults can struggle with the loss of support as they try to enter the workforce. Given the research seeking to better understand the cognitive function of individuals diagnosed with autism and the desire to support individuals diagnosed with autism in the workplace, it appears that there have been few connections made between findings and theories based on psychology to make evidence-based conclusions and recommendations.

Autism in the Workplace

Autism is characterized by differences in behavioral patterns and communication skills (APA, 2022) and has historically been seen negatively; however, autistic individuals possess strengths that can be utilized in the workplace, such as having increased levels of concentration and providing honest feedback to peers (Firth & Happé, 2005; Baldwin et al., 2014, Happé, 2018; LeFevre-Levy, 2023). Multiple studies have revealed that up to 85% of autistic adults without intellectual disabilities are either unemployed or underemployed, excluding part-time work as full employment (National Autism Society, 2016; Gerhardt & Lainer, 2011; Griffiths et. al., 2016; Taylor, Henninger, & Mailick, 2015).

According to the U.S. Bureau of Labor Statistics (2023), only 21% of disabled adults—including those with autism—are currently employed. In 2016, it was estimated that over half a million autistic adults would reach adulthood and workforce age, which makes this research relevant and time-sensitive to support this population (Griffiths et al., 2016; CDC, 2016). Since

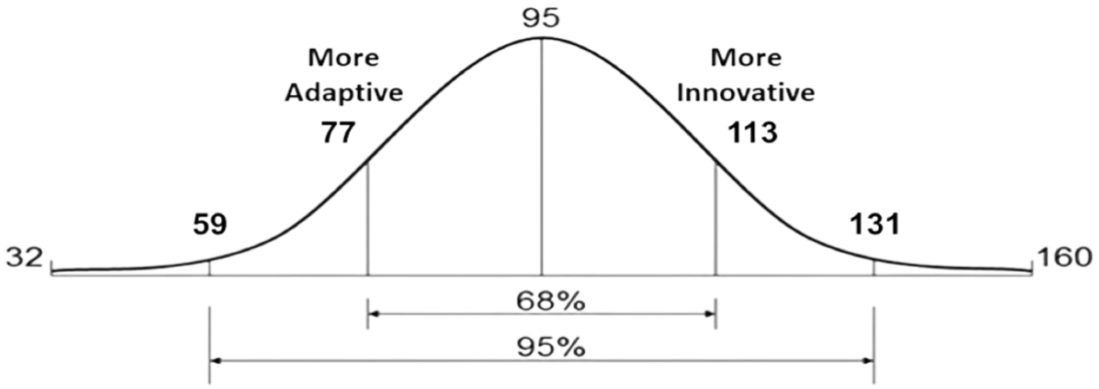
this 2016 study, the number of individuals diagnosed with autism has continued to rise; therefore, this statistic may be underestimating the current number of autistic adults both in and entering the workforce. Moving forward, a deeper understanding of cognitive function, specifically considering how individuals prefer to solve problems, may provide a useful tool for both autistic employees, their peers, and supervisors. As autistic adults face significant challenges in maintaining employment status compared to non-autistic employees, investigating relationships between problem-solving style and autism diagnosis may provide support and insight when navigating team dynamics within a workplace setting (Taylor, Henninger, & Mailick, 2015).

Kirton's Adaption-Innovation Theory

Kirton's Adaption-Innovation (A-I) theory offers an explanation to how an individual's problem-solving style is a dimension of one's personality, and independent of one's capacity for solving problems (Kirton, 1976; Kirton, 2011). Humans all problem solve at various levels and differences in complexity. However, the preference of how we problem solve may differ (Bush et al., 2017). A-I theory supports that there is a continuum of problem-solving styles, with each end of the continuum anchored by strong adaption and strong innovation (Kirton, 2010). After completing Kirton's Adaption-Innovation Inventory (KAI), a score is provided which falls on a continuum line, with strongly adaptive on the left and strongly innovative on the right (See Figure 1). The theoretical range of the interval scale is between 32 and 160. The general mean of the population is 95, providing a normal distribution curve of scores, with scores 32 to 95 characterizing an individual to be more adaptive, and scores 96 to 160 characterizing an individual to be more innovative (Kirton, 2011).

Figure 1.

Adaption-Innovation Continuum



Note: (Kirton, 2011).

More adaptive individuals have a preference to problem solve within a set paradigm. More adaptive characteristics include being more prudent risk-takers, targeting ideas, being more sensitive to group norms, and preferring consistency. More innovative individuals are more likely to problem solve outside a set paradigm or may not recognize a set paradigm. More innovative characteristics include being more daring risk-takers, proliferating ideas, being a catalyst for groups, and challenging assumptions (Kirton, 2011). An individual's preferred problem-solving style is not an indication of motivation or intelligence; one score is not better than another, with each position on the continuum having stylistic advantages and disadvantages when solving problems.

An individual's contributions and influence on their problem-solving style may vary depending on the cognitive preferences of a group (Bush et al., 2017). For example, a person with a score of 81 signifies they are moderately adaptive—however—if the group contains individuals with scores of 72 and 65, the individual with a score of 81 would be the most innovative group member. Similarly, a person who has a KAI score of 110 is a more innovative person with respect to the general population, but would be the most adaptive person in the room

with individuals with KAI scores of 127 and 142. The KAI may provide insight into how autistic people prefer to problem solve. With this knowledge, this population may have a greater awareness of self as well as how to manage cognitive diversity while working with others (Kirton, 2011).

Definitions of Key Terms

With respect to identity, identity-first language will be used throughout the study, as discussions from many members of the autistic community support this preference. In addition, the term autism will be used as synonymous with the term 'ASD' (Kenny et al., 2016; Tse et al., 2022). Common terms used in this study are defined as follows:

- Adaption is a problem-solving preference that falls on the left side of the A-I continuum. More adaptive individuals prefer to solve problems inside a set structure, are more risk averse, and have more regard for group consensus (Kirton, 2011).
- Autism is a complex, lifelong developmental condition that impacts communication and social skills, repetitive behaviors, and restrictive interests. It is also known as ASD or autism spectrum disorder (American Psychiatric Association, 2022).
- Cognitive Affect is an individual's needs, values, and beliefs that influences the individual's process of creating solutions to problems (Kirton, 2011).
- Cognitive Effect is an individual's potential level (IQ) and preferred style that influences the individual's process of creating solutions to problems (Kirton, 2011).
- Cognitive Function is the combination of cognitive affect, cognitive effect, and cognitive resource (Kirton, 2011).
- Cognitive Resource is an individual's knowledge, skill, and experiences that influences the individual's process of creating solutions to problems (Kirton, 2011).

- Coping Behavior is a learned skill, requiring an individual to solve problems outside of their preference, operating more adaptively or more innovatively than one's preference. It requires motivation and awareness to be able to do so (Kirton, 2011).
- DSM-5 is the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, which contains the diagnostic criteria that clinicians use to diagnose and classify the severity of autism disorder (APA, 2022).
- Innovation is a problem-solving preference that falls on the right side of the A-I continuum. More innovative individuals prefer to solve problems by challenging the set structure, are more tolerant of taking risks, and have less regard for group consensus (Kirton, 2011).
- Masking is a process that drives autistic individuals to hide parts of themselves, often to avoid stigma in interacting with others. This terminology was created by members of the autistic community and is used in clinical settings (Hull et al., 2017).
- Problem-solving Style is an individual's innate, preferred way of solving problems (Kirton, 2011). It is also synonymous with cognitive style, as defined by Kirton (2011).

Problem Statement

As autistic adults face significant challenges in maintaining employment compared to non-autistic employees, exploring the relationship between problem-solving styles and autism diagnosis may provide support and insights for navigating the workplace (Taylor, Henninger, & Mailick, 2015). Many autistic adults have the desire, ability, and post-secondary qualifications, yet finding and maintaining employment remains challenging as social and communication issues can act as barriers (Hendricks, 2010; Roux et al., 2013). Limited research exists on

effective ways to support the growing population of autistic and neurodivergent adults in team dynamics that are in workplace settings (CDC, 2024; LeFevre-Levy, 2023).

The diagnosis of autism spectrum disorders in children and adults has risen significantly since the early 2000s. Yet, we still do not have a theoretical understanding of autism, as the diagnosis is based on observations of specific traits and characteristics established in the DSM-5. A deeper theoretical understanding of autism may provide a more robust understanding of the disorder as well as strengthen intervention and support practices and care.

Purpose Statement

By understanding a population's problem-solving style, individuals within that group may gain a deeper understanding of their preferred problem-solving approach and develop a greater awareness of cognitive diversity (Kirton, 2011). Researching the relationships between problem-solving style and autism may not only benefit autistic individuals but also help team members and employers gain a greater understanding of the cognitive preferences of this specific population, which may reduce conflict caused by cognitive diversity. This research aimed to further autism research by investigating if a relationship exists between having autistic traits and one's preferred problem-solving style. The purpose of this study was to investigate the relationships between problem-solving style and autism.

Research Question

The overarching research question was, "Does problem-solving style predict variance of autistic trait prevalence?"

Hypotheses

The hypotheses of this study are:

Hypothesis One: There is a significant positive linear relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores.

Hypothesis Two: Specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores.

Hypothesis Three: Variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI subscale scores, significantly predict AQ scores.

Significance of the Study

The diagnosis of autism spectrum disorders has risen significantly since the early 2000s, yet there is limited theoretical understanding of autism and limited research on effective ways to support the growing population of autistic and neurodivergent adults in team dynamics (CDC, 2024; LeFevre-Levy, 2023). Despite many autistic adults having the desire and qualifications, it is estimated that 85% of autistic adults without intellectual disabilities are unemployed or underemployed, and more research is needed to support both workforce development across the entire workplace journey (Taylor, Henninger, & Mailick, 2015; Davies et al., 2024).

If the hypothesis that autistic adults' brains work and think differently is true, use of a theoretical framework—such as A-I theory—may provide insight and understanding autism and provide guidance for better management practices for supporting this population in the workplace. Understanding of autism within cognitively diverse teams will be clarified if a relationship is established between problem-solving style and autism; it will enhance understanding of autism within cognitively diverse teams. If no relationship is found, the data will indicate that autism is not directly related to cognitive effect—or style—but related to cognitive affect or cognitive resource instead.

This research aimed to benefit the autistic community and to be a tool for navigating workplace dynamics and aiding autistic workplace retention. Additionally, this research may enhance understanding among team members and employers regarding the cognitive preferences of the autistic population in the workplace, potentially mitigating conflict caused by cognitive diversity.

Delimitations

Delimitations are the intentional boundaries researchers set to narrow their study's focus, which limit the ability to generalize findings to all individuals and situations (Theofanidis & Fountouki, 2018). The researcher relied on Autism-Spectrum Quotient (AQ) scores to determine autistic group membership, rather than a clinical diagnosis of autism. This method was chosen to broaden the accessibility of the study, as many autistic adults do not have a formal diagnosis due to a lack of clinicians specializing in the adult autistic population.

Limitations

Several limitations should be considered when interpreting the results. The AQ may lead to potential inaccuracies in the data, affecting the validity of the group classification. Self-selection bias may impact the results, as participants chose to participate in this study; therefore, the sample may not accurately represent the entire autistic population. Despite these limitations, this study provides valuable insights into the possible relationship between autism and problem-solving style.

Assumptions

For this study, there are three major assumptions. This first assumption was that the KAI and the AQ are both valid and reliable measures that accurately measure problem-solving style and autism, respectively. The second assumption was that all participants possessed the cognitive

ability to comprehend and complete the KAI effectively and that all participants had normal to above-average intelligence to complete the AQ successfully. The third assumption was that all participants' autism diagnosis levels were either Level 1 or Level 2, as this reflects the most common levels within the workplace. These assumptions are essential to the methodology and interpretation of the findings.

Summary of Chapter 1

Autism is a complex, lifelong developmental condition that impacts communication and social skills, repetitive behaviors, and restrictive interests (APA, 2022). The diagnosis of autism spectrum disorders has risen significantly in both children and adults since the early 2000s. Yet, there is limited theoretical understanding of autism, and limited research on effective ways to support the growing population of autistic and neurodivergent adults in team dynamics (CDC, 2024; LeFevre-Levy, 2023). With the rising number of autism diagnoses, employers must be able to support this unique population. Autistic adults face significant challenges in maintaining employment status compared to non-autistic employees, and investigating relationships between problem-solving style and autism may provide support and insight when navigating team dynamics within a workplace setting (Taylor, Henninger, & Mailick, 2015). By understanding a population’s problem-solving style, individuals within that group will better comprehend how they prefer to approach problem-solving and have a greater awareness of cognitive diversity (Kirton, 2011). The purpose of this study is to quantitatively investigate the relationship between cognitive problem-solving styles and autistic adults, using Kirton’s Adaption-Innovation theory and the Autism-Spectrum Quotient. Chapter 2 provides the empirical and theoretical research relevant to this study.

Chapter 2: Review of Literature

Autism

Autism is a lifelong complex developmental condition characterized by differences in behavioral patterns and communication skills (APA, 2022). The diagnosis of autism spectrum disorders has increased substantially since the early 2000s; however, insufficient attention has been given to researching best support strategies for the growing population of autistic and neurodivergent adults within team dynamics (CDC, 2024; LeFevre-Levy, 2023). In 2000, one in 150 children was diagnosed with autism spectrum disorder; by 2022, the prevalence had increased to one in 31 children (CDC, 2022). Children are being diagnosed with autism at high rates, as autism characteristics are often the strongest in childhood. Early diagnosis offers support in school settings; however, this growing population must be supported beyond the secondary education system. Autistic adults often face significant challenges when engaging in social interactions as they transition into adulthood, and late-diagnosed adults require guidance on how to access support and navigate workplace accommodations. Therefore, research supporting autistic adults in navigating team dynamics may lead to a more secure future and workforce experience (Hendricks & Wehman, 2009).

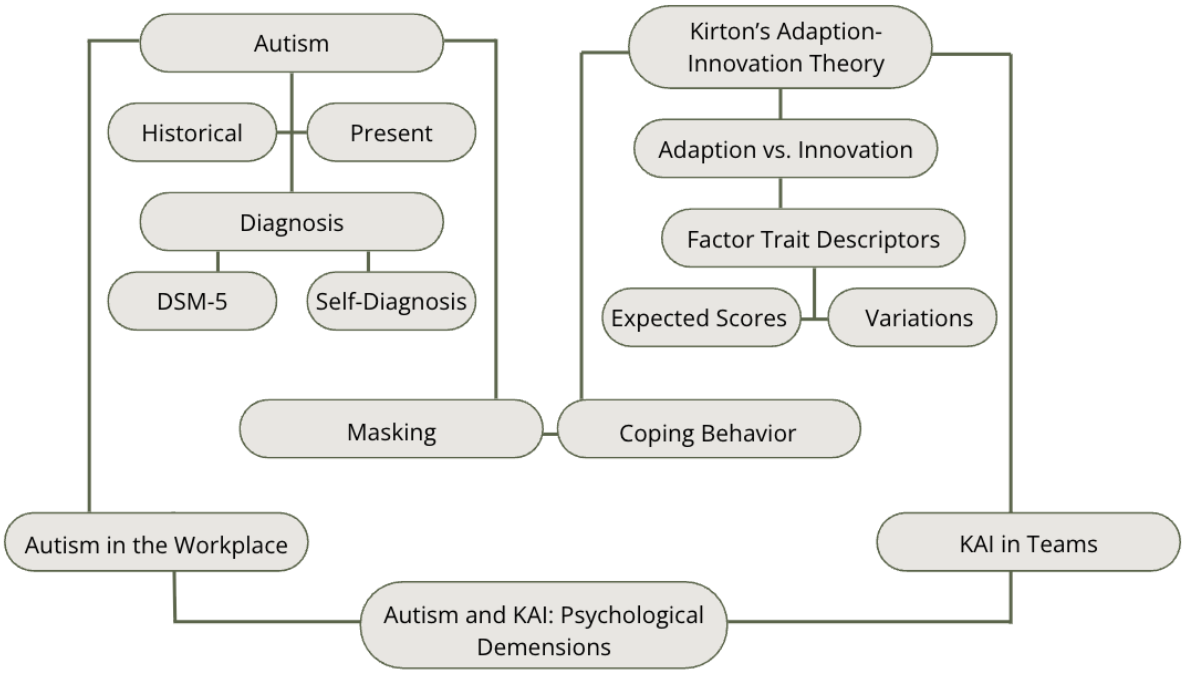
Little empirical research on autism and personality exists despite autism being mainly diagnosed from observations of behaviors and traits. Research should be conducted to focus on understanding autism from a cognitive theoretical perspective, in addition to the already established diagnostic criteria, which include the observation of traits and behaviors. Insight into possible relationships between autism and personality may provide greater support and strategies for autistic adults in the workplace.

Literature Map

A literature map was created to illustrate the flow of Chapter 2. Figure 2 displays the relationships and possible connections between autism and Kirton's Adaption-Innovation (A-I) theory that will be discussed throughout the literature review.

Figure 2

Literature Map



History of Autism Spectrum Disorder

Kanner (1943) first described autism in a report of 11 children sharing similarities in behaviors such as indifference to others, obsessive interests, and language difficulties. In 1944, Asperger syndrome was identified and described as children who had impaired social interactions and repetitive behaviors and interests, but both Asperger and Kanner used the word autism to describe their findings (Asperger, 1994; Kanner, 1943). The distinction between

Kanner's autism and Asperger's was the degree of disinterest versus interest in social interactions. Asperger descriptors were more positive, emphasizing normal or above-average cognitive abilities, language development, and novel thinking, as well as the improvement of symptoms over time. These more positive descriptors led to perceptions that Asperger's syndrome represented a higher-functioning autism diagnosis (Kiln, 2003; Kiln et al., 2005). Kanner syndrome was included in the DSM-III; however, because Asperger did not establish diagnostic criteria, it was not included in the DSM until its fourth edition in 1994, when the DSM incorporated multiple disorders (Barahona-Corrêa & Filipe, 2016). However, in 2013, Asperger's syndrome was removed during the creation of the DSM-5, primarily because of the challenges with distinguishing differences in diagnostic criteria with the overlap of autism, as well as the controversy of it being considered a higher-functioning autism diagnosis (Kiln et al., 2005; Barahona-Corrêa & Filipe, 2016). Whereas the DSM-IV employed a multi-categorical system with distinct diagnoses, the development of the DSM-5 consolidated these separate diagnoses into one: autism (Rosen et al., 2021). This intentional shift was developed to recognize autism as a spectrum, rather than categorizing it into distinct categories.

Since the initial report in 1943, epidemiologists have sought to identify genetic markers and environmental factors that contribute to this complex developmental condition. While some genetic causes have been identified as making an individual more susceptible to having autism, there is limited understanding of modifying variants, as well as a lack of understanding as to why there are different levels of severity within individuals with the same genetic variants (Rylaarsdam & Guemez-Gamboa, 2019). Although more individuals are being diagnosed due to increased awareness and the creation of the DSM-5, autism varies greatly in severity and how it affects individuals.

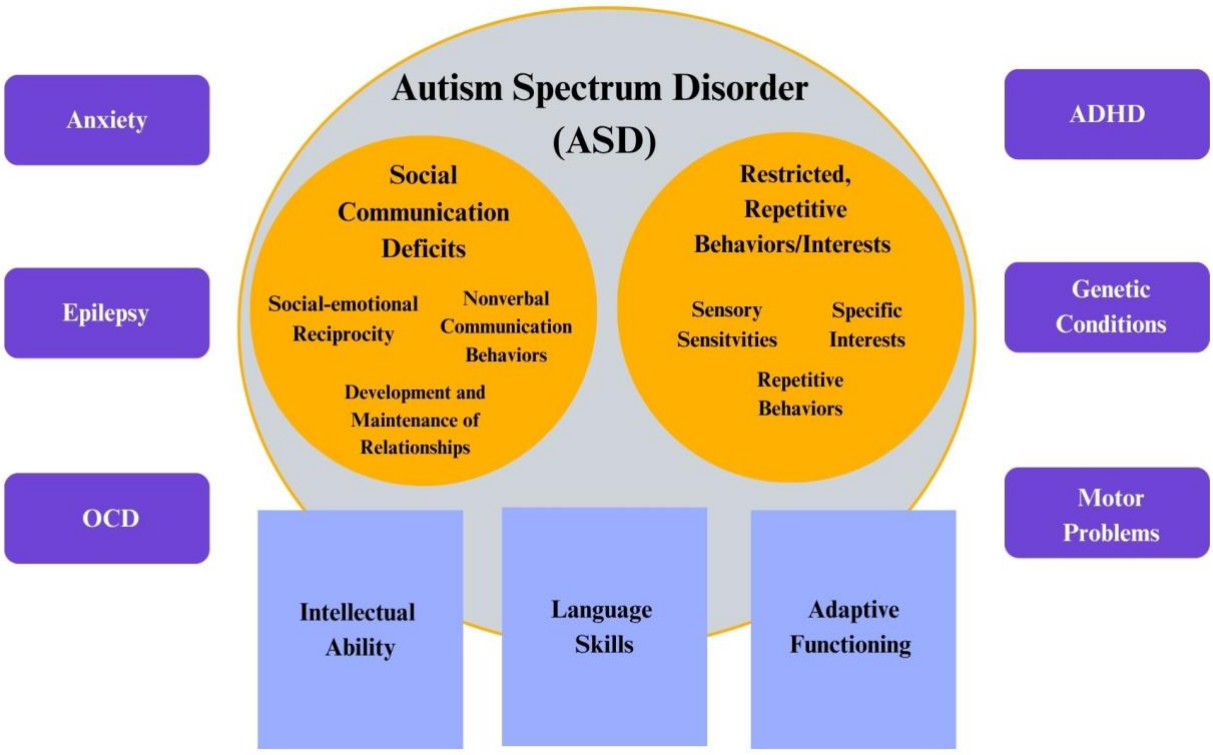
Diagnosis of Autism

While autism is a spectrum and individuals have varying levels of severity, there are defining traits and behaviors used to identify and diagnose the disorder. The DSM-5 recognizes two main domains of behavioral characteristics: social communication deficits, such as social-emotional reciprocity, nonverbal communication behaviors, and the development and maintenance of relationships, and restricted, repetitive behaviors and interests (Rosen et al., 2021). The DSM-5 recognizes related factors, such as intellectual ability, language skills, and adaptive functioning, which are not part of the core diagnostic criteria but are often observed in individuals with autism (See Figure 3). Additionally, the DSM-5 was the first edition to include specific comorbidities, enabling clinicians to assess and document more effectively for more effective treatment plans. Finally, symptoms must be present in childhood and cannot be better explained by an intellectual disability (Rosen et al., 2021). The intentional switch from a categorical approach in the DSM-IV to a dimensional approach in the DSM-5 was to recognize variations in ASD experiences.

Figure 3 illustrates the two domains of the core diagnostic criteria, represented by the two circles in the center of the overarching ASD circle. The rectangles on the line of the ASD circle represent the related factors associated with ASD that are not required for diagnosis but are often related and can provide more context for support. Finally, the words outside of the ASD circle represent the common co-morbidities present with autistic people but are not an exhaustive and all-encompassing list.

Figure 3

Overlap between core ASD dimensions, related factors, and common co-morbidities



Note: Adapted from Rosen et al. (2021).

The diagnostic criteria from DSM-5 include specifiers that clinicians use to classify the severity of the disorder, with three levels: Level 1, requiring support; Level 2, requiring substantial support; and Level 3, requiring very substantial support. These support levels are determined based on the support needs associated with the severity deficits observed in both repetitive behaviors and social communication dimensions (APA, 2022; Gardner et al., 2018).

Autism Level 1 and Level 2 are the most common levels for individuals who can participate in the workforce, with the appropriate supports. While these measures can help determine criteria for different support levels, prognosis, treatment, and other needs of

individuals with ASD, they do not assess other factors related to autism, such as cognitive functioning, comorbidities, and the severity of behavioral problems (Weitlauf et al., 2014). Some critiques of these severity levels suggest that support needs may change over time, and individuals might require higher or lower levels of support in areas not considered when determining the original severity. For example, if an autistic child undergoes certain therapies or interventions to learn specific skills, they may need less support than their initial diagnosis level of two or three. Work and other stressors, or increased mental load, may cause an individual to require more support than their original diagnosed level. As a result, the diagnostic criteria are often criticized for lacking clarity, and the broad range of autism experiences makes it difficult to categorize severity levels (Weitlauf et al., 2014).

An autism diagnosis requires that symptoms must be present in early developmental years and cannot be better explained by an intellectual disability. Autism characteristics are often the strongest in childhood, and most autistic individuals are diagnosed during early developmental years (APA, 2022; Gardner et al., 2018). While an early diagnosis provides support in school settings, autistic adults are often faced with significant obstacles when navigating social interactions—such as those within in the workplace—as they transition into adulthood (Hendricks & Wehman, 2009). Additionally, there has been an increase in adult diagnoses, as there was a 450% rise in adults aged 24-36 from 2011-2022 (Grosvenor et al., 2024), which indicates that more people are navigating this diagnosis for the first time without the support that most pediatrically diagnosed individuals typically receive. Most research and support programs focus on children with autism, leaving autistic adults to struggle with losing support as they try to enter the workforce. Late-diagnosed individuals also need help understanding how to access support and navigate workplace accommodations. Because autistic

adults struggle with social interactions, navigating workplace dynamics can be challenging, as it requires communication skills and coping behaviors.

Self-diagnosis of Autism

As knowledge increases and new diagnostic criteria are formed, more individuals are seeking validation of their lived experiences through self-diagnosis. Many adults who did not fit into the past diagnostic criteria during childhood or did not have any intellectual comorbidities resort to self-diagnosis of autism (Lewis, 2016). While this could be due to greater acceptance and exposure to neurodiversity through awareness initiatives, there are opposing perspectives within the autistic community on the validity of self-diagnosis.

The Autism Spectrum Quotient (AQ) was introduced in 2001 as a self-assessment screening instrument for autistic adults with average to high intelligence (Baron-Cohen et al., 2001). This 50-item assessment exhibits reasonable construct validity, as its five subscales—social, communication, imagination, attention to detail, and attention to switching—all yielded moderate to high alpha coefficients. The AQ also demonstrates excellent test-retest reliability (Baron-Cohen et al., 2001). The score range is from 0 to 50, with higher scores indicating more autistic traits. While a score of 32 and above indicates clinically significant levels of autism, scores of 26 and above are now often considered a strong indication of autism and are considered the updated cut-off (Baron-Cohen et al., 2001; Woodbury-Smith et al., 2005). It is essential to note that the AQ is not a clinical diagnostic tool, but it can be used to assist in the diagnostic process and help fill the gap of a needed autism assessment tool.

Although some argue that self-diagnosis is necessary because access to healthcare may be limited and there is no confirmed genetic test to diagnose autism, others contend that it can invalidate and exploit the experiences of clinically diagnosed autistic individuals (Sarrett, 2016).

However, self-diagnosis could affect autism research and the validity of findings if individuals have not been formally diagnosed by clinicians. Some believe that challenging traditional paradigms of autism diagnosis and identity promotes more inclusive practices and is essential within critical autism studies (Sarrett, 2016). As self-diagnosing becomes more common and accepted within the autistic community, some recent studies have disclosed whether participants were formally diagnosed or self-diagnosed with autism. Because formal diagnoses may have limitations of access, the actual prevalence of autism might be higher than reported. With a growing number of autistic individuals, employers need to be willing to engage with and understand them to best support this group of employees.

Autism in the Workplace

Autism characteristics are often seen negatively, as autism affects communication, social skills, repetitive behaviors, and restrictive interests (APA, 2022). However, autistic individuals have strengths that can be valuable in the workplace, including having enhanced focus, in-depth expertise in specific areas, and the ability to provide honest feedback to colleagues (Firth & Happé, 2005; Happé, 2018; LeFevre-Levy, 2023). The National Association of Colleges and Employers' (NACE) Job Outlook 2024 Report highlighted the skills and attributes that employers desire in new hires, including attention to detail, work ethic, and analytical skills, which are traits often associated with autistic people (NACE, 2023). Other qualities highlighted in the report included communication skills and the ability to work in a team. Skills in conflict management in teams can often be further developed by applying adaptation-innovation theory. By understanding their cognitive style and learning coping skills, individuals with autism may find it easier to work in a team and effectively communicate.

According to the U.S. Bureau of Labor Statistics (2023), only 21% of disabled adults—including those with autism—are currently employed. In 2016, it was estimated that over half a million autistic adults would reach adulthood and workforce age, making this research both relevant and urgent to support this population (CDC, 2016). Despite many autistic adults having the desire, ability, and post-secondary qualifications, gaining and maintaining employment remains challenging, with an estimate that over 50% of autistic adults are unemployed (Roux et al., 2013). Additionally, some studies show that over 85% of autistic adults without an intellectual disability are unemployed or underemployed, and differences in unemployment rates may result from variations in the population samples as well as the way unemployment is defined, for example, including part-time work as employment (Taylor, Henninger, & Mailick, 2015). Since the CDC (2016) study was released, the number of individuals diagnosed with autism has continued to increase; therefore, this statistic may underestimate the current number of autistic adults both in and entering the workforce.

Examining the relationship between problem-solving styles and autism would benefit autistic individuals and help team members and employers better understand the cognitive preferences of this specific population. This understanding could reduce conflicts caused by cognitive diversity and serve as a tool to improve job retention. One thing is clear: as the population of autistic adults entering the workforce continues to grow, research aimed at supporting this group in navigating workplace and team dynamics is essential.

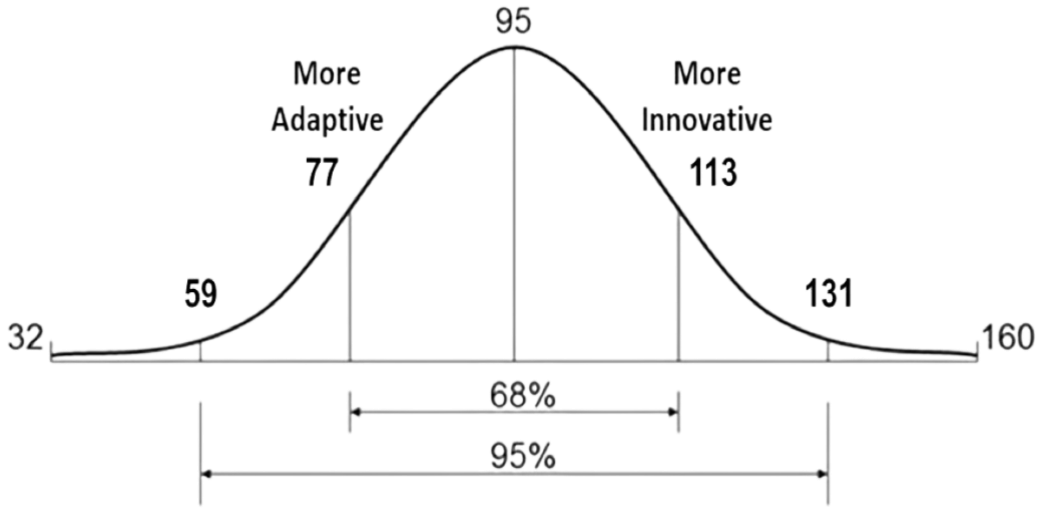
Theoretical Framework

Kirton's Adaption-Innovation Theory

Kirton's Adaption-Innovation (A-I) theory is a problem-solving theory that indicates individuals have an innate, stable, and measurable preference for working with cognitive structures, which indicates how an individual prefers to problem solve (Kirton, 1976; Kirton, 2011). All humans solve problems at various levels in complexity and size; however, the preference of how we problem solve may differ stylistically (Bush et al., 2017). A-I theory indicates that one's problem-solving style is positioned on a continuum anchored by strong adaption and strong innovation (Kirton, 2010). The corresponding measure to A-I theory is the KAI (Kirton's Adaption-Innovation Inventory), which provides a score indicating one's position on the continuum (See Figure 1). The theoretical range of this interval scale is between 32 and 160 with a normal distribution curve centered on the general mean of the population, at 95, and a standard deviation of 18 points. Scores to the left of the continuum, ranging from 95 to 32, characterize an individual to be more adaptive; and scores to the right of the continuum, scores from 96 to 160 characterize an individual to be more innovative (Kirton, 2011).

Figure 1.

Adaption-Innovation Continuum



Note: (Kirton, 2011).

More adaptive individuals have a preference to problem solve within a set paradigm. More adaptive characteristics include being more prudent risk-takers, targeting ideas, being more attentive to group consensus and the enabling aspect of structures, and prefer consistency. More innovative individuals are more likely to problem-solve by working on the outside a set paradigm or may not recognize the existence of a set paradigm. More innovative characteristics include being more daring risk-takers, proliferating ideas, being a catalyst to stagnate groups, and challenging assumptions (Kirton, 2011).

An individual's preferred problem-solving style does not reflect one's motivation or intelligence, as no single score is superior to another; each position on the spectrum has its own stylistic strengths and weaknesses when addressing problems. While there is an aspect of how one may identify as a creative individual and prefer to approach a problem, being more adaptive or more innovative with respect to the general population, there is also an aspect of relativity. For

example, a person with a KAI score of 81 indicates that they are moderately adaptive; however, if the group contains individuals with scores of 62 and 55, the individual with a score of 81 would be the most innovative member of the group. Likewise, a person with a KAI score of 118 indicated that they are more innovative; however, if the group contains individuals with scores of 131 and 143, the individual with a score of 118 would be the most adaptive member of the group.

Factor Trait Descriptions

The KAI total score is calculated by adding three sub-scores from three different subscales, also based on adaption and innovation. These subscales are called Sufficiency-Proliferation of Originality (SO), which relates to idea generation; Style of Efficiency (E), which pertains to problem-solving methods; and Rule of Conformity (R), which concerns social structure (Kirton, 2017).

Within SO, adaptive ideation prefers to stay within a paradigm, focusing on how to improve it during problem-solving, whereas innovation ideation may not be constrained by the existing paradigm. Therefore, more adaptive individuals prefer to produce fewer ideas and perceive them to be sounder and more relevant to the solution. In contrast, innovative individuals prefer to produce more ideas and are willing to operate outside of a set paradigm (Kirton, 2017). Adaptors tend to generate fewer ideas unless invited to produce more, whereas innovators tend to generate more ideas unless they are restricted.

When considering the Style of Efficiency, this subscale indicates the method of attaining structure. More adaptive individuals prefer thoroughness and search more systematically for information, focusing on how a system can be creatively improved within its existing structure.

The more innovative prefer paying less attention to detail and structure, and are more willing to create different systems with a more global approach.

The Style of Rule of Conformity explains how an individual prefers to operate with rules and group consensus (Kirton, 2017). Adaptors prefer more rules, guidelines, and expectations while being mindful of other group members' wishes; however, innovators have less regard for rules and group consensus and are more open to challenging and introducing unconventional changes to group dynamics.

KAI sub-scores reflect aspects of one's preferred problem-solving styles, and moderate correlations between the three sub-scores indicate that individuals with the same total KAI score may or may not find alignment with their subscale scores. This potential variation of sub-scores may explain additional uniqueness of an individual's problem-solving style and offer a deeper explanation for two individuals who find themselves in conflict when solving problems together.

The sum of the three sub-scores determines the total KAI score, and as a result, statistically, one can calculate what one might expect to have as a sub-score based on each sub-score's percentage of contribution to the total score. However, actual sub-scores determined from the respondent completing the KAI do not always align closely with the expected sub-scores. A variation between expected and actual scores is identified by the KAI practitioner, who is trained to provide feedback on KAI results. It is estimated that an interpretable difference between actual and expected sub-scores is found in approximately one-third of the population (Kirton, 2011). Because autistic individuals exhibit traits described as both adaptive and innovative, and because individuals diagnosed with autism often describe their experience of autism differently, it is worthwhile to explore potential variations in sub-scores among identified autistic individuals.

Cognitive Gaps and Coping Behavior

A difference in problem-solving style between two individuals, as measured by the KAI, is a cognitive gap in how each prefers to stylistically approach the problem. According to the A-I theory, a gap of 20 points or more, between two people, anywhere along the A-I continuum may cause conflict, as one person prefers to solve the problem more adaptively while the other prefers a more innovative approach. Because of this difference in problem-solving styles, individuals in groups may need to demonstrate what Kirton (2011) described as coping behavior to work effectively together.

Coping behavior is a learned skill an individual may use to solve problems outside of their preference—more innovative or more adaptive—and requires motivation and awareness to be able to do so (Kirton, 2011). An individual may use coping behavior to solve a particular problem, which is better solved with a more adaptive or more innovative approach than what is preferred, or coping behavior may be used to work with a particular person who is more adaptive or more innovative than the individual. An individual may also use coping behavior when they are working with a team that has an average KAI score more adaptive or more innovative than the individual's preferred problem-solving style.

A cognitive gap is not required to exhibit coping behavior, but a gap is more likely to be recognized when noticing differences in problem-solving preferences between individuals. Having that cognitive awareness may motivate one to cope, but individuals must also be motivated to do so. However, individuals may choose to cope in the opposite direction of the gap, intentionally widening it if they have other motivations. Additionally, coping is taxing on cognitive function, and how often, how intensely, and the distance along the A-I continuum needed to cope may affect a person's willingness to do so (Kirton, 2011).

Autism: Psychological Dimensions

Autism, KAI, and Personality

In a 2015 study, researchers found that the NEO-PI-R assessment, which measures the Big Five personality traits, could be used to help understand the personality traits and characteristics of autistic adults. The Big Five personality traits include Neuroticism, Extroversion, Openness, Conscientiousness, and Agreeableness (Boyle et al., 2008). The study found that autistic adults demonstrated significantly higher Neuroticism ($d = 1.8$), and significantly lower Extraversion ($d = 1.6$), Openness ($d = 0.7$), and Conscientiousness ($d = 0.8$), with no significant difference in Agreeableness (Hesselmark et al., 2015).

The results show that autistic adults tend to be less open to new experiences and less conscientious than neurotypical adults. The largest difference between the two groups are higher Neuroticism and lower Extraversion, indicating those with autism are less outgoing, while experiencing greater emotional instability. The large negative effect for extraversion suggests that they do not enjoy social interactions, which may be due to autistic adults having difficulty with social functioning and communication skills. These findings may also provide insight into autistic adults' preferred problem-solving styles.

Kwang and Rodrigues (2002) examined the link between Kirton's Adaption-Innovation (KAI) theory and the Big Five personality traits and found that there was no significant difference between adaptors and innovators in Agreeableness, (t (46) = 1.44, $p > .05$), and Neuroticism, (t (46) = 1.77, $p > .05$). However, innovators score significantly higher than adaptors in Extraversion (t (46) = -3.18, $p < 0.005$), as well as between innovator scores and Openness, (t (46) = -4.54, $p < 0.005$), which means that, more innovative scores are associated with higher Extraversion and Openness. This data suggests that more innovative individuals are

also likely to be more outgoing and energetic in social situations, as well as more open to new experiences, compared to those who are more adaptive problem-solvers.

Additionally, adaptors scored significantly higher in Conscientiousness, t (46) = 3.88, p <.0001), which indicates that an individual having a stronger preference of adaption is also likely to be more conscientious. When comparing these results with those from Hesselmark et al.'s (2015) study, both more adaptive individuals and autistic adults scored low on extraversion and openness. It is interesting to note that a potential trend of autistic and adaptive individuals yielding similar results on the Big Five personality traits is disrupted by the two studies differing in their relationships with Conscientiousness (Hesselmark et al., 2015; Kwang & Rodrigues, 2002). That is, more adaptive individuals are also more likely to have personality traits associated with being conscientious, while evidence suggests autistic individuals are not likely to also be conscientious.

Based on these findings, there is conflicting evidence, making it difficult to determine where autistic individuals might fall on the KAI continuum. For example, one could argue that autistic adults may be more adaptive, on average, considering that autistic individuals scored lower on Extraversion and Openness, which are traits associated with being more adaptive on the KAI (Kirton, 2011). Literature shows that characteristics often linked to autism—such as a preference for structure and attention to detail—align more closely with adaptive traits, like favoring problem-solving within a set structure and being risk-averse (APA, 2022). However, there is a discrepancy regarding Conscientiousness scores between autistic individuals and individuals being more adaptive (Hesselmark et al., 2015; Kwang & Rodrigues, 2002); therefore, it is difficult to speculate where autistic adults in general may be positioned on the KAI

continuum. It is important to highlight that this conclusion is based on indirect correlations among ASD, Big Five personality traits, and KAI scores.

In addition to researching the relationship between Big Five personality traits and total KAI score results, Kwang & Rodrigues (2002) discovered meaningful relationships between the three-factor traits of the KAI. Again, the KAI provides three sub-scores representing style subscales: Sufficiency - Proliferation of Originality (SO), related to idea generation; Style of Efficiency (E), related to problem-solving approach; and Rule of Conformity (R), related to the context of structure (Kirton, 2011).

SO negatively correlated with Openness ($r = -0.40$, $p < .01$) and Extraversion ($r = -0.43$, $p < .01$), indicating that higher SO scores, which are associated with more innovative styles, correspond to lower levels of openness to new experiences and sociability, which is opposite to what has been reported in previous literature (Kwang & Rodrigues, 2002; Kirton, 2011). Further research is needed to clarify this relationship.

The subscale R positively correlated with Conscientiousness ($r = 0.50$, $p < .0001$) but negatively with Openness ($r = -0.38$, $p < .01$), suggesting that individuals with more innovative R scores exhibit greater organization and discipline but reduced openness, which is worth noting, as KAI research would expect a more adaptive R to be more conscientious. The subscale E shows a positive correlation with Conscientiousness ($r = 0.73$, $p < .01$), meaning a more adaptive E score is related to higher reliability and structure, which is consistent with other KAI research (Kwang & Rodrigues, 2002). These findings show both the complexity of personality traits and problem-solving style; therefore, researchers should further explore the sub-scores of autistic adults and how they might influence both personality traits and their preferred problem-solving style.

Autism, Myers-Briggs, and Personality

The Myers-Briggs Company (2024) completed an unpublished study to investigate the relationship between the Myers-Briggs Type Indicator (MBTI) personality type and neurodivergence. Neurodivergence was described by these inclusion diagnostic criteria: ADHD, autism spectrum disorder (ASD), obsessive-compulsive disorder (OCD), dyslexia, anxiety and depression, dyspraxia, dyscalculia, Tourette's syndrome, PTSD, bipolar disorder, sensory processing disorder, and dysgraphia. Of the sample, only 5% (n = 64) identified as autistic. From their report (n = 1,285), 60% of participants scored Introversion (I) over Extraversion (E), 63.1% scored Intuition (N) over Sensing (S), 50.9% scored Thinking (T), and 60.9% scored Judging (J) over Perceiving (P) (Myers-Briggs Company, 2024). Specifically, looking at the 64 autistic participants of the study, they were more likely to prefer I over E (Myers-Briggs Company, 2024), suggesting that autistic individuals are also likely to be introverted. However, due to the non-peer-reviewed and exploratory nature of the study, significance and statistical values were not disclosed, and these findings should be considered preliminary and with caution.

Furnham et al.'s (2003) study comparing Myers-Briggs to the Big Five personality traits found that MBTI Extraversion has a strong positive correlation with Big Five Extraversion (r = 0.71), which indicates that individuals scoring high on Extraversion on one assessment are likely to score high on the other's Extraversion category. Intuition, as measured by the MBTI, has a strong positive correlation with Openness (r = 0.64), indicating that those who score high on Intuition are open to new experiences and are more imaginative. Feeling, as measured by the MBTI, has a small positive correlation with Agreeableness (r = 0.28), which indicates a small relationship between those who have a preference for Feeling and being agreeable with others. Judging, as measured by the MBTI, has a moderate positive correlation with Conscientiousness

(r = 0.46), indicating that Judging preference is moderately conscientious and aware of their group responsibility. Finally, Introversion has a moderate positive correlation with Neuroticism (r = .31), showing that increased introversion is associated with a moderate increase in emotional sensitivity.

Based on these findings, the results of the Myers-Briggs (2024) and Hesselmark et al. (2015) studies can be compared, and the comparison reveals one consistent relationship: that being neurodivergent and autistic is related to higher levels of introversion. A great deal of caution should be placed in making this connection, as the Myers-Briggs study's statistical analyses were not disclosed. The conflicting results of Openness/Intuition and Conscientious/Judging may be due to the specific populations studied, as Myers-Briggs Company (2024) investigated neurodivergent adults—including, but not limited to, those with autism—whereas Hesselmark et al. (2015) specifically studied autistic adults. Additionally, it is essential to note that the Myers-Briggs (2024) report was not peer-reviewed, which should be taken into consideration when analyzing results. However, the findings support that more peer-reviewed research needs to be conducted to explore potential relationships between autism and personality.

Autism and Learning Styles

A study by Farhi & Leth-Steensen (2022) developed a theoretical scale to assess cognitive learning styles in individuals with autism. A three-factor structure with 19 items was created, measuring the need for clarity/familiarity (CLS1), susceptibility to cognitive load (CLS2), and conceptual relations (CLS3). Designed to help educators understand the learning styles of their autistic students and how to best support them in the classroom, these factors may also provide insight into certain traits relevant to problem-solving style. Based on a review of the

items, both CLS1 and CLS2 descriptors align with more adaptive traits, such as a preference for solving problems with a set structure and a need to break tasks into smaller, more manageable, and methodical steps. CLS3, however, aligns more with one's capacity for solving problems, instead of one's style, as both adaptive and innovative individuals grasp abstract ideas and generate novel ideas, but the style of doing so differs. It is essential to note that problem-solving style, as measured by the KAI, is independent of level or IQ; however, considering how one prefers to learn, it may be suggested that there are similarities in how individuals prefer to solve problems.

Although autism is mainly diagnosed based on observations of behaviors and traits, there is little empirical research on the connection between autism and personality. Because of this gap, further research is warranted to explore potential relationships between autism and personality to enhance support, understanding, and intervention strategies. Studying the problem-solving style of autistic adults may yield important insights into their experiences and help improve support for navigating the workplace.

Autism and Co-Morbidities

Studies show that between 30% and 50% of autistic individuals are also diagnosed with ADHD, and both disorders have significantly increased in prevalence since the early 2000s (Antshel et al., 2016; Davis & Collins, 2012). Because many autistic adults have a co-morbidity of ADHD, the DSM-5 allows clinicians to diagnose an individual with autism by considering the presence of an ADHD disorder, which was not acceptable in earlier versions of the DSM. It should be noted that a 2015 thesis study, by Issa, examined problem-solving style among adults with ADHD. Individuals diagnosed with ADHD were found to have an average KAI score that was one standard deviation more innovative or 115.71 (SD = 18.02) than the general population

of 95, indicating a more innovative problem-solving preference (Issa, 2015). It should be noted that while 30% to 50% of autistic people have a co-morbidity of ADHD, only 20-25% of adults diagnosed with ADHD are also diagnosed with autism (Antshel et al., 2016). This indicates that many autistic adults are diagnosed with ADHD, and this diagnosis can help expedite their autism diagnosis process; however, most people with ADHD do not also have autism. Because Antshel et al.'s (2016) study did not specify whether participants had the co-morbidity of autism, we cannot generalize that most autistic individuals will be more innovative; therefore, further research should consider the potential relationship between autism and problem-solving style.

Autism and Masking

An emerging area of autism research is a focus on autistic masking. Autistic masking is a process that drives autistic individuals to hide parts of themselves, often to avoid stigma in interacting with others (Hull et al., 2017). Masking is cognitively fatiguing, as it requires individuals to suppress or conceal their natural inclinations to act. While masking is commonly linked to the autistic community, a 2021 study asked autistic adults, neurodivergent adults without an autism diagnosis, and nonautistic, neurotypical adults open-ended questions about masking. The study found that although some aspects of masking—such as suppressing stimming behaviors—are more specific to autistic and neurodiverse groups, neurotypical adults also experience masking—including mimicking others in social settings—and all these behaviors can lead to feeling exhausted due to the cognitive effort involved in masking (Miller et al., 2021). The discovery that neurotypical individuals also face some aspects of masking could be an indication that the description of masking may be what Kirton (2011) has defined as coping behavior. If parts of masking are coping mechanisms, understanding A-I theory and problem-solving preferences may assist in helping autistic individuals better manage their cognitive load

by recognizing when and for how long coping may be required to solve a particular problem or to work with a specific individual. Further, recognition of problem-solving preferences and coping behavior may improve collaboration and reduce conflict in teams managing their cognitive diversity.

A-I theory emphasizes that individuals having a gap of 20 points or more between them have different problem-solving styles, noting the standard deviation of the A-I continuum is 18 points. This difference in problem-solving style indicates a significant cognitive gap. Because of this difference in problem-solving styles, individuals in group settings may need to use coping behavior to work effectively together. Again, coping behavior is a learned skill that requires an individual to solve problems outside of their preferred approach—whether more innovative or more adaptive—and necessitates motivation and awareness to do so. Furthermore, Kirton (2011) provides evidence that coping behavior is taxing on cognitive function, and the frequency, intensity, and duration of coping efforts are stressful and may impact an individual's willingness to cope. Because coping behavior is fueled by motivation, if one is not motivated to cope, the individual will revert to their preferred problem-solving style. Because autistic masking is described as taxing to cognitive function, it raises the question of whether some aspects of masking could be related to individuals exercising what Kirton describes as coping behavior. If so, a deeper understanding of problem-solving preferences and exercising coping behavior may prove useful to this specific population. If an autistic individual is exploring the link between masking and coping strategies, attending workshops and getting feedback from a KAI practitioner could be beneficial for understanding how to manage and apply these behaviors in team settings.

Summary of Chapter 2

The prevalence of autism has increased significantly since the disorder was first documented in 1943 (CDC, 2024). In 2000, one in 150 children was diagnosed with autism spectrum disorder, compared to one in 31 children in 2020 (CDC, 2024). Diagnostic rates have also increased in adults, with a 450% rise among those aged 24-36 from 2011 to 2022 (Grosvenor et al., 2024). Although some genetic markers have been identified, the wide range of severity and shared modifying factors hinder a thorough understanding of autism's unique causes (Rylaarsdam & Guemez-Gamboa, 2019). Criticism of the limitations imposed by the DSM-5 assessment, the growing awareness and acceptance of neurodiversity, and the shortage of autism specialists who diagnose adults have contributed to an increase in self-diagnosis of the disorder (Issa, 2015; Lewis, 2016; Weitlauf et al., 2014).

Although many autistic adults can and desire to enter the workforce, research about supporting this population within team dynamics is limited (CDC, 2024; LeFevre-Levy, 2023). This noticeable gap provides an opportunity to research a greater understanding of problem-solving preferences within this population. As autistic adults face significant challenges in maintaining employment status compared to non-autistic employees, investigating relationships between problem-solving style and autism diagnosis may provide support and insight when navigating team dynamics within a workplace setting (Taylor, Henninger, & Mailick, 2015). Examining relationships may provide support regarding team dynamics, as A-I theory helps explain and provide an understanding of how to work with people who think and solve problems differently from you (Kirton, 2011).

While recognizing that autism is a complex developmental disorder that varies in severity, research on problem-solving style may provide insight into some characteristics, traits,

and behaviors of autistic adults. Despite autism being diagnosed mainly from observations of behaviors and traits, there is little empirical research on autism and personality. More research is warranted to focus on understanding autism theoretically, in addition to the already established observation of traits and behaviors. Research examining the relationships between problem-solving styles may provide insight into understanding how this population prefers to solve problems. Additionally, research should investigate KAI sub-scores and sub-score variations of autistic adults to explore potential relationships, which may bring greater insight to the problem-solving style of individuals diagnosed with autism. Chapter 3 will provide the methodology used for the completion of this study.

Chapter 3: Methodology

Purpose Statement

By understanding a population's problem-solving style, individuals within that group may gain a deeper understanding of their preferred problem-solving approach and develop a greater awareness of cognitive diversity (Kirton, 2011). Researching the relationships between problem-solving style and autism may not only benefit autistic individuals but also help team members and employers gain a greater understanding of the cognitive preferences of this specific population, which may reduce conflict caused by cognitive diversity. This research aimed to further autism research by investigating whether a relationship exists between having autistic traits and one's preferred problem-solving style. The purpose of this study was to investigate the relationships between autism and problem-solving style.

Hypotheses

The hypotheses of this study were:

Hypothesis One: There is a significant positive linear relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores.

Hypothesis Two: Specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores.

Hypothesis Three: Variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI subscale scores, significantly predict AQ scores.

Research Design

A quantitative correlational study, utilizing regression analysis (Aldrich, 2018), was conducted, reflecting the researcher's post-positivist worldview. Post-positivism recognizes the limitations of objective truth amid life's complexities while considering experimental evidence

(Ryan, 2006). Thus, the researcher believes that patterns and relationships that are revealed through data can be measured statistically; however, the results are influenced by context, life's complexities, and individual perspectives.

Simple and multiple linear regression were most appropriate for this study, as it explored the relationships between continuous variables—such as KAI scores, KAI subscales, and sub-score variations—on a continuous outcome variable—such as Autism-Spectrum Quotient (AQ) scores—while controlling for selected demographic variables, such as gender (Aldrich, 2018).

Sample and Data Collection

The population for this study included both non-autistic and autistic adults (18+ years). The minimum recommended sample size for this study was 74 individuals, based on calculations from Tabachnick and Fidell's (2007) suggested formula of "50 + 8m," with "m" representing the number of factors to be included in the statistical model. The total number of participants who completed the demographic survey, AQ, and KAI can be found in Chapter 4.

Autistic Sample

Recruitment for the autistic sample was completed using snowball sampling, where the researcher began with a few initial contacts who met the research criteria (See Appendix A). These participants then connect the researcher with other members of the population, similar to a snowball rolling downhill and growing larger. The connection chain continues until saturation, or a target sample size is reached (Parker et al., 2019). Snowball sampling is a type of convenience sampling. It may be most appropriate when seeking access to hard-to-reach populations—such as autistic adults—because access is limited due to their group size, historical misrepresentation in research, and focus on funding pediatric studies (Haas et al., 2016). Snowball sampling involves

participants sharing information through personal contacts and social media networks where this population is active.

Recruited participants first completed an online demographic survey, which collected information regarding the participants' gender, race, highest degree earned, employment status, and age. Participants then completed the Autism-Spectrum Quotient (AQ), which is an instrument that quantifies autistic traits in individuals with normal to high intelligence (Baron-Cohen et al., 2001). After completing the AQ, eligible participants—those who scored 26 to 50 on the AQ—were administered the Kirton Adaption-Innovation Inventory (KAI) online, because individuals on the autism spectrum often score above 26 (Woodbury-Smith et al., 2005). The KAI is a psychometric instrument that measures an individual's preference for a more adaptive or innovative problem-solving style (Kirton, 2011).

Additionally, as mentioned in the assumptions, participants were considered to have either Level 1 or Level 2 Autism. Participants were not asked to disclose their autism level; instead, they took the AQ to determine their study group, aiming to be more inclusive since not all autistic adults have access to a formal diagnosis. Participants were also not asked to disclose other co-morbidities, as autism was the key variable of interest.

Non-Autistic Sample

Recruitment for the non-autistic participants was attained by randomly selecting and contacting potential participants from a KAI practitioner's database. Once the participants agreed to have their KAI score used in the study, they were asked to complete the demographic questionnaire and the AQ. Those who scored between 0 and 25 on the AQ were classified as non-autistic and were accepted into the study, forming a comparison group.

Instrumentation

Three instruments (i.e., demographic survey, Kirton's Adaption-Innovation Inventory, and the Autism-Spectrum Quotient) were used to gather data and achieve the study's hypotheses. Below is a description of each instrument, its constructs, and evaluations of validity and reliability.

Demographic Survey

A demographic survey was distributed to each potential participant. To obtain an understanding of the sample, all participants were asked to select their age range, gender, race, highest degree earned, current location, and employment status. The study's inclusion criteria required participants to be at least 18 years old, reside in the United States, and have either a bachelor's degree or some form of current or previous employment.

Kirton's Adaption-Innovation Inventory

Kirton's Adaption-Innovation Inventory (KAI) is a self-reported measure that determines an individual's problem-solving style. The theoretical range of the interval scale is between 32 and 160. The general mean of the population is 95 with a standard deviation of 18, providing a normal distribution curve of scores, with scores 32 to 95 characterizing an individual to be more adaptive, and scores 96 to 160 characterizing an individual to be more innovative (Kirton, 2011). Individuals with KAI scores closer to the ends of the continuum have stronger preferences for solving problems more adaptively or more innovatively, respectively. The KAI total score is calculated by adding three sub-scores from different subscales, also based on adaption and innovation. These subscales and their possible score ranges are Sufficiency-Proliferation of Originality (SO), 17 to 63 (M = 40.78, SD = 8.89); Style of Efficiency (E), 7 to 33 (M = 18.82, SD = 5.59); and Rule of Conformity (R), which concerns social structure, 14 to 56 (M = 35.39,

SD = 8.56); (Kirton, 2011; Kirton, 2017). Construct validity of the KAI was provided by Kirton's (1976) factor analysis and continued research using the KAI as a measure of style, and estimates of reliability commonly are at .88, using Cronbach's alpha coefficient (Kirton, 1999).

Autism Spectrum Quotient

The Autism Spectrum Quotient (AQ) was introduced in 2001 as a self-assessment screening instrument for autistic adults with average to high intelligence (Baron-Cohen et al., 2001). This 50-item assessment has strong estimates of reliability as its five subscales—social, communication, imagination, attention to detail, and attention to switching—all yielded moderate to high alpha coefficients (Social = .77; Communication = .65; Imagination = .65; Attention to Detail = .63; Attention to Switching = .67) (Baron-Cohen et al., 2001).The AQ also demonstrates "excellent test-retest reliability" (Baron-Cohen et al., 2001, p. 14). The score range is from 0 to 50, with higher scores indicating higher levels of exhibiting autistic traits. While a score of 32 and above indicates clinically significant levels of autism, scores of 26 and above are now often considered a strong indication of autism and are considered the updated cut-off (Baron-Cohen et al., 2001; Woodbury-Smith et al., 2005). The measure has a positive predictive value (ppv) of 0.84 and a negative predictive value (npv) of 0.78 when the cutoff is set at 26, with 83% of patients being correctly identified by the assessment (Woodbury-Smith et al., 2005). In using the AQ to identify autistic individuals, a significant difference between clinical (*M* = 38.5, *SD* = 6.5) and control groups (*M* = 16.4, *SD* = 6.3) was found, supporting criterion validity (Baron-Cohen et al., 2001) of the assessment. Finally, the area under the ROC curve (AUC) is 0.78 (SE = 0.06, 95% CI: 0.7–0.9), indicating that the AQ's diagnostic accuracy falls within the moderate range (Woodbury-Smith et al., 2005).

Data Analysis

First, frequency statistics, including count data, means, modes, and percentages, were used to describe demographic variables. Then, for the first hypothesis, linear regression was applied to the total KAI scores of both groups to determine if KAI scores can predict the likelihood of autistic traits, as measured by AQ scores. Linear regression is appropriate when the independent variable is continuous (such as total KAI scores) and the dependent variable is also continuous (such as AQ scores) while controlling for demographic variables (Aldrich, 2018).

Statistical differences were determined based on a p-value of .05. Analyzing data using the linear regression statistical analysis requires assumptions—normality of residuals, homoscedasticity, independence of observations, linear relationships between predictor variables and the outcome variable, and the absence of multicollinearity—to be met to ensure the validity of the applied analyses (Aldrich, 2018). For Hypothesis Two, a multiple linear regression was used to examine whether the KAI sub-scales can explain autistic traits as measured by the AQ. Finally, for Hypothesis Three, the researchers examined the variation between actual and expected sub-scores, calculated by subtracting the expected sub-score value (aligned with the total KAI score) from the participants' actual sub-scores after completing the KAI. Then, a multiple linear regression was used to determine if one's sub-score variation can explain AQ scores.

Summary of Chapter 3

Researching the relationship between problem-solving style and autism would not only benefit autistic individuals but also help team members and employers better understand this population's problem-solving preferences, which could reduce conflict caused by cognitive diversity. This research aimed to further autism research, contributing to a more comprehensive

understanding of the problem-solving style of autistic individuals. The purpose of this study was to quantitatively investigate relationships between problem-solving styles and autistic adults, using Kirton's Adaption-Innovation Inventory and the Autistic-Spectrum Quotient.

A correlational study using regression is most appropriate for this study, as a linear regression can be used when the independent variable is continuous (such as KAI total scores, subscale scores, and variation scores) and the dependent variable is continuous (such as AQ scores), while controlling for demographic variables (Aldrich, 2018). The autistic participants completed a demographic survey including age, race, highest degree earned, and employment status. Then, participants completed the Autism-Spectrum Quotient (AQ). Eligible participants were administered the KAI Inventory. The non-autistic participants were randomly contacted through a KAI practitioner's database and completed a demographic survey and the Autism-Spectrum Quotient (AQ). Eligible participants consented for their KAI score to be used in the study. Frequency statistics were used to measure demographic variables. A linear regression test will determine if KAI scores can explain one's AQ score. Then, a multiple linear regression model was completed to examine if specific character traits of problem-solving style, measured as the KAI subscales, can explain AQ scores. Finally, the researchers will examine the calculated variation between actual and expected sub-scores, and a multiple linear regression model was used to determine if one's sub-score variation can explain AQ autism score. Chapter 4 will comprehensively explain the findings of this study.

Chapter 4: Results

Introduction

The purpose of this study was to examine the relationships between autism and problem-solving style, as defined by Kirton's Adaption-Innovation (A-I) Theory, which aimed to answer the overarching question, *"Does problem-solving style predict variance of autistic trait prevalence?"* Chapter 4 is organized to present the results of the current study. The hypotheses of this study were as follows:

Hypothesis One: There is a significant positive linear relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores.

Hypothesis Two: Specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores.

Hypothesis Three: Variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI subscale scores, significantly predict AQ scores.

Rationale for Simple and Multiple Linear Regression

Both simple and multiple linear regression were selected as the statistical methods for this study, due to the use of a continuous independent variable—KAI scores, which measure problem-solving preferences—and a continuous dependent variable—Autistic-Spectrum Quotient (AQ) Scores, which measure autistic traits. In multiple linear regression, continuous independent variables serve as a causal explanation, each indicating the influence they have on the dependent variable (Aldrich, 2018; Tabachnick, 2007). This method is well-suited for this study, as it examines whether KAI scores (continuous independent variables), both overall and sub-scores, can predict AQ scores (dependent variable). This method enables each predictor variable to contribute to the dependent variable while taking into account the influence of other

variables in the model (Tabachnick, 2007). This analysis provides a more robust understanding of the contribution of predicting the dependent variable, offering insight into the relationships between aspects of problem-solving style characteristics and autistic traits.

Sampling

Because this study focused on autistic adults in team workplace environments, all participants had to be at least 18 years old to participate in the study. Additionally, participants needed to have work experience or college attendance, as both settings involve working with others. Lastly, the study was limited to the United States; therefore, participants had to be residing in the U.S. when completing the online assessments.

To identify the autistic sample, researchers used snowball sampling by sharing recruitment information with autistic individuals and autism-based organizations. Participants completed the demographic survey and the Autism-Spectrum Quotient (AQ) assessment. Those who scored between 26 and 50 on the AQ were classified as autistic and accepted into the study, then granted access to take the KAI Inventory. Researchers used the AQ to determine group membership because the AQ is a tool that measures autistic traits in individuals with normal intelligence (Baron-Cohen et al., 2001).

While 92 individuals completed the AQ, only 63.04% (n = 58) qualified for the study. This discrepancy may be due to the high prevalence of self-diagnosis of autism or the fact that the AQ is designed as a screening tool to aid in the diagnostic process rather than serving as a definitive diagnostic instrument. The eligible autistic participants—those who scored 26 to 50—were given access to complete the KAI (n = 58); however, due to attrition, only 72.4% (n = 42) completed it.

To develop a non-autistic comparison group, potential participants were randomly selected and contacted from a KAI practitioner's database and asked to complete the demographic questionnaire and the AQ. If they qualified, they provided consent to the research team to use their KAI scores in this study. Those who scored between 0 and 25 on the AQ were classified as non-autistic, and of the 43 respondents, 88.3% (n = 38) scored within the non-autistic AQ range. This group demonstrated more alignment with expected non-autistic scoring patterns compared to the variability observed in the autistic-targeted sample.

While participants were initially divided into groups, the data were analyzed together to maintain the continuous design of AQ scores. Collecting data in two groups from the start helped the researcher ensure a comprehensive and representative sample.

Variables

KAI scores—overall total and sub-scores—were treated as independent variables to see how problem-solving styles may predict autistic traits. KAI scores were the independent variables, as the overarching research question related to whether problem-solving style could predict the prevalence of autistic traits. Since there is no established theoretical understanding of autism, KAI might serve as a guiding framework, which influenced its choice as the independent variable. Also, KAI scores were chosen as independent variables to follow the approach of past studies in the field (Friedel, 2006).

The AQ score was the dependent variable as it reflects the outcome of interest. AQ scores, used as a continuous dependent variable, have been utilized in other psychological studies focused on autism (Ruzich et al., 2015; Shalev et al., 2022). Tables 1, 2, and 3 show the variables of the current study.

First, demographic variables of the study participants were collected, including gender, race, highest degree earned, employment status, and age. For Hypothesis 1, KAI was the independent variable, and AQ scores were the dependent variable. Gender was originally considered as an independent variable serving as a covariate, as gender can impact AQ scores. However, gender was excluded from the regression models because it showed a weak, and insignificant, relationship with AQ scores. An asterisk in Table 1 indicates this. No other demographic variables were included in the regression analysis, as they do not have a known impact on the AQ and KAI scores and were not part of the overall research question.

Table 1

Linear Regression Model Variables for Hypothesis One

Independent Variable	Dependent Variable
Total KAI Score	AQ Score
*Gender (*Covariate)*	

*Excluded from the final models because it was not statistically significant

For Hypothesis 2, the three subscale scores were independent variables: Sufficiency-Proliferation of Originality (SO), Style of Efficiency (E), and Rule of Group Conformity (R). The dependent variable was AQ score (See Table 2).

Table 2

Multiple Linear Regression Model Variables for Hypothesis Two

Independent Variable	Dependent Variable
Sufficiency-Proliferation of Originality (SO)	AQ Score
Style of Efficiency (E)	
Rule of Group Conformity (R)	

Finally, for Hypothesis 3, SO, Variation of sub-score; E, Variation of sub-score; and R, Variation of sub-score were the independent variables, and the dependent variable was AQ score. (See Table 3).

Table 3

Multiple Linear Regression Model Variables for Hypothesis Three

Independent Variable	Dependent Variable
SO, Variation of sub-score	AQ Score
E, Variation of sub-score	
R, Variation of sub-score	

Demographic Survey:

All participants were asked to answer demographic questions about their age, gender, race, highest degree earned, and employment status.

Autistic Group

With respect to the autistic group, 42 participants completed the demographic survey, Autism Spectrum Quotient (AQ), and Kirton's Adaption-Innovation Inventory (KAI). Of the 42, 21.4% (*n* = 9) were male, 64.3% (*n* = 27) were female, 11.9% (*n* = 5) identified as non-binary, and 2.4% (*n* = 1) responded as Other, specifically, transfem. Regarding race, 76.2% (*n* = 32) were Caucasian or White, 9.5% (*n* = 4) were Asian, 4.8% (n=2) were Hispanic or Latino, 4.8% (*n* = 2) were Multiracial, 2.4% (*n* = 1) were Black or African American, and 2.4% (*n* = 1) answered Prefer Not to Say. Participants were also asked for their age range. 9.5% (*n* = 4) of respondents were between 18-24, 47.6% (*n* = 20) were 25-34, 31% (*n* = 13) were between 35-44, 4.8% (*n* = 2) were 45-54, and 7.1% (*n* = 3) were 55-64.

Respondents also reported their highest degree earned, with the following results: high school diploma, 9.5% (*n* = 4); associate's degree, 9.5% (n = 4); bachelor's degree, 40.5% (*n* = 17); master's degree, 31% (*n* = 13); and doctoral degree, 9.5% (*n* = 4). Participants were asked about their current employment status. Of the 42 respondents, 57.1% (*n* = 24) were full-time employees, 14.3% (*n* = 6) were part-time employees, 14.3% (*n* = 6) were students, 9.5% (*n* = 4) were unemployed but had been employed before, and 2.4% (*n* = 1) were unemployed and had never been employed. However, they were included in the study because they had earned at least a bachelor's degree and had experience working with others as an adult. Finally, 100% (*n* = 42) of the respondents were currently living in the United States, which was a required criterion for inclusion in the study.

Non-autistic Group

For the non-autistic group, 38 participants completed the demographic survey, AQ, and KAI. Of these, 34.2% (*n* = 13) were male, 63.2% (*n* = 24) were female, and 2.6% (*n* = 1) identified as non-binary. Regarding race, 76.3% (*n* = 29) were Caucasian or White, 5.3% (*n* = 2)

were Asian, 2.6% (*n* = 1) were Hispanic or Latino, 7.9% (n = 3) were multiracial, and 5.3% (*n* = 2) chose "Prefer Not to Say." Participants were also asked for their age range. 2.6% (*n* = 1) of respondents were between 18-24, 10.5% (*n* = 4) were 25-34, 28.9% (*n* = 11) were between 35-44, 26.3% (*n* = 10) were 45-54, 15.8% (*n* = 6) were 55-64, and 15.8% (*n* = 6) were above 65 years.

Respondents reported their highest degree earned as follows: high school diploma, 5.3% (n = 2); associate's degree, 10.5% (*n* = 4); bachelor's degree, 23.7% (*n* = 9); master's degree, 42.1% (n = 16); and doctoral degree, 18.4% (*n* = 7). Participants were also asked about their current employment status. Of the 38 respondents, 68.4% (*n* = 26) were full-time employees, 2.6% (*n* = 1) were students, 7.9% (*n* = 3) were unemployed but had previously been employed, and 21.1% (*n* = 8) were self-employed. Lastly, all 38 respondents (100%) were living in the United States, which was a required criterion for inclusion in the study.

Hypothesis One: There is a significant positive relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores.

To determine if there was a confounding relationship between AQ and gender, a correlation analysis was conducted. There was a weak, positive, yet statistically insignificant relationship between gender and AQ ($r = .109$, $p = .351$); therefore, gender was no longer considered a variable of interest for further analysis. To determine the predictive value of KAI, a linear regression model was conducted with KAI as the independent variable predicting AQ score as the dependent variable.

Linear Regression Assumptions

When conducting a linear regression, the researcher prepared the data to meet the necessary assumptions. First, a regression analysis requires one continuous dependent variable, and second, it requires one continuous independent variable. These assumptions were satisfied because AQ scores were the continuous dependent variable, and total KAI scores were the continuous independent variable. The third assumption is that a linear relationship exists between the dependent and independent variables. A scatterplot was generated in SPSS and showed a weak but present linear relationship, thus meeting the third assumption for linear regression.

The cross-sectional nature of the study assumes independence of residuals, as each participant provided one data point (Field, 2018; Morling, 2014), which is the fourth assumption for linear regression. The fifth assumption is that there should be no significant outliers. By examining both the scatterplot and casewise diagnostics table in SPSS, it was found that there were no significant outliers, meeting this assumption. The sixth assumption involves homoscedasticity, and a visual inspection of a plot of standardized residuals versus standardized predicted values indicated homoscedasticity, meeting the sixth assumption. The seventh and final assumption concerns the normality of residuals (errors). Both histograms and Normal P-P plots created in SPSS showed that the residuals were normally distributed, satisfying the final assumption.

Descriptive statistics

Across the 80 participants, the AQ score mean was 25.34 (*SD* = 12.1), and the KAI score mean was 91.49 (*SD* = 20.49). Sorting AQ and KAI scores out by group, the autistic group AQ score mean was 34.10 (*SD* = 4.42), and the KAI score mean was 88.45 (*SD* = 18.57). Finally, the non-autistic group's AQ score mean was 12.84 (*SD* = 3.39); the KAI score mean was 95.72 (*SD*

= 22.04). It is interesting to note that the non-autistic group's mean and standard deviation are similar to those of the general population (Kirton, 2011); yet the autistic group mean is approximately six and a half points more adaptive than the general population mean, while maintaining a similar standard deviation.

Findings

A linear regression was conducted to see if KAI scores may predict AQ scores. The equation was AQ score = 37.89 – 0.136 × (KAI score). The KAI score significantly predicted the AQ score, F (1, 78) = 4.40, p = .039, explaining 5.3% of the variation in AQ scores (R^2 = .053) with an adjusted R^2 of 0.041, indicating a small effect size based on Cohen (1988). To interpret this finding, a one-point increase in KAI score (towards being more innovative) leads to a 0.136-point decrease in AQ score, with a 95% CI of –0.267 to –0.007. These results indicate that as KAI scores lower (more adaptive), autistic trait prevalence increases.

Table 4

Simple linear regression results for KAI total scores

Predictor Variable	*B*	95% CI for *B*		*SE B*	β	R^2	ΔR^2
		LL	*UL*				
Model						.053	.041
Constant	37.89**	25.69	50.09	6.13			
KAI Total Score	-.136***	-.267	-.007	.065	-2.31		

Note. Model = "Enter" method in SPSS Statistics; *B* = unstandardized regression coefficient; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2.
***$p < 0.039$; **$p < 0.001$

Hypothesis Two: Specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores.

Overview

Multiple linear regression was the most appropriate statistical test to run for Hypothesis Two because the continuous independent variables—the KAI subscales: SO, Sufficiency-Proliferation of Originality; E, Style of Efficiency; and R, Rule of Group Conformity—serve as predictor variables, indicating their influence on a dependent variable, which is AQ Scores (Aldrich, 2018). This method enables each predictor variable to contribute to the dependent variable while considering the influence of other independent variables in the model (Tabachnick, 2007).

Multiple Linear Regression Assumptions

When conducting a multiple linear regression, the researcher prepared the data to meet the necessary assumptions. First, a regression analysis requires one continuous dependent variable, and second, it requires two or more continuous independent variables. These assumptions were satisfied because AQ scores were the continuous dependent variable, and total SO, E, and R scores were the continuous independent variable. The third assumption is that a linear relationship exists between the dependent and independent variables. Scatterplots were generated in SPSS, and linear relationships were found, thus meeting the third assumption for multiple linear regression (Cohen, 1988; Laerd Statistics, 2015).

The fourth assumption is that observations are independent. The cross-sectional nature of the study assumes independence of residuals, as each participant provided one data point (Field, 2018; Morling, 2014). Multicollinearity was assessed using the Variance Inflation Factor (VIF). The VIF values for all predictor variables ranged from 1 to 1.77, indicating low multicollinearity,

and meeting the assumption values were < 2. Next, a visual inspection of a plot of standardized residuals versus standardized predicted values indicated homoscedasticity, meeting the fifth assumption. Normality of residuals was assessed by creating histograms and Normal Probability plots (P-P plots) in SPSS. These charts showed that the residuals were normally distributed, satisfying this assumption (Cohen, 1988; Laerd Statistics, 2015).

Next, the researcher examined both the scatterplots and the casewise diagnostics table in SPSS. The results revealed no significant outliers. To identify high-leverage points, the researcher checked leverage values and found that all were below the 0.2 threshold (Huber, 1981), indicating that none of the observations likely had undue influence on the regression results. Lastly, all Cook's distance values were below 1, indicating that no individual cases exerted excessive influence on the regression model. These tests all supported the assumption that there were no unusual points (Cohen, 1988; Laerd Statistics, 2015).

Descriptive statistics

Across the 80 participants, the AQ score mean was 25.34 (*SD* = 12.1). The KAI sub-score means were: SO mean was 39.89 (*SD* = 10.03), the E mean was 17.28 (*SD* = 6.61), and the R mean was 34.78 (*SD* = 8.70). The autistic group KAI sub-score descriptive statistics were as follows: the SO mean was 35.45 (*SD* = 8.40), the E mean was 12.90 (*SD* = 5.25), and the R mean was 32.62 (*SD* = 7.38). Finally, the non-autistic group's SO mean was 39.42 (*SD* = 8.20), the E mean was 17.18 (*SD* = 5.42), and the R mean was 31.08 (*SD* = 8.94). It is interesting to note that the non-autistic group's mean and standard deviation for each sub-score are similar to those of the general population, except for R where it was four points more adaptive (Kirton, 2011); yet the autistic group mean for SO is approximately five and a half points more adaptive than the general population mean and the autistic group mean for E is approximately six points more

adaptive than the general population mean, while maintaining a similar standard deviation. However, the autistic group mean for R only is 2.77 points more adaptive than the general population mean, while maintaining a similar standard deviation (Kirton, 2011).

Findings

A stepwise multiple regression analysis was conducted to predict AQ scores from three predictor variables: SO, E, and R. This approach was selected to systematically identify the most significant predictors from the set of variables, thereby creating a simplified model that accurately predicts AQ scores (Keith, 2019). All variables were included in the model. The regression model statistically significantly predicted AQ scores, F (3, 76) = 12.26, $p < .001$, accounting for 32.6% of the variation in AQ scores, with an adjusted R^2 of 0.30, indicating a large effect size, according to Cohen (1988). All three variables added statistically significantly to the model, $p < .001$ for each predictor variable. Both E and SO had moderate to large negative effects on AQ score, while R had a large positive effect. All predictor variables contributed significantly to the model. Regression coefficients and standard errors are presented in Table 5, and a sub-score prediction model is illustrated in Figure 4. These results indicate that as SO and E sub-scores are more adaptive, autistic trait prevalence increases, and as R sub-scores are more innovative, autistic trait prevalence increases (see Figure 4).

Table 5

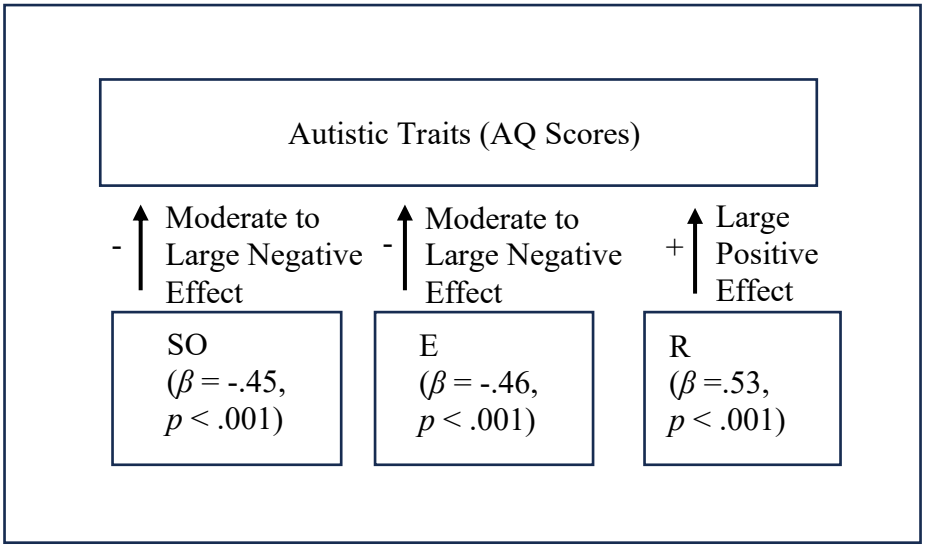
Multiple linear regression results for KAI Sub-scores

Predictor Variable	*B*	95% CI for *B*		*SE B*	*β*	R^2	ΔR^2
		LL	*UL*				
Model						.326	.30***
Constant	35.80***	25.31	46.29	5.27			
SO	-.54***	-.83	-.25	.14	-.45		
E	-.85***	-1.23	-.46	.19	-.46		
R	.74***	.39	1.09	.17	.53		

Note. Model = "Stepwise" method in SPSS Statistics; *B* = unstandardized regression coefficient; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2.
***$p < .001$

Figure 4

Sub-score Predictor Model for Autistic Traits



Hypothesis Three: Variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI sub-scores, significantly predict AQ scores.

Overview

Multiple linear regression was the most appropriate statistical test to run for Hypothesis Three because the continuous independent variables—the KAI sub-score variations: the SO variations, E, variations, and R variations—serve as predictor variables, indicating their influence on a dependent variable, which is AQ Scores (Aldrich, 2018). This approach allows each independent variable to affect the dependent variable while considering the impact of other independent variables in the model (Tabachnick, 2007). Variations were calculated by subtracting the actual from the expected KAI sub-scores (Kirton, 2011).

Multiple Linear Regression Assumptions

When conducting a multiple linear regression, the researcher prepared the data to meet the necessary assumptions. First, a regression analysis requires one continuous dependent variable, and second, it requires two or more continuous independent variables. These assumptions were satisfied because AQ scores were the continuous dependent variable, and sub-score variations were the continuous independent variable. The third assumption requires a linear relationship between the dependent and independent variables. This was confirmed by generating scatterplots in SPSS, which indicated a linear relationship and thus fulfilled the assumption for multiple linear regression (Cohen, 1988; Laerd Statistics, 2015).

The fourth assumption relates to the independence of observations. Given the cross-sectional design of the study, it is assumed that the residuals are independent, as each participant contributed only a single data point (Field, 2018; Morling, 2014). To evaluate multicollinearity among predictor variables, the Variance Inflation Factor (VIF) was calculated. A value of 1

indicated low multicollinearity, confirming that the assumption of VIF < 2 is satisfied. Additionally, a visual assessment of a scatterplot depicting standardized residuals against standardized predicted values was conducted, confirming homoscedasticity and thus meeting this assumption. The normality of residuals was examined using histograms and normal probability plots (P-P plots) generated in SPSS. These visualizations demonstrated that the residuals follow a normal distribution, thereby fulfilling the normality assumption (Cohen, 1988; Laerd Statistics, 2015).

Next, the researcher analyzed the scatterplots and the casewise diagnostics table in SPSS. The findings showed no notable outliers. To detect high-leverage points, the researcher reviewed leverage values and observed that all were below the 0.2 threshold, with the highest value being .02 (Huber, 1981), suggesting that none of the observations had an undue influence on the regression outcomes. Additionally, all Cook's distance values were less than 1, indicating that no individual cases disproportionately affected the regression model. These assessments collectively supported the conclusion that there were no atypical data points (Cohen, 1988; Laerd Statistics, 2015).

Descriptive statistics

Across the 80 participants, the AQ score mean was 25.34 (*SD* = 12.1). The SO variation mean was .525 (*SD* = 6.79), the E variation mean was -.98 (*SD* = 5.02), and the R variation mean was .70 (*SD* = 5.05). The autistic group SO variation mean was -0.667 (*SD* = 6.11), the E variation mean was -2.12 (*SD* = 4.81), and the R variation mean was 2.67 (*SD* = 4.77). Finally, the non-autistic group's SO variation mean was 1.368 (*SD* = 4.57), the E variation mean was .632 (*SD* = 4.63), and the R variation mean was -1.26 (*SD* = 3.76).

Findings

A stepwise multiple regression analysis was conducted to predict AQ scores from three independent variables: SO variation, E variation, and R variation, as stepwise regression allows for identifying the most important predictors for prediction (Keith, 2019). In the final stepwise model, only R variation was retained as a significant predictor variable. The regression model statistically significantly explained AQ scores, F (1, 78) = 27.42, $p < .001$, accounting for 26% of the variance in AQ scores, with an adjusted R^2 of 0.25, indicating a medium to large effect size, according to Cohen (1988). R variation contributed significantly and positively to the model (see Table 6). These findings indicate that a variation of SO and E does not significantly predict AQ scores; however, an increase in R variation (characterized as more innovative) is associated with an increase in autistic trait prevalence (see Figure 5).

Table 6

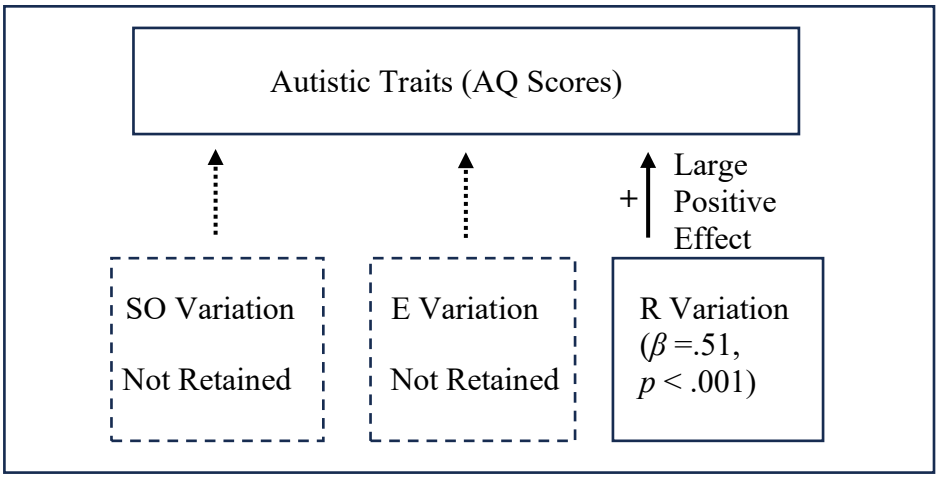
Multiple linear regression results: KAI Sub-score Variations

Predictor Variable	*B*	95% CI for *B*		*SE B*	β	R^2	ΔR^2
		LL	*UL*				
Model						.26	.25***
Constant	24.21***	21.84	26.38	1.19			
R Variation	1.41***	.87	1.94	.27	.51		

Note. Model = "Stepwise" method in SPSS Statistics; SO Variation and E Variation were excluded from the final stepwise regression model, B = unstandardized regression coefficient; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2.
***$p < .001$

Figure 5

Sub-score Variation Predictor Model for Autistic Traits



Delimitations

Delimitations are the intentional boundaries researchers set to narrow their study's focus, which limit the ability to generalize findings to all individuals and situations (Theofanidis & Fountouki, 2018). The researcher relied on Autism-Spectrum Quotient (AQ) scores to determine autistic group membership, rather than a clinical diagnosis of autism. This method was chosen to broaden the accessibility of the study, as many autistic adults do not have a formal diagnosis due to a lack of clinicians specializing in the adult autistic population.

Limitations

Several limitations should be considered when interpreting the results. The AQ may lead to potential inaccuracies in the data and affect the validity of the group classification. Self-selection bias may impact the results, as participants chose to participate in this study; therefore, the sample may not accurately represent the entire autistic population. A larger sample size is necessary to reliably incorporate gender as a covariate. The reduced sample size resulting from the inclusion of gender, due to small subgroup sizes for other gender identities (such as non-

binary and trans-fem), likely diminished the statistical power and negatively affected the stepwise regression model's capacity to identify significant effects. Despite these limitations, this study provides valuable insights into the possible relationship between problem-solving style and autism.

Summary of Chapter 4

This chapter presented the findings related to the study's hypotheses, including participant details and relevant information. The researcher first identified selective demographic variables of the study participants, such as gender, race, highest degree earned, employment status, and age. Then, the three hypotheses were tested: 1) there is a significant positive linear relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores, 2) specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores, and 3) variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI subscale scores, significantly predict AQ scores.

Chapter 5 summarizes the findings from this chapter, offer conclusions and implications based on the results, and include recommendations.

Chapter 5: Discussion

Overview

The purpose of this study was to examine the relationships between autism and problem-solving style, as defined by Kirton's Adaption-Innovation (A-I) Theory, which aimed to answer the question, *"Does problem-solving style predict variance of autistic trait prevalence?"* Chapter 5 is organized to discuss the conclusions and implications of the current study. The hypotheses of this study were as follows:

Hypothesis One: There is a significant positive linear relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores.

Hypothesis Two: Specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores.

Hypothesis Three: Variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI subscale scores, significantly predict AQ scores.

Participants were recruited through snowball sampling for the autistic group and random selection from a historical KAI database of a KAI practitioner for the non-autistic group. The results of the linear and multiple regression analyses indicated that total KAI score, KAI sub-scores, and sub-score R variation significantly predicted higher AQ scores. Findings from the current study inform empirical research on autism and problem-solving style.

Interpreting the Results

This section presents the data results about the current study's research question. The findings are then compared with existing literature on KAI and autism spectrum disorder.

Demographic Survey:

With respect to the autistic group, 42 participants completed the demographic survey, Autism Spectrum Quotient, and Kirton's Adaption-Innovation Inventory. Of these, 21.4% (*n* = 9) were male, 64.3% (*n* = 27) female, 11.9% (*n* = 5) non-binary, and 2.4% (*n* = 1) identified as transfem. Racially, 76.2% (*n* = 32) were White, 9.5% (*n* = 4) Asian, 4.8% (*n* = 2) Hispanic/Latino, 4.8% (*n* = 2) Multiracial, 2.4% (*n* = 1) Black, and 2.4% (*n* = 1) preferred not to say. Age distribution was: 9.5% (*n* = 4) 18-24, 47.6% (*n* = 20) 25-34, 31% (*n* = 13) 35-44, 4.8% (*n* = 2) 45-54, and 7.1% (*n* = 3) 55-64. Education levels: 9.5% (*n* = 4) high school, 9.5% associate's, 40.5% bachelor's, 31% master's, and 9.5% doctoral. Regarding employment, 57.1% (n = 24) were full-time, 14.3% (*n* = 6) part-time, 14.3% (*n* = 6) students, 9.5% (*n* = 4) unemployed but previously employed, and 2.4% (*n* = 1) unemployed without prior employment—yet included due to their education and teamwork experience. All study participants (*n* = 42) resided in the U.S.

KAI and Autism. Autism Spectrum Disorder (ASD) occurs in all racial, ethnic, and socioeconomic groups; however, it is reported to be four times more prevalent in boys than in girls (CDC, 2024). This statistic is often debated, as research indicates a significant sampling bias towards males (80%) and highlights barriers to female diagnosis, as autistic behaviors often present differently in females (Lockwood Estrin et al., 2021). Therefore, it is relevant to highlight that more females participated in this study than males. However, participants did not specify whether they received a diagnosis from a clinician or through self-diagnosis, so the researcher cannot comment on their diagnostic process. Perhaps using the AQ to signify the presence of autistic traits and using snowball sampling led to more female participation in the

study, as a formal diagnosis was not required, allowing access to a larger number of female autistic adults.

It is also interesting to note that one's gender, identified as male or female, has consistently in the research shown a relationship with total KAI scores, with females scoring closer to 91 and males scoring closer to 98 on the A-I continuum (Kirton, 2011). This, coupled with the recognition of the autistic group KAI mean being 88.45 (SD = 18.57), allows one to speculate if the higher percentage of females had an effect on the autistic KAI score mean. However, the 64.3% identifying as female in the autistic group is similar to the non-autistic group, with 63.2% identifying as female, with a group mean of 95.72 (SD = 22.04). There is reason to believe that the larger percentage of females participating in this study is more related to sampling procedures and less related to KAI and AQ scores.

Hypothesis One: There is a significant positive relationship between problem-solving style, as measured by Kirton's Adaption-Innovation Inventory (KAI), and Autism-Spectrum Quotient (AQ) scores, such that lower KAI scores predict higher AQ scores.

The linear regression results revealed that total KAI scores significantly predicted the AQ score at the $p < .05$ level (F (1, 78) = 4.40, p = .039). The effect size was $R^2 = 0.053$ (5.3% of the variance), which is considered small to approaching medium according to Cohen (1988). As the total KAI scores decreased, the AQ score increased, indicating that a more adaptive problem-solving style is associated with an increase in the presentation of autistic traits, as measured by the AQ.

KAI and Autism. Kirton's Adaption-Innovation (A-I) theory explains that individuals have an innate preference for how they problem-solve, positioned on a continuum from adaption to innovation (Kirton, 1976; 2011). People solve problems of varying complexities, but their

preferred styles differ (Bush et al., 2017). The KAI score indicates one's preferred style of solving problems, with a position along the A-I continuum. The continuum scores have a theoretical range of 32 to 160, centered with a general population mean of 95. Scores left of 95 are more adaptive; scores to the right of 95 are more innovative, with scores closer to the end points indicating a strong preference towards adaption or innovation, respectively (Kirton, 2011).

The Autism Spectrum Quotient (AQ) is a 50-item self-assessment screening instrument for autistic adults with average to high intelligence (Baron-Cohen et al., 2001). The score range is from 0 to 50, with higher scores indicating a stronger presentation of autistic traits. While a score of 32 and above indicates clinically significant levels of autism, scores of 26 and above are now often considered a strong indication of autism and are considered the updated cut-off point (Baron-Cohen et al., 2001; Woodbury-Smith et al., 2005). It is essential to note that the AQ is not a clinical diagnostic tool, but it can be used to assist in the diagnostic process.

Based on the findings for Hypothesis One, the evidence indicates that a relationship exists between being an autistic adult and being more adaptive. More adaptive preferences include being more prudent risk-takers, valuing consistency, targeting ideas, and being more aware of the enabling structure of groups and the value that group consensus brings within that structure. Traits like consistency, routine, and repetitive behaviors are often linked to autistic characteristics (APA, 2022), but increased understanding of the value that group consensus brings to structures is not typically associated with autism due to the social-communication barriers that autistic people face (APA, 2022).

Because the Rule and Group Conformity (R) is a subscale of the KAI related to these specific character traits and measures the social pressure that one may recognize (more adaptive), or not recognize (more innovative), from the group structure, the researchers also examined how

subscales and variations of sub-scores might predict autistic traits in Hypothesis Two and Three. Individuals sharing a 10-point gap in total KAI score along the A-I continuum may begin to notice differences among each other in how they prefer to solve problems (Kirton, 2011). Further, a 20-point gap, or more, along the A-I continuum may lead to conflict as one individual may prefer to solve the problem with an adaptive approach, and one individual may prefer to solve the problem with an innovative approach (Kirton, 2011). In such situations, self-awareness and use of coping behaviors used to operate more adaptively or more innovatively than one's preference may improve collaboration in the workplace, recognizing the likelihood of autistic individuals being more adaptive.

Hypothesis Two: Specific character traits of problem-solving style, as measured by KAI subscales, significantly predict variations in AQ scores.

The multiple linear regression results revealed that all three subscale variables added statistically significantly to the prediction, $p < .001$ for each predictor variable. Both E and SO had moderate to large negative effects (E, $\beta = -.46$; SO, $\beta = -.45$) on AQ scores, while R had a large positive effect ($\beta = 0.53$), using the criteria of interpreting effect size by Cohen (1988). All three subscales contributed significantly to the model.

KAI Subscales and Autism. As stated previously, the researchers also examined how subscales and sub-score variations might predict autistic traits. The total KAI score is calculated by adding sub-scores from the three subscales, including: Sufficiency-Proliferation of Originality (SO), which relates to idea generation; Style of Efficiency (E), which pertains to problem-solving methods; and Rule of Conformity (R), which concerns social structure and the context for change (Kirton, 2017). All of the subscales significantly predicted autistic traits. As SO and E

decreased (indicating more adaption), AQ scores increased, indicating the presence of autistic characteristics. However, as R increased (indicating more innovation), AQ scores also increased.

This finding may provide insight into why autistic adults often struggle with social and communication structures (Rosen et. al, 2021), as a more innovative R score provides insight into why autistic individuals do not feel the same social pressure from groups as their more adaptive KAI score indicated. Having a more innovative R does not mean that a person is autistic, but rather that individuals with an adaptive SO and adaptive E, coupled with a more innovative R, may be more likely to be related to having autistic characteristics, based on the findings of this study. Kirton (2011) noted that individuals with similar SO subscale scores were likely to communicate well, similar E scores were likely to work together well, and similar R scores were likely to trust each other. Individuals who have similar total scores and a difference in a particular subscale score may unexpectedly find challenges in the areas of communication, work, and trust. It should be noted that while being autistic or having an innovative R sub-score doesn't make one untrustworthy, rather, disagreements on the rules and group norms may lead to a lack of trust among individuals. Further examination of the sub-scores was conducted for Hypothesis Three.

Hypothesis Three: Variations in sub-scores of problem-solving styles, represented by differences between actual and expected KAI subscale scores, significantly predict AQ scores.

The multiple linear regression results revealed that out of the three independent variables, SO variation, E variation, and R variation, only the R variation was retained as a significant predictor variable. The regression model significantly predicted AQ scores, F (1, 78) = 27.42, p < .001, accounting for 26% of the variation in AQ scores, with an adjusted R^2 of 0.25, indicating a medium to large effect size (Cohen, 1988).

KAI Sub-score Variations and Autism. This finding further revealed that these autistic participants had a more innovative R score than expected, based on their total KAI score. Thus, these autistic individuals were more likely to also have an innovative R score variation when compared to individuals who were not autistic. Variation was calculated by subtracting the expected sub-score value (aligned with the total KAI score) from the participants' actual sub-scores after completing the KAI. As stated previously, a more innovative than expected R score does not mean that a person is autistic, but rather that individuals presenting autistic traits are more likely to also have a larger than expected innovative R score, based on the sample in this study. Interestingly, the KAI Manual (2022) provides Dr. Kirton's description of the advantages and disadvantages associated with an individual having an R score more innovative than expected. Reading it, one may find similarities to the traits of someone with autism. It reads as follows:

> The advantage of these people, if the group can appreciate them, is that, for them, they can surprise others as their occasional robustness at challenging groups, hallowed by rules or customs. At the high overall innovative end, they often work alone or on the periphery of groups, working out their own variants of rules. At less innovative extremes, they may instead (or also) be part of a ginger group—a sub-set that keeps the group on its toes—supplying new thoughts from new angles aimed at different solutions rather than better ones. Their disadvantage is when their group does not appreciate their variant value. They can be hard to live with, especially if you are a high adapter. Recent consultancy suggests that these people work happily on the periphery of groups, e.g., as counselors and advisors, helping

clients fit better whilst themselves staying at a comfortable arm's length (KAI Foundation, 2022, p. 190-191).

Literature indicates that autistic adults often struggle with social and communication structures (Rosen et. al, 2021). A more innovative R score provides insight into why autistic adults may not recognize the informal structures of group conformity, the role that group consensus and authorities have in making team decisions and may be more open to challenging and introducing unexpected changes to group dynamics.

Anecdotal evidence from KAI practitioners suggests that individuals often notice sub-score variations from a young age. This suggests that a more innovative than expected R variation may help explain why many autistic people feel they do not understand social and group interactions in the same way as their neurotypical peers. Perhaps the innovative R variation provides insight into the experiences of autistic individuals.

Implications

While acknowledging the limitations of the study's findings, several considerations arise for utilizing these findings in autistic workforce development support, leadership education, and for KAI practitioners.

Autistic Workforce Development

First, increasing awareness of cognitive function can help limit conflict caused by cognitive diversity (Kirton, 2011). Autistic individuals may use the findings in this research to better understand and explain why they may prefer to approach problems more adaptively. They should also be aware that a more innovative R score provides a specific uniqueness to one's preference in solving problems, which is unrelated to their capacity to solve problems. Additionally, recognizing that one explanation of the internal tension that autistic individuals feel

regarding not understanding all social pressures in group settings stems from their more innovative R may aid in personal understanding and acceptance of their experiences. It is also important to remember that adaption and innovation are relative to the group composition. Recognizing why someone prefers a particular problem-solving style can offer valuable insights when navigating team dynamics in the workplace. This understanding can be helpful for autistic employees to share with team members and supervisors, supporting their advocacy for workplace accommodations.

Workplace environments significantly influence how cognitive differences are perceived and managed within teams; therefore, fostering a culture of mutual respect for different styles is an essential strategy for effectively navigating the decision-making of cognitively diverse teams. Gaining a deeper understanding of problem-solving styles may enhance that awareness of and acceptance of cognitive diversity (Kirton, 2011). Workplaces may want to consider implementing and inviting KAI practitioners to lead workshops to help build awareness and develop healthy coping behavior skills.

Leadership Educators and KAI Practitioners

Within the classroom, human relations, and consulting spaces, leadership educators should consider these findings in discussions of team dynamics, helping both neurotypical and autistic individuals recognize that not all total problem-solving scores always reflect expected subscale traits, and that neurodiversity can influence that. Additionally, spending more time on inter- and intrapersonal skills may be helpful in supporting this population, as social group pressures and expectations may not be as clear as those of their neurotypical peers. They should also emphasize that trust and mutual respect are essential for creating inclusive environments. Implementing and discussing the value of universal design which can be defined as creating

inclusive spaces and environments where all needs are considered and individuals of differing needs are empowered to participate, may prove helpful in creating a more inclusive future within the classroom and the workplace (Steinfeld & Maisel, 2012).

KAI practitioners can utilize feedback sessions and workshops to help autistic individuals who take the KAI to deepen their understanding of their personal preferred problem-solving style. Through these, autistic participants can learn how to leverage their style and manage cognitive diversity. Furthermore, guidance on coping behavior may be helpful when working with short-term and long-term teams. These sessions can help teams with cognitively diverse individuals work together effectively, without the diversity of the team pulling them apart.

Additionally, because there is not yet a cognitive theoretical framework for the understanding of autism, this research using KAI may offer autism clinicians a potential cognitive explanation for autistic traits. KAI practitioners should utilize these insights to provide a plausible reason for some innovative R scores among more adaptive problem solvers. This may be especially helpful for individuals seeking an autism diagnosis or those who do not fully align with the characteristics of being more adaptive.

Future Research

As articulated in the limitations section in Chapter 4, the interpretation of the current findings were limited, as the researcher relied on AQ scores to determine autistic group membership rather than a clinical diagnosis of autism. While this method was chosen to broaden the accessibility of the study, as many autistic adults do not have a formal diagnosis due to a lack of clinicians specializing in the adult autistic population, this may have led to potential inaccuracies in the data and the validity of the group classification. Access to clinically diagnosed adults may offer a more comprehensive understanding of the population and help

predict problem-solving styles. Replicating this study with a larger sample size would improve its generalizability. As autism diagnoses are increasing and more adults are receiving late diagnoses, research should be conducted to support this population beyond the K-12 environment and aid the transition into workplace settings. Literature reveals that an estimated 85% of autistic individuals are unemployed or underemployed, which underscores the need for workforce development and leadership education research to focus on supporting this marginalized population (Taylor, Henninger, & Mailick, 2015). Further research could expand upon how to make workplaces more accessible, including the recruitment and retention of autistic and neurodivergent adults. Additionally, qualitative research may provide more insight into how coping behavior, as defined by Kirton (2011), may be related to autistic masking and how cognitive awareness may provide support and understanding when navigating team dynamics. Finally, examining how various neurodivergent conditions may be explained by KAI scores could provide valuable insights for psychology, workforce development, and team science.

References

Aldrich, J. O. (2018). *Using IBM SPSS statistics: An interactive hands-on approach*. Sage Publications.

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787

Antshel, K. M., Zhang-James, Y., Wagner, K. E., Ledesma, A., & Faraone, S. V. (2016). An update on the comorbidity of ADHD and ASD: A focus on clinical management. *Expert Review of Neurotherapeutics*, *16*(3), 279–293. https://doi.org/10.1586/14737175.2016.1146591

Barahona-Corrêa, J. B., & Filipe, C. N. (2016). A concise history of Asperger syndrome: the short reign of a troublesome diagnosis. *Frontiers in psychology*, *6*, 2024. https://doi.org/10.3389/fpsyg.2015.02024

Baron-Cohen, S., Wheelwright, S., Skinner, R., Martin, J., & Clubley, E. (2001). The autism-spectrum quotient (AQ): Evidence from Asperger syndrome/high-functioning autism, males and females, scientists and mathematicians. *Journal of Autism and Developmental Disorders, 31*(1), 5–17. https://doi.org/10.1023/a:1005653411471

Boyle, G. J., Matthews, G., & Saklofske, D. H. (2008). *The SAGE Handbook of Personality Theory and Assessment: Personality Measurement and Testing (Volume 2)*. SAGE.

Center for Disease Control and Prevention. (2024, January 10). *Data and Statistics on Autism Spectrum Disorder* https://www.cdc.gov/autism/data-research/index.html

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Psychology Press. https://doi.org/10.4324/9780203771587

Davies, J., Romualdez, A. M., Pellicano, E., & Remington, A. (2024). Career progression for autistic people: A scoping review. *Autism*, *28*(11), 2690-2706. https://doi.org/10.1177/13623613241236

Davis, N. O., & Kollins, S. H. (2012). Treatment for co-occurring attention deficit/hyperactivity disorder and autism spectrum disorder. *Neurotherapeutics*, *9*(3), 518-530. https://doi.org/10.1007/s13311-012-0126-9

Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). Sage Publications.

Friedel, C. R. (2006). *Dissimilar cognitive styles and their relationships with undergraduate student stress, motivation, and engagement* [Doctoral dissertation, University of Florida].

Frith, U., & Happé, F. (2005). Autism spectrum disorder. *Current biology*, *15*(19), R786-R790. https://doi:10.1016/j.cub.2005.09.033

Furnham, A., Moutafi, J., & Crump, J. (2003). The relationship between the revised NEO-personality inventory and the Myers-Briggs type indicator. *Social Behavior and Personality: an international journal*, *31*(6), 577-584. https://doi.org/10.2224/sbp.2003.31.6.577

Gardner, L. M., Campbell, J. M., Keisling, B., & Murphy, L. (2018). Correlates of DSM-5 Autism Spectrum Disorder Levels of Support Ratings in a Clinical Sample. *Journal of Autism and Developmental Disorders*, *48*(10), 3513–3523. https://doi.org/10.1007/s10803-018-3620-z

Gerhardt, P. F., & Lainer, I. (2011). Addressing the needs of adolescents and adults with autism: A crisis on the horizon. Journal of Contemporary Psychotherapy, 41(1),37–45. https://doi.org/10.1007/s10879-010-9160-2

Griffiths, A. J., Giannantonio, C. M., Hurley-Hanson, A. E., & Cardinal, D. N. (2016). Autism in the workplace: Assessing the transition needs of young adults with autism spectrum disorder. *Journal of Business and Management*, *22*(1), 5-22. https://doi.org/10.1504/JBM.2016.141233

Grosvenor, L. P., Croen, L. A., Lynch, F. L., Marafino, B. J., Maye, M., Penfold, R. B., ... & Ames, J. L. (2024). Autism diagnosis among US children and adults, 2011-2022. *JAMA Network Open*, *7*(10), e2442218-e2442218. https://doi:10.1001/jamanetworkopen.2024.42218

Happé, F. (2018). Why are savant skills and special talents associated with autism?. *World Psychiatry*, *17*(3), 280. https://doi.org/10.1002/wps.20552

Haas, K., Costley, D., Falkmer, M., Richdale, A., Sofronoff, K., & Falkmer, T. (2016). Factors influencing the research participation of adults with autism spectrum disorders. *Journal of autism and developmental disorders*, *46*, 1793-1805. https://doi.org/10.1007/s10803-016-2708-6

Hendricks, D. R., & Wehman, P. (2009). Transition From School to Adulthood for Youth With Autism Spectrum Disorders: Review and Recommendations. *Focus on Autism and Other Developmental Disabilities*, *24*(2), 77–88. https://doi.org/10.1177/1088357608329827

Hendricks, D. (2010). Employment and adults with autism spectrum disorders: Challenges and strategies for success. *Journal of Vocational Rehabilitation*, *32*(2), 125-134. https://doi.org/10.3233/JVR-2010-0502

Hesselmark, E., Eriksson, J. M., Westerlund, J., & Bejerot, S. (2015). Autism Spectrum Disorders and Self-reports: Testing Validity and Reliability Using the NEO-PI-R. *Journal*

of Autism and Developmental Disorders, *45*(5), 1156–1166. https://doi.org/10.1007/s10803-014-2275-7

Hull, L., Petrides, K. V., Allison, C., Smith, P., Baron-Cohen, S., Lai, M. C., & Mandy, W. (2017). "Putting on my best normal": Social camouflaging in adults with autism spectrum conditions. *Journal of Autism and Developmental Disorders*, *47*, 2519-2534. https://doi.org/10.1007/s10803-017-3166-5

Issa, J.-P. (2015). *Distinguishing originality from creativity in ADHD: An assessment of creative personality, self-perception, and cognitive style among attention-deficit/hyperactivity disorder adults.* [Master's Thesis, Buffalo State College] Creative Studies Graduate Student Master's Theses. https://digitalcommons.buffalostate.edu/creativetheses/25

KAI Foundation. (2022). *KAI Manual* (C. Friedel, M. Seibel, P. Wolfe, Eds., 5th ed.). KAI Foundation.

Kenny, L., Hattersley, C., Molins, B., Buckley, C., Povey, C., & Pellicano, E. (2016). Which terms should be used to describe autism? Perspectives from the UK autism community. *Autism*, *20*(4), 442–462. https://doi.org/10.1177/1362361315588200

Keith, T. Z. (2019). *Multiple regression and beyond: An introduction to multiple regression and structural equation modeling*. Routledge. https://doi.org/10.4324/9781315162348

Kwang, N. A., & Rodrigues, D. (2002). A Big-Five Personality Profile of the Adaptor and Innovator. *The Journal of Creative Behavior*, *36*(4), 254–268. https://doi.org/10.1002/j.2162-6057.2002.tb01068.x

Laerd Statistics (2015). Multiple regression using SPSS Statistics. *Statistical tutorials and software guides*. Retrieved from https://statistics.laerd.com/

LeFevre-Levy, R., Melson-Silimon, A., Harmata, R., Hulett, A. L., & Carter, N. T. (2023).

Neurodiversity in the workplace: Considering neuroatypicality as a form of diversity. *Industrial and Organizational Psychology*, *16*(1), 1-19. https://doi.org/10.1017/iop.2022.86

Lewis, L. F. (2016). Exploring the experience of self-diagnosis of autism spectrum disorder in adults. *Archives of Psychiatric Nursing*, *30*(5), 575–580. https://doi.org/10.1016/j.apnu.2016.03.009

Lockwood Estrin, G., Milner, V., Spain, D., Happé, F., & Colvert, E. (2021). Barriers to autism spectrum disorder diagnosis for young women and girls: A systematic review. *Review journal of autism and developmental disorders*, *8*(4), 454-470. https://doi.org/10.1007/s40489-020-00225-8

Lord, C., Cook, E. H., Leventhal, B. L., & Amaral, D. G. (2000). Autism spectrum disorders. *Neuron*, *28*(2), 355-363.

Miller, D., Rees, J., & Pearson, A. (2021). "Masking Is Life": Experiences of Masking in Autistic and Nonautistic Adults. *Autism in Adulthood*, *3*(4), 330–338. https://doi.org/10.1089/aut.2020.0083

Moring, B. (2014). *Research methods in psychology: Evaluating a world of information*. WW Norton & Company.

Moshirian Farahi, S. M. M., & Leth-Steensen, C. (2022). Development of a novel, theoretically motivated scale to assess cognitive learning styles related to the autism spectrum. *BMC psychiatry*, *22*(1), 696. https://doi.org/10.1186/s12888-022-04334-y

Myers-Briggs Company. (2024). *Research into MBTI® type, neurodivergence, and neurodiversity* [Report]. https://www.themyersbriggs.com/-/media/Myers-Briggs/Files/Resources-Hub-Files/Research/Research-into-type-and-neurodivergence.pdf

Parker, C., Scott, S., & Geddes, A. (2019). Snowball sampling. *SAGE research methods foundations*.

Rosen, N. E., Lord, C., & Volkmar, F. R. (2021). The diagnosis of autism: From Kanner to DSM-III to DSM-5 and beyond. *Journal of autism and developmental disorders*, *51*, 4253-4270. https://doi.org/10.1007/s10803-021-04904-1

Roux, A. M., Shattuck, P. T., Cooper, B. P., Anderson, K. A., Wagner, M., & Narendorf, S. C. (2013). Postsecondary employment experiences among young adults with an autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *52*(9), 931-939. https://doi.org/10.1016/j.jaac.2013.05.019

Ruzich, E., Allison, C., Chakrabarti, B., Smith, P., Musto, H., Ring, H., & Baron-Cohen, S. (2015). Sex and STEM occupation predict autism-spectrum quotient (AQ) scores in half a million people. *PloS ONE*, *10*(10), e0141229. https://doi.org/10.1371/journal.pone.0141229

Ryan, A. B. (2006). Post-positivist approaches to research. *Researching and Writing your Thesis: a guide for postgraduate students*, 12-26.

Rylaarsdam, L., & Guemez-Gamboa, A. (2019). Genetic causes and modifiers of autism spectrum disorder. *Frontiers in Cellular Neuroscience*, *13*. https://doi.org/10.3389/fncel.2019.00385

Sarrett, J. C. (2016). Biocertification and neurodiversity: The role and implications of self-diagnosis in autistic communities. *Neuroethics*, *9*(1), 23–36. https://doi.org/10.1007/s12152-016-9247-x

Shalev, I., Warrier, V., Greenberg, D. M., Smith, P., Allison, C., Baron-Cohen, S., ... &

Uzefovsky, F. (2022). Reexamining empathy in autism: Empathic disequilibrium as a novel predictor of autism diagnosis and autistic traits. *Autism Research*, *15*(10), 1917-1928. https://doi.org/10.1002/aur.2794

Scott, M., Milbourn, B., Falkmer, M., Black, M., Bölte, S., Halladay, A., ... & Girdler, S. (2019). Factors impacting employment for people with autism spectrum disorder: A scoping review. *Autism*, *23*(4), 869-901. https://doi.org/10.1177/1362361318787789

Steinfeld, E., & Maisel, J. (2012). *Universal design: Creating inclusive environments*. John Wiley & Sons.

Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA* (Vol. 724). Belmont, CA: Thomson/Brooks/Cole.

Taylor, J. L., Henninger, N. A., & Mailick, M. R. (2015). Longitudinal patterns of employment and postsecondary education for adults with autism and average-range IQ. *Autism*, 19(7), 785–793. https://doi.org/10.1177/1362361315585643

Theofanidis, D., & Fountouki, A. (2018). Limitations and delimitations in the research process. *Perioperative Nursing-Quarterly scientific, online official journal of GORNA*, *7*(3 September-December 2018), 155-163. https:/doi.org/10.5281/zenodo.2552022

Tse, V. W. S., Lei, J., Crabtree, J., Mandy, W., & Stott, J. (2022). Characteristics of Older utistic Adults: A Systematic Review of Literature. *Review Journal of Autism and Developmental Disorders*, *9*(2), 184–207. https://doi.org/10.1007/s40489-021-00238-x

U.S. Bureau of Labor Statistics. (2024, February 22). Table A. Employment status of the civilian noninstitutional population by disability status and age, 2022 and 2023 annual averages. https://www.bls.gov/news.release/disabl.a.htm

Van'T Hof, M., Tisseur, C., van Berckelear-Onnes, I., Van Nieuwenhuyzen, A., Daniels, A. M., Deen, M., ... & Ester, W. A. (2021). Age at autism spectrum disorder diagnosis: A systematic review and meta-analysis from 2012 to 2019. *Autism*, *25*(4), 862-873. https://doi.org/10.1177/1362361320971107

Weitlauf, A. S., Gotham, K. O., Vehorn, A. C., & Warren, Z. E. (2014). Brief Report: DSM-5 "Levels of Support:" A Comment on Discrepant Conceptualizations of Severity in ASD. *Journal of Autism and Developmental Disorders*, *44*(2), 471–476. https://doi.org/10.1007/s10803-013-1882-z

Woodbury-Smith, M. R., Robinson, J., Wheelwright, S., & Baron-Cohen, S. (2005). Screening adults for Asperger syndrome using the AQ: A preliminary study of its diagnostic validity in clinical practice. *Journal of autism and developmental disorders*, *35*, 331-335. https://doi.org/10.1007/s10803-005-3300-7

APPENDIX A

Snowball Sample Email

Subject line: Consider participating in a research study on Autism and problem-solving style

Hi _____,

I wanted to share a research opportunity from Abby Cheng, a Virginia Tech graduate student. The purpose of the study is to examine relationships between autism and preferred problem-solving style, as determined by Kirton's Adaption-Innovation Theory. I thought you might be interested in participating. This Virginia Tech study is approved by IRB (#24-1307).
The study involves you taking their provided Autism Spectrum Quotient (AQ) questionnaire and a short demographic survey. If you are eligible, you will then be contacted to complete the Kirton Adaption-Innovation Inventory, and these surveys should take less than 15 minutes each to complete.

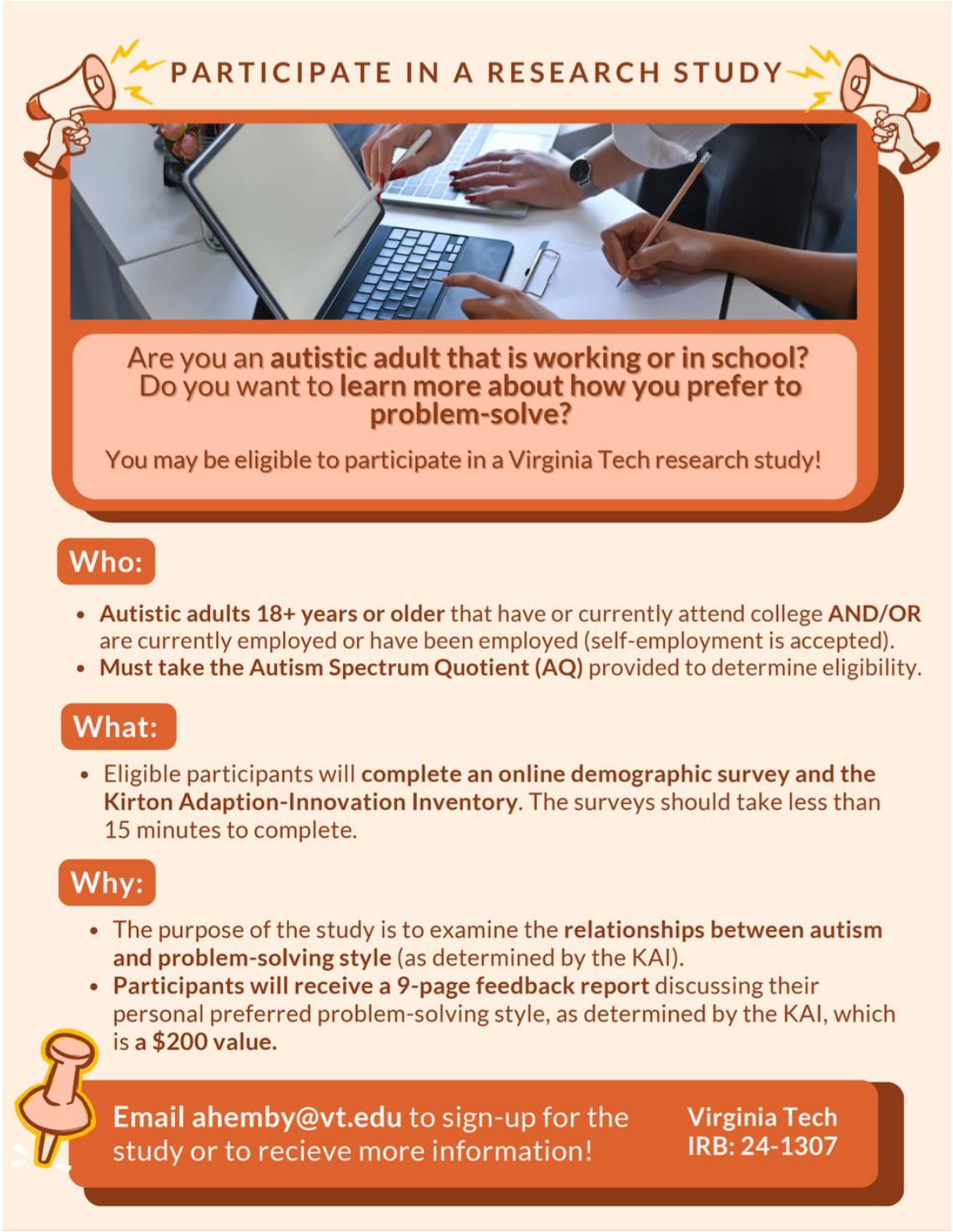
Would you consider completing the survey to see if you are eligible?
https://virginiatech.questionpro.com/AQKAI.

Information gathered may be used to help understand how preferred problem-solving styles differ between autistic and non-autistic individuals. Additionally, eligible participants will receive a 9-page feedback report discussing their preferred problem-solving style, as determined by the KAI, which is a $200 value.

Sincerely,
<<participant's name>>

APPENDIX B

Recruitment Flyer



APPENDIX C

Informed Consent, Autistic Group

Virginia Tech
Informed Consent for IRB 24-751:

Project Title: Examining Relationships Between Autism and Kirton's Adaption-Innovation Theory
Investigators: Abigail Cheng, graduate student (ahemby@vt.edu)
Dr. Curtis Friedel, (cfriedel@vt.edu)

I. Purpose of Research
The purpose of the study is to examine the relationships between autism and problem-solving style, as measured by the KAI, which may provide support and insight when navigating cognitively diverse teams.

II. Procedures
The study involves you taking the provided Autism Spectrum Quotient (AQ) questionnaire. If you are eligible, you will be contacted to complete an online demographic survey and the Kirton Adaption-Innovation Inventory, an online inventory measuring your problem-solving style. Findings will be reported in a thesis for the completion of Abigail Cheng's MS degree. Findings may also be published in a journal.

III. Risks
There is no more than minimal risk when participating in this study.

IV. Benefits
There are no direct benefits to you for your participation. The indirect benefits relate to improving and understanding relationships between autism and problem-solving, which may provide support in navigating team dynamics.

V. Extent of Anonymity and Confidentiality
Protecting your identity is a top priority of this study. By participating in this study, your information will be kept strictly confidential. Any information that potentially could identify you or others will be coded to ensure confidentiality. At no time will information be released that allows you to be identified. At no time will the researchers release the results of the study to anyone other than individuals working on the project without your written consent. Only the research team will have access to your data. It is possible that the Institutional Review Board (IRB) may view this study's collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. Data will be deleted after a period of five years.

VI. Compensation
There is no compensation for participating in this research.

VII. Freedom to withdraw
You are free to withdraw from the study at any time without penalty.

VIII. Participant's responsibilities
I voluntarily agree to participate in this study and will complete the AQ, demographic survey, and the KAI online.

IX. Participant's Permission
I have read and understand the Informed Consent and the conditions of this project. I have had all of my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____ YES _____ NO

_____ _____
Participant Signature Date

APPENDIX D

Informed Consent, Non-Autistic Group

Virginia Tech
Informed Consent for IRB 24-751:

Project Title: Examining Relationships Between Autism and Kirton's Adaption-Innovation Theory
Investigators: Abigail Cheng, graduate student (ahemby@vt.edu)
Dr. Curtis Friedel, (cfriedel@vt.edu)

I. Purpose of Research
The purpose of the study is to examine the relationships between autism and problem-solving style, as measured by the KAI, which may provide support and insight when navigating cognitively diverse teams.

II. Procedures
The study involves you taking the provided Autism Spectrum Quotient (AQ) questionnaire. If you are eligible, your existing Kirton Adaption-Innovation Inventory (KAI) score will be used from a previous study. Findings will be reported in a thesis for the completion of Abigail Cheng's MS degree. Findings may also be published in a journal.

III. Risks
There is no more than minimal risk when participating in this study.

IV. Benefits
There are no direct benefits to you for your participation. The indirect benefits relate to improving and understanding relationships between autism and problem-solving, which may provide support in navigating team dynamics.

V. Extent of Anonymity and Confidentiality
Protecting your identity is a top priority of this study. By participating in this study, your information will be kept strictly confidential. Any information that potentially could identify you or others will be coded to ensure confidentiality. At no time will information be released that allows you to be identified. At no time will the researchers release the results of the study to anyone other than individuals working on the project without your written consent. Only the research team will have access to your data. It is possible that the Institutional Review Board (IRB) may view this study's collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. Data will be deleted after a period of five years.

VI. Compensation
There is no compensation for participating in this research.

VII. Freedom to withdraw
You are free to withdraw from the study at any time without penalty.

VIII. Participant's responsibilities
I voluntarily agree to participate in this study and will complete the AQ questionnaire online.

IX. Participant's Permission
I have read and understand the Informed Consent and the conditions of this project. I have had all of my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____ YES _____ NO

_____ _____
Participant Signature Date