Overview of Theories of Cognitive Style: Neurotypical and Autistic

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Abstract

The prevalence of diagnoses of autism has been steadily increasing since first being studied in the 1960’s. The most recent data found related to increased prevalence of diagnoses of ASD can be found in information gathered by The Autism and Developmental Disabilities Monitoring Network which shows a rate of 14.7 per 1,000 or one in 68. As the prevalence of individuals with an ASD diagnosis increases, knowledge of differences in cognition must also increase. Differences in style of communication, cognition and information processing, as well as decision making strategies all have an impact on how individuals with ASD interact within the neurotypical world and misinterpretation can have negative impacts and cause distress in relationships. This review provides a broad overview of multiple theories of cognition; both neurotypical and autistic. Neurotypical theories covered are; Reflection-Impulsivity, Field Dependence-Independence, Theory of Types, Gregorc’s Energic Model, VARK Learning Styles, and Kolb’s Experiential Learning Theory. Autistic Theories covered are; Theory of Mind, Executive Function, Central Coherence, and Intense World Theory. Discussed are examples of assessment tools to assist in understanding personal style accepting other styles of processing. The author provides suggestions for utilizing tools and assessments in order to increase personal self-awareness and suggests both neurotypical and autistic cognition share similar traits. The assertion of the review is that just as autism is considered a spectrum so is cognition and each individual falls somewhere on the cognitive spectrum. Additional related information and application of the material in this review can be found in the accompanying manual developed in conjunction with this review titled, *How do you think?: Creating a Cognitive Profile.*
Overview of Theories of Cognitive Style: Neurotypical and Autistic

The prevalence of diagnoses of autism has been steadily increasing since first being studied in the 1960’s. In 1966, the estimated occurrence of autism was 4.5 per 10,000 (Lotter, 1966, p. 124), a rate that remained consistent in studies published prior to 1990 (Rates of autism, 2010). In an article published in 2003, Lingam, Simmons, Andrews, Miller, Stowe, and Taylor surveyed London families with children having been diagnosed with an autism spectrum disorder (ASD) and found that between 1979 and 2000, the rate of ASD diagnoses had been rising (Lingam et al, 2003, p. 668). Based on their findings, the rate of diagnoses in 2000 was roughly 19.3 per 10,000 or 2.6 per 1,000 births (Lingam et al, 2003, p. 666). The most recent data found related to increased prevalence of diagnoses of ASD can be found in information gathered by The Autism and Developmental Disabilities Monitoring Network (ADDM). In 2010, ADDM collected data of diagnoses of ASD from 11 network sites across the United States which shows the rate of ASD diagnoses being currently 14.7 per 1,000 or one in 68, broken down by gender, the rates are roughly one in 42 males and one in 189 females having been diagnosed with ASD (Baio, 2014). With the recent 2013 adoption of the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM 5), and changes in both diagnostic criteria and consolidation of related disorders, the prevalence of ASD diagnoses may possibly see a dramatic increase.

As the prevalence of individuals with an ASD diagnosis increases, more children enter educational systems with earlier diagnoses, transition from high school to higher education or the work force, knowledge of differences must also increase. Differences in style of communication, cognition and information processing, as well as decision making strategies to name a few, all have an impact on how individuals with ASD interact within the neurotypical, non-autistic world and misinterpretation can have negative impacts and cause distress in relationships. The intent of
this review is to provide a broad overview of multiple theories of cognition; both neurotypical as well as autistic perspectives as well as provide a few examples of assessment tools that may assist in understanding one’s own style as well as considerations of other style of processing. It is this writers’ belief that having an understanding of this type of material will promote better working relationships in personal as well as professional pursuits.

**Cognitive Styles**

Cognitive styles, as defined by Robert Sternberg and Elena Grigorenko are, “people’s characteristic and typically preferred modes of processing information” (Sternberg & Grigorenko, 1997, p. 700), or “A method of cognitive involvement that an individual is likely to select among others available to them, therefore, the one that they spontaneously most frequently use” (Ledzinska, Battala, & Stolarski, 2014, p. 135). Cognitive style can also be termed as an individuals’ thinking style and refers to the organizing, processing, and interpreting of information, based on perception, memory, thought, and judgment (Messick, 1984, 1996). It is important to keep in mind that though there may be similarities between individuals, each person makes sense of the world in their own unique way, (Cross, 1976) focusing on different details of interactions, environments, and problems, to make decisions based on a unique interpretation of information. Cognitive style should not be confused with learning style, which more involves the various ways an individual best gathers information.

Keeping the individual aspect in mind, and acknowledging the availability of research and theory related to non-autistic or neurotypical cognitive styles, an attempt will be made to cover common styles and theories for both neurotypical and autistic cognition.
Theories of Neurotypical Cognition

Due to the vast number of theories of cognitive style, the theories covered within the neurotypical section will be largely based on Sternberg and Grigorenko’s 1997 article, *Are Cognitive Styles Still in Style?* The rational for use of this article is based on criteria set by the authors, mainly that each theory has been “operationalized”, which according to the authors means, “there is at least one measure of the style or styles posited by a given theory” (Sternberg & Grigorenko, 1997, p.703). The authors provide three specific categories for cognitive style; the cognition-centered approach, which includes reflection – impulsivity and field dependence – independence, the personality-centered approach which includes the theory of types and Gregorc’s Energic Model, and finally the activity-centered approach, which focuses more on individual learning style.

Cognitive-Centered Approach

The cognitive-centered approach perspective and research of cognitive styles can be defined as, “the characteristic, self-consistent modes of functioning which individuals show in their perceptual and intellectual activities” (Witkin, Oltman, Raskin, & Karp, 1971, p. 3). Research and other theories of cognition related to a cognitive-centered approach can also be recognized as cognitive abilities, which can also appear to be a black or white type of assessment. An individual may poses one aspect of the theory or the other, this is also the perspective taken by tools assessing the theories where there is seemingly a right and a wrong answer (Sternberg & Grigorenko, 1997). The two theories to be covered here will be reflection-impulsivity and field-dependence-independence.
**Reflection-Impulsivity**

The reflection-impulsivity theory of cognition, also referred to as conceptual tempo, focuses on the difference in approach between what can be described as really two extremes of a continuum. Two indicators used and recognized in evaluation of reflection-impulsivity are speed and correctness of solutions (Ledzinska, Battala, & Stolarski, 2014). In this theory, reflection can be defined as pausing prior to approaching a task or choosing a plan of action to consider and evaluate other options. Impulsivity can be defined as a tendency to react or respond instinctively without taking much time for contemplation (Sternberg & Grigorenko, 1997). Individuals determined to be high in reflection are viewed as being more methodical and taking more time in their approach to tasks and making decisions as well as making fewer mistakes. On the opposite end of the continuum, individuals determined to be high in impulsivity are viewed as having a tendency for impulsive decisions and responding quickly as well as making many mistakes (Ledzinska, Battala, & Stolarski, 2014).

Jean-Pierre Ancillotti hypothesized that reflective individuals tend to take a more analytical approach in processing and display what he termed cognitive maturity and impulsive individuals process in a more holistic way and are lacking in cognitive maturity (Ancillotti, 1984). A test of this hypothesis and of the principles of reflection-impulsivity theory by Rozencwajg and Corroyer (2005), set to develop more understanding of cognitive process of the theory. In their research study, Rozencwajg and Corroyer identified two additional possibilities for the reflection-impulsivity cognition theory; individuals who process in a fast and accurate way, impulsive and accurate results, and individuals who process slow and inaccurately, reflective and inaccurate results. They identified individuals who were capable of using both the
analytic style of processing used by reflective individuals as well as the holistic style of processing used by more impulsive individuals (Rozenwajg & Corroyer, 2005).

The most commonly used tool for assessing the reflection-impulsivity is the Matching Familiar Figures Test (MFFT). The MFFT involves an individual being presented with a standard figure and then a series of eight similar figures with which to compare. The individual is timed and assessed for accuracy in correctly selecting and identifying the identical figure (Kagan, Rosman, Day, and Phillips, 1964). The benefit of an understanding of where an individual falls on a reflection-impulsivity continuum can be useful in how questions and communication are approached. An individual with a more reflective approach may need more time to process questions and information where as an individual with a more impulsive approach could benefit from a more rapid approach to questioning and presentation of information.

**Field dependence-independence.** Field dependence-independence theory refers to, “the extent a person is dependant versus independent of the organization from the surrounding perceptual field” (Sternberg & Grigorenko, 1997, p.703). Field dependence suggests a tendency to be influenced strongly by the background or the whole, which causes difficulty separating detail from the contextual whole. Conversely, field independence is an ability to separate and restructure details of the whole (Davis, 1982). More simply put, field dependant individuals rely on external, surrounding information to guide their cognitive processes. This causes them to be more socially oriented and interested in other people as well as more socially skilled yet tend to also be limited in their personal autonomy. Field independent individuals rely more on internal knowing or experiences to guide their cognitive processes. This creates development of a greater level of autonomy, yet less likely to be socially oriented and less skilled in personal interactions.
One major difference between field dependant and field independent individuals is what each is able to identify and pick out within as similar situation. Field independent individuals have an ability to see what field independent individuals do not (Matthes, Wirth, Schemer, & Kissling, 2011).

The most common tool for assessing field dependence-independence is the Embedded Figures Test (EFT). EFT involves the use of pictures of complex geometric figures that are presented to an individual and their task is to identify a simple figure within the complex field of information. Individuals high in a field-independent processing tend to have the ability to separate the simple from the field more rapidly than those high in field dependent processing (Witkin, Moore, Goodenough, & Cox, 1977). In utilizing the information gained from an assessment of field dependant-independent cognitive preference, one could develop an approach that best suits individual style of gathering information as well as assessment of surroundings. Such knowledge would also assist in understanding and individuals need for and willingness to ask for and benefit from external assistance as well as recognition of the need.

**Personality-Centered Approach**

The personality-centered approach of cognitive styles can be more simply described as variations in personality or personality types. Within this perspective can be found Jung’s theory of Psychological Types and Gregorc’s Energetic Model, though Gregorc model may appear to be more learning style than personality, elements of personality type trait can be identified within it.

**Theory of types.** In 1923, based on studies and research into human behavior, Jung suggested that individuals can be divided into two distinct groups or attitudes; introvert and extravert (Barger & Hoover, 1984; McCaulley, 2000). The basis and justification for these two groups was developed by identifying where individual places their focus within the environment
or in relation to an object and their general approach to cognitive processing. Introverts are thought to be concerned first with themselves and then with the environment or object, whereas the extravert is more concerned first with the environment or object and then with themselves (Malamud, 1923). Jung also suggested that each individual possesses and relies on four basic psychological modes of function or mental ways of processing; thinking, feeling, perception, and intuition (Malamud, 1923). The four functions are broken down further into rational judging functions and irrational perceiving functions; thinking and feeling being rational judging functions and sensation and intuition being irrational perceiving functions (Malamud, 1923; McCaulley, 2000). Sensation refers to information that can be gathered or experientially via the five senses and processing of this information is more subjective based on the individuals’ experience. Gathering and processing information through the function of intuition is described as being based more on hidden meaning, abstract possibilities or imagined perception as well as being attributed to the unconscious. Though Jung used the concept of irrational to describe these perceiving functions, the intent was not to view them from a negative connotation, but as how an individual draws conclusions based without relying on reasoning or logic (McCaulley, 2000). Rational functions of judging; thinking and feeling are described as the use mental processing and the mind to draw conclusions about what has been perceived. Thinking relies on impersonal logic and analysis of information to make decisions or judgment and reaching conclusions by a feeling process weighs what is perceived against what an individual values (Malamud, 1923; McCaulley, 2000; Barger & Hoover, 1984).

Perhaps the most well known and utilized assessment and identification of Jungian type is the Meyers-Briggs Type Indicator (MBTI). The MBTI has been applied and found to be useful in numerous contexts; organizational development, education, counseling, employment, and
career development just to name a few. Use of the MBTI helps to identify the primary modes of function and preference identified by Jung and can be useful in both developing self awareness and understanding into an individual’s preferred mode of interaction with the world in a variety of contexts (Hall, 2012).

**Gregorc’s energic model.** Energic is defined as, “in a state of action; acting; or operating” (Energic - definition of energic by the free dictionary, n.d.). Gregorc identified cognitive styles based on students’ preference of college instructor teaching styles; instructors who taught in an ordered, step by step process, and instructors who taught less form the text and used a more personalized approach to instruction (Gregorc, 1985; O’Brien, 1991). These two dimensions can be described as the use of time (temporal) and use of space (spatial). The spatial or space dimension is separated into two additional components that describe an individuals’ preferential mode of acquiring and expressing or perceiving information; concrete or abstract. Concrete is relatable to physical experience, “here and now” focused presentation of information and acquisition, and abstract is more of a metaphorical, intuitive, and imaginative perspective. The time or temporal dimension is separated into the two components of sequential and random, which refers to a preference in how events, facts, and information are ordered. An individual with a preference for sequential ordering prefers a more step by step, linear, planned, and organized form, where as an individual with a preference for random may prefer no particular order, skip steps of a plan, and be somewhat impulsive in approach (Gregorc, 1985; Tendy & Geiser, 1997; Sternberg & Grigorenko, 1997). While each individual has a certain level of ability and capacity for each of the four elements, they have a preference to approach and their cognitive style is the preference of perceptual quality; concrete or abstract, and ordering ability: sequential or random (Gregorc, 1985; Seidel & England, 1997).
The Gregorc Style Delineator (GSD) is the primary tool used to assess Gregorc’s model of cognitive processing. The results given identify an individual’s preferences of perceptual quality and ordering ability and the combination of styles (Gregorc, 1999). The tool identifies four combinations; concrete sequential, abstract random, abstract sequential, and concrete random as well as provides descriptions of strengths, abilities, preferences, and challenges of each combination (Gregorc, n.d. & Gregorc, 1999). Utilization of the Gregorc Style Delineator and identification of a preferred mode of perception and ordering can be beneficial in approaching tasks and decision making. Taking or following a sequential approach to a task or process with an individual with a preference for random ordering may create the opposite of desired effect and outcome. This has the potential to cause essentially a paralysis of movement toward a goal and difficulty in meeting guidelines that appear rigid. Conversely, taking a more random approach to a task with a more sequentially leaning individual may have the affect of creating a high level of confusion.

**Activity-Centered Approach**

The activity-activity centered approach of cognitive styles theories essential focus on aspects of both cognition and personality (Sternberg & Grigorenko, 1997). Thus, there is an overlap of theories and related tools of assessment within this approach. There is also a blending of terminology, for example: previous approaches have used a definition of cognitive style as being, “people’s characteristic and typically preferred modes of processing information” (Sternberg & Grigorenko, 1997, p. 700). Theories of cognition within this approach come from a perspective more of leaning style, where a learning style can be defined as, “an individual’s unique way of interacting with the environment” (Sewall, 1986). This definition differs from that of cognitive style in that cognitive style refers more to the processing of information, yet at the
same time quite similar to Gregorc’s theory of individual preferences for gathering and intake of information. Discussed in this section will be two theories related the activity-centered approach of cognition and styles of learning: the VARK Learning Styles and the Kolb Experiential Learning Theory.

**VARK learning styles.** Developed by Fleming and Mills, VARK stands for; visual, aural, read/write, and kinesthetic preferences or style of learning (Fleming & Mills, 1992). An individual with a preference for visual learning have a preference for symbolic representations of information as well as a need to visually observe and instructor. Preference of aural or auditory learning need to hear information spoken as well as to speak it themselves in their own words, they may need to process information through speaking rather than contemplation and then presentation. Individuals with a preference for reading and writing learn by taking information in text or written form through any related material. Kinesthetic learners do best when they experience the reality of information and do things themselves physically or hands on, this type of learner does best with specific examples where information can be applied (Fleming & Mills, 1992; Fleming & Bonwell, 2006; Narayanan, 2012). The VARK Questionnaire is self-assessment tool developed by Fleming and Mills to identify an individual’s preferred mode of learning. Results given are number rankings based on answering 18 situation based task questions where a higher number represents the preferred mode of learning as well as strategies based on the preference. The benefit to utilization of the VARK assessment can be found in determining how an individual best learns or their preference. By identifying this preference, the presentation of information as well as development of learning tasks and skills can be tailored to the specific individual needs.
Kolb experiential learning theory. Kolb’s experiential model of learning suggests that learning is, “the process whereby knowledge is created through the transformation of experience” (as cited by Hawk & Shah, 2007). Kolb presents learning as a four stage cycle; experiencing, reflecting, thinking, and doing and completion of this process results in effective learning (McCleod, 2010). Within the cycle are four modes of processing; concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE) (Hawk & Shah, 2007). As suggested by Kolb (1984), the experiential learning process is non-linear and an individual may have a preference to begin at any point in the cycle. This preference is where Kolb develop four basic learning styles which are a combination of two adjacent points in the cycle; Diverger (CE & RO), Assimilator (RO & AC), Converger, and Accommodator (AE & CE) (Kolb, 1984; Hawk & Shah, 2007). Possibly the most useful aspect of Kolb’s learning theory is the suggestion that learning is not necessarily a linear process and more of a cycle where that individuals may approach an process information from any of the four points.

Theories of Cognition in Autism

Theories of cognition and cognitive processes of individuals with autism attempt to explain both the primary challenges; communication, social interaction and behavioral flexibility as well as if autism is caused by one or multiple factors in development (Burnette, Mundy, Meyer, Sutton, Vaughan, & Charak, 2005; Rajendran & Mitchell, 2007). Difficulty in developing an all encompassing and unifying theory of autism can be directly related to the uneven and unique cognitive and behavioral profiles, challenges and development found in individual on the spectrum (Tonn & Obrzut, 2005). The concept of a spectrum may possibly the best descriptor of autism and lead to the comment of if you have met one person with autism;
you have met one person with autism. Another key aspect related to spectrum is that of working with individuals with ASD, due to the broad and unique spectrum of abilities individuals affected with one challenge may be helped by one approach where the same approach in working with another may have no benefit (Teunisse, Cools, van Spaendonck, Aerts, & Berger, 2001).

Theories covered with in the autistic portion will be; Theory of Mind, Executive Function, Central Coherence theory, and Intense World Theory. It is interesting to note that aside from Intense World Theory, each of these cognitive theories of autism appears to focus more on deficits than differences in cognitive style. Though there are such theories of cognition specific to autism, this does not suggest that individuals with ASD do not share traits of the traditional and neurotypical cognitive styles.

**Theory of Mind**

The Theory of Mind (ToM) perspective of autism focuses on the challenges individuals with ASD may face when reasoning about the intentions and beliefs of others (Sheinkopf, 2005). ToM suggests an intuitive ability in understanding one’s own mental state and mind as well as the mental state and minds of others. Mental state and mind includes; thoughts, knowledge, motivation, beliefs, emotions, intentions, and desires and that such things influence an individual’s behaviors (Alic, 2009). More simply stated, ToM suggests that due to individuals with ASD diagnoses challenges in social and communicative interactions are a result of limited ability to understand and interpret the minds of others (Joseph, 1999) or to take on the perspective of other’s mental states (Baron-Cohen, Leslie, & Frith, 1985). A common assessment for ToM is a test of false-belief also referred to as the Sally-Anne test, developed by Wimmer and Perner (1983) (Rajendran & Mitchell, 2007).
Having an understanding of how an individual with ASD functions within the ToM theory can assist in understanding current and potentially future difficulties they may have in social interaction as well as understanding interpreting their own feelings and emotions. There may also be a benefit to understanding one’s own perspective of ToM and how assumptions of normal or acceptable behavior are influenced by an individual with ASDs’ mental state. In other words, if an individual with ASD has challenges with understanding others, can it be assumed that others have a similar experience with understanding an individual with ASD.

**Executive Functioning Theory**

Executive Function (EF) refers to a set of cognitive abilities that regulate thoughts and actions. These abilities are related to functionality in; strategic planning, flexibility in thought or shifting of attention and action, control of impulse, initiation of tasks, working memory, and organization (Sheinkopf, 2005). The initial connection between challenges of EF was similarities observed in individuals who had suffered traumatic brain injuries (TBI), specifically individuals who had experienced damage to the frontal lobes. Observations and comparisons identified similar challenges and characteristics of behavior in individuals with ASD ((Tonn & Obrzut, 2005; Rajendran & Mitchell, 2007). While the theory of EF identifies limitations and challenges in tasks, the benefits of EF can be seen in the ability of individuals with ASD to focus on task involving areas of interest for extended periods of time.

The benefits of understanding how an individual with ASD experiences EF can be useful in approaching of tasks. Being able to identify areas that may be challenging for initiation and subsequent accomplishment of tasks can assist in developing a plan or routine for similar future related situations or tasks.
Central Coherence Theory

Central coherence can be described as the ability to process information and apply it within its context. As central coherence applies to autism and ASD, Frith (1989) suggested that individuals with ASD have a tendency for weak central coherence; this is the basic premise of the Weak Central Coherence Theory (WCC) of autism (Happe, 1999). WCC also attempts to explain the challenges with routine and repetitious behavior as well as the tendency of individuals with ASD to focus on and become preoccupied with single parts of objects, environments, and interactions (Joseph, 1999). Due to these challenges for individuals with ASD, WCC suggests that processing information in a detailed way; individuals do not reach state of integration of details into a whole or global concept and thus the information remains fragmented and meaningless (Teunisse et al., 2001). As such WCC presents In addition to what may be seen as challenges, WCC in a way addresses the splinter skills and increased abilities exhibited by individuals with ASD including; savant skills, musical or artistic abilities, hyper focus, and attention to detail (Joseph, 1999; Tonn & Obrzut, 2005). Utilizing the perspective of central coherence, it is beneficial in understanding the global versus local focuses individuals with ASD may have, and grasping the concept that seeing the trees in the forest is just as useful as seeing the forest itself.

Intense World Theory

Intense World Theory is a relatively recent attempt to explain autism from a neurobiological perspective. The basic idea behind Intense World Theory is described as a hyper-functioning of neural circuitry and brain function, which is characterized by hyper-reactivity and hyper-plasticity (Markram & Markram, 2010). The theory goes on to suggest that the development of autism may be based on overly strong reactions to experiences causing the
brain to develop a preference to be overly selective in interpretation of new experiences. This may lead to development of an excessive processing of detailed fragments of information, causing an individual with ASD to become, “trapped in a painfully intense world, potentially explaining a broad range of common autistic symptoms such as sensory sensitivity, repetitive behavior, idiosyncrasies and even exceptional talents” (Markram & Markram, 2010, p. 1).

Markram and Makram ((2010) suggest that Intense World Theory offers an explanation for cognitive traits common in individuals with ASD; hyper-perception, hyper-attention, and hyper-memory as well as possible affects on the limbic system creating a hyper-emotionality.

Essentially the assertion of Intense World Theory is an over development of neural circuitry creating a supercharged brain, resulting in supercharged processing and function. The benefit of the perspective taken by Intense World Theory in understanding how over function and development may be able to help in understanding behaviors and challenges faced by individuals with ASD.

**Summary – Conclusion**

The material covered here was not meant to be an exhaustive review of cognitive styles, yet brief snap shot of theoretical explanations and useful tools in assessing cognitive styles. It is believed that personal and professional utilization of these tools as well as developing one’s own cognitive profile, and becoming more highly self-aware professional. A highly self-aware professional is one who understands their own way of thinking, processing, learning, and bias as well as their own limitations and incorporates such knowledge into day to day interactions and practice. Development of such a level of self-awareness allows these professionals to focus more on how their clients function best as well as to meet them where they are at and see the world from their unique perspective.
One approach to developing such knowledge and self-awareness would be to utilize some of the assessments and theories presented in this review then developing a personal cognitive profile then review the theories to gain a personal perspective on where it fits within the various continuums. Identifying where an individual falls on a reflection-impulsivity continuum will help with communication; understanding a more reflective person may need more time to process where more impulsive individuals work best with little time to think. Differences in field dependant-independent persons can help to identify preferred level of independence and therefore affect need for and willingness to ask for and benefit from external assistance as well as recognition of the need. Understanding the specifics of one’s own MBTI can have a great influence on acceptance of other perspectives most notably the level of need and tolerance for human interaction. Knowledge found with the Gregorc Style Delineator and identification of a preferred mode of perception and approach to decision making can benefit in planning. Sequential approach to a random thinker may seem almost paralyzing, and random thinking to a sequential individual may be viewed as confusing, illogical and lacking direction.

Using the VARK assessment to identify a preferred learning style can greatly affect understanding of and acquisition of information, which also affects communication and understanding. Though many of these theories and tools were developed to identify more neurotypical forms of cognition, thinking, and learning styles they each suggest a spectrum in some form; spectrum much like that of individuals with ASD. Differences may be that individuals with ASD may experience the world, including thoughts and cognition more intensely as suggested by Intense World Theory. Understanding this perspective can help understand interactions and challenges within context or in lack of identifying differences in context or even a need to as suggested by Central Coherence Theory. Executive Functioning can
also be viewed as a spectrum of cognitive process and ability in both ASD and neurotypical. One difference may be that individuals with ASD are limited in their ability to hide or mask challenges with organizing, planning, and completion of tasks.

With the increase in diagnoses of ASD as well as recent changes to diagnostic criteria to include a broader, inclusive perspective or spectrum of autism, the importance of understanding differences in thinking has increased. Understanding the differences in cognitive styles and processes as well as unique traits of each individual is important for successful alignment, communication, and attainment of goal, whatever the relationship may be. Earlier theories of cognitive styles tended to focus more on one or the other type perspectives and did not appear to allow for much of a gray area or spectrum between two extremes, this appears to have changed over the years and with additional research and new perspectives as can be found in more personality driven approaches. Though there are distinctly different concepts and theories of ASD cognitive abilities, it important to keep in mind the idea of a spectrum of styles and the uniqueness of individuals. Individuals with ASD share traits and similar processing and cognitive styles found within traditional theories of cognition yet may be at the extremes with their functioning. Viewing functioning as a valid and different type of processing as opposed to disordered or dysfunctional will have an effect on interactions, completion of tasks, and attainment of goals, thus making ASD a style not a disorder.
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