

Hello, my name is Joe Falkner, and welcome to the Flexible Mind Therapy Podcast. Today we will continue the discussion of different factors that may impact on the sociosexual development of individuals with Autism Spectrum Disorders.

Last time, we discussed the first extrinsic factor that may impact on the sociosexual development of individuals with ASD: Ableism. As discussed, Ableism, and the associated biases and actions, can have significant impacts on the sociosexual development of individuals with ASD. Today, we will begin the discussion of the second intrinsic factor impacting some individuals with ASD: Cognitive Features. In fact, we will be breaking down this topic into three different areas: Neuropsychological Frameworks, Cognitive Features, and Thinking Patterns, which will serve as the topics of the next three podcasts.

You may ask yourself, “What is the utility of discussing all of these different topics?” For the person with ASD, if these describe some of the areas that you may have struggles or challenges, they may serve as areas to focus on for increased awareness and personal growth. For parents, caregivers, and other professionals, these topics may serve as additional targets for therapy, education, and/or development for the individual with ASD that you are interacting with. Overall, these topics may serve as explanations for particular sets of behaviors, difficulties in expression of certain skills that have been learned, and/or challenges that affect sociosexual development overall.

Today’s discussion will be around the Neuropsychological Frameworks, or theories, for understanding Autism Spectrum Disorders. We will explore three major Neuropsychological Frameworks: Weak Central Coherence, Theory of Mind, and Executive Functions, as well as an additional framework: Context Blindness (which may be seen as an expansion of the Weak Central Coherence theory).

It is important to remember here the definition of “behavior.” Often, when we think of the word “behavior,” we think of something that is either challenging or aberrant. But, the word “behavior” actually refers to any action of the individual in response to a stimulus or situation. These “behaviors” may be manifestations of the different features or factors that serve as the topics for our discussions and

may to a greater or lesser degree impact on the individual with ASD's quality of life. To the degree that they do create challenges for the person, or affect their quality of life, these behaviors may be targets for personal growth and development.

We will start today with a short discussion of Weak Central Coherence. Uta Frith first proposed the Central Coherence theory in the late 1980's. "Frith (1989) describes 'central coherence' as the tendency to draw together diverse information to construct higher-level meaning in context. In individuals who process information normally (which we may see as Strong Central Coherence), there is a tendency to make sense of situations and events according to their context. In individuals with Asperger syndrome, this does not (always) occur." (Cumine, Dunlop, & Stevenson, 2010) This tendency to make sense of situations according to their context is known as "global processing." Ozonoff, Pennington, & Solomon (2006) go on to further describe the "information processing of typically developing individuals (as) motivated by a drive to achieve higher level meaning and a preference for global processing." Individuals with ASD are described as having an information-processing style that favors more "local processing," which is often described as being more detail-oriented (or as exhibiting Weak Central Coherence).

An example that is often used to differentiate "global" from "local" processing is: the ability to see the forest, an example of global processing vs. the ability to see the trees, an example of local processing. Peter Vermeulen (2012) goes on to describe the "local processing" of individuals with ASD by expanding on this example: "Sometimes they do not even see the trees, but they do see the bark on the trees, the leaves, or even the veins on the leaves. It has been said that people with autism are detail thinkers and do not see "wholeness."" He makes some additional distinctions in his "Context Blindness" theory which we will discuss in a few moments.

It is important to note that Weak Central Coherence does not necessarily have a deficit orientation. In fact, individuals with a propensity to more "local processing" may be superior in their ability to remember facts and information, identify idiosyncratic details or notice connections that may slip by others, and/or display an extreme focus on a special interest. Attwood (2007) mentions that

these may provide an advantage in a number of different occupations, including: scientist, artist, lawyer, accountant, or copy editor.

The challenges that weak central coherence can contribute to include: picking up subtle nuances, difficulty generalizing skills, difficulty prioritizing and planning, over-focus on irrelevant details and difficulty identifying, or focusing, on salient details and information. (Cumine, Dunlop, & Stevenson, 2010) In sociosexual development, weak central coherence can contribute to: fetishism (particularly where the individual with ASD becomes focused on a particular body part or where a special interest becomes integrated into sociosexual behavior) (Heffernan, 2016); difficulty generalizing skills taught in sociosexual education (e.g., becoming distracted by the details of the face rather than focusing on the emotions that they communicate (Henault, 2006)); and piecemeal recall of sociosexual information (particularly during times of increased stress) (Im, 2016).

As previously mentioned, Peter Vermeulen (2012) further expanded on, or clarified, the Weak Central Coherence Theory with his Context Blindness Theory. In his theory (and his subsequent clarification of the Weak Central Coherence Theory), Vermeulen sees context as “the totality of elements within the observing person and in the spatial and temporal surrounding of a stimulus that influence the perception of that stimulus and the meaning that is given to it;” and context blindness is “a deficit in the ability to use context spontaneously and sub-consciously to determine meanings.”

It is not that the individual with ASD is particularly detail-oriented, or even unable to see the whole or totality of something. It is that the individual with ASD is better able to demonstrate coherence at a lower level, or local coherence, which is a lower level of information processing. Individuals with ASD have more struggles with coherence at higher level of information processing, or central coherence, where contextual elements (time, place, elements in the environment, memory, etc...) impact on meaning. So, as Vermeulen writes, “context blindness does not refer to not seeing the context, but more accurately to the failure to use context. Context blindness is not about "not seeing the forest for the trees" but about "not using the forest to see the trees as being trees."”

This distinction is an important one, and helps to describe some of the behaviors seen in individuals with ASD. This failure to use context can be frustrating for

parents, caregivers, teachers, therapists, etc..., who observe an individual who has been taught, and seemingly understands, a particular skill but fails to use it at the appropriate time, in the appropriate manner, or taking into account the unique contexts of the particular environment when choosing a particular behavior.

For a moment, imagine the many different and varied contexts that adolescents and young adults encounter. Our friendships and relationships alter significantly during this time. Our roles in school and then later on the job go through fairly massive changes over the course of adolescence and young adulthood.

Expectations from others (another form of context) are also adapted over this time frame, until a great deal more is expected of the individual as a young adult. Through all of these, great pressure is put on the individual to be aware of these contextual changes and to use them to modify their behavior over time.

Now, think about what it would be like if you weren't able to use context effectively, or efficiently, to guide behavior. You may continue with a special interest that is associated with a younger individual even though the context of adolescence and adulthood may influence how others see this interest. You may engage in certain behaviors, such as searching for pornography on a school or library computer, because you don't use the context of these environments, and the related rules both explicit and hidden, to inhibit this desire. You may engage in behaviors that are done in a private context more publicly because an urge to engage in the behavior is not checked by the context of being in public (for example, scratching one's genitalia, or public masturbation). As a final example, you may express your interest or feelings related to someone in a way that may be inappropriate for the level of current relationship or the environment, because you don't use the environmental or relationship cues (or contexts) that might curb these behaviors.

As I hope you can see from these examples, context has profound effects on sociosexual expression. Merely understanding the rules may not be enough to help guide some individuals with ASD through the varying, and often confusing, contexts that arise as a part of sociosexual development in childhood, adolescence and adulthood. Teaching both contextual awareness, and the effective and efficient use of context to guide behavior, can be important parts of a sociosexual education program.

The next Neuropsychological Framework that I will briefly mention is: Theory of Mind. I won't spend a long time today discussing this because I did introduce some concepts related to Theory of Mind during the second podcast in this series which was on Social Challenges that impact on sociosexual development in individuals with ASD. As a reminder, theory of mind "...refers to two important abilities, (a) the capacity to recognize the thoughts, beliefs, and intentions of others and understand that these mental states are different from our own; and (b) using this understanding to predict the behavior of others" (Carnahan & Williamson, 2010). In other words, theory of mind relates to our ability to perceive and use the mental states of others in predicting their behavior, and to guide our own behavior. There are a number of different mental states, or states of mind, that a person may have, including: purpose of intention, thoughts, feelings, beliefs, trusting, deceit, wanting, doubt, pretending, etc... The varied and covert nature of mental states can make them difficult for individuals with ASD to attend to, and/or to use actively to predict others behaviors and modify their own behaviors. (Cumine, Dunlop, & Stevenson, 2010)

Deficits in theory of mind may be exhibited as: "difficulty in predicting other's behavior, leading to a fear and avoidance of other people; difficulty in reading the intentions of others and understanding the motives behind their behavior; difficulty explaining own behavior; difficulty understanding (and responding to) the emotions of others; and difficulty understanding that behavior affects how others think, or feel." (Cumine, Dunlop, & Stevenson, 2010)

Theory of mind is not an all-or-nothing kind of construct. As I mentioned in the second podcast in this series, it develops over a period of time and can involve a number of different actions. It can change over time from just being able to take into one's own perspective, to being able to take into account only one's own or another's perspective at a time, to ultimately being able to take into account societal influences on perspectives. It can be significantly impacted on by the context in which the prediction of others takes place. We have to be sensitive to the context in which we are predicting others mental states to be able to determine what the appropriate mental state attribution may be (for example, understanding of the context may guide whether or not we attribute trust or deceit to the individual). (Vermeulen, 2012)

The ability to be aware of, and use, predictions around the mental states of others can have profound impacts on sociosexual development and expression. Being able to determine if another individual could be flattered, or frightened, by your continued interest can be the difference between a budding relationship and the beginning of stalking behavior. Awareness that the changing context of a situation may affect how one's partner may consent to being touched may take both the awareness of the context and theory of mind skills that are attuned to the partner's mental state. The understanding that one may be being deceived by a partner who only wants money and who may provide the "promise" of a relationship requires the awareness and understanding of the other's mental state and the context in which they are exhibiting the deception. These may need to be addressed as a part of ongoing sociosexual development throughout the life of the individual with ASD.

The next Neuropsychological Framework that we will discuss is that of Executive Functioning. Executive Functioning has received a great deal of focus in the research, therapeutic, and popular media over the past several years. With all of the focus that Executive Functioning has received, it continues to be an elusive concept. Some of this may be due to the fact that different individuals define executive functioning (and its resulting constituent parts) differently. Stuss and Benson (1986) defined Executive Functioning as follows: "Executive functions is a generic term that refers to a variety of different capacities that enable purposeful, goal-directed behavior." (in (Goldstein, Naglieri, Princiotta, & Otero, 2014)). Diamond (2013) describes three specific executive functions that she sees as part of Executive Control and that serve as the basis for other executive functions. These three executive functions are: Cognitive Flexibility, Inhibitory Control (or response inhibition), and Working Memory. We will briefly discuss each of these and their potential impacts on some individuals with ASD.

The first of these Executive Control Functions is Cognitive Flexibility. Cognitive flexibility refers to our ability to change our perspectives, approaches to problems, and/or plans in the face of new demands, rules, priorities, obstacles and setbacks (Diamond, 2013) (Dawson & Guare, 2016). Cognitive flexibility refers to the brain's ability to transition from thinking about one concept to another (GLOOM, 2017). In Cognitive Flexibility, we have the ability to change how we would typically respond to a situation based on new demands, information, etc... Cognitive Flexibility is closely related to a psychological concept

called “set.” “In psychology, a **set** is a group of expectations that shape experience by making people especially sensitive to specific kinds of information” (Set (psychology), 2017). In essence, our brain prepares a particular response based on the information that it receives from the environment. This response is based on our past experiences. In Cognitive Flexibility, we are able to change, or modify, our **set** based on new, or changing, demands, rules, priorities, and obstacles (or essentially the changing environmental contexts in which the behavior may occur).

This ability to change our **set**, or prepare a new response based on the changing context, is impaired in many individuals with ASD. This difficulty with Cognitive Flexibility may be expressed in a number of the characteristic thinking patterns that we may see in individuals with ASD, including: literal thinking, rule-bound thinking, rigid thinking, perfectionistic thinking and perseverative thinking. We will discuss these thinking patterns in greater detail in the sixth podcast in this series.

Difficulties with cognitive flexibility may be expressed in a number of different ways, including: difficulty making transitions, difficulty starting a new task before a previous task is complete, difficulty shifting gears, perseverating, and being driving by routine and consistency. We may see this in adolescents and adults with ASD expressed as non-participation in activities, noncompliance, becoming stuck in an emotional response, perseverating (or obsessing) on particular thoughts, ideas, tasks, etc., ruminating on unhealthy or unhelpful thoughts, inflexible need to adhere to specific routines or rituals (such as a particular way to go to work, sitting in a particular spot in home, or eating particular foods on particular days of the week), and inability to adapt to changes or life events.

Difficulties with Cognitive Flexibility can have a number of effects on sociosexual development and expression. Inflexibility may lead to resistance to the changing demands and expectations that come with adolescence and adulthood, including relationships and sexuality. For some individuals with ASD, this may be seen as a desire to maintain, or return to, the “simpler life of childhood” (Attwood, Henault, & Dubin, *The Autism Spectrum, Sexuality and the Law: What every parent and professional needs to know*, 2014). Inflexibility may also lead to difficulties responding to a partner’s changing needs, thoughts and feelings as a part of an intimate relationship. Alternatively, it may lead to, what I like to refer to as, over-

compliance, where the individual with ASD applies lessons learned during earlier stages of development, when they may have experienced a compliance program as a part of teaching, to be overly compliant to a partner. The individual may perseverate on a particular sexual thought to the point that it can interfere with more healthy expressions of sexuality. Alternatively, they may ruminate on the potential risks or punishments that may have been taught to them at a younger age (for example, it is wrong to touch oneself to masturbate) which can lead to some unhealthy sociosexual expressions. In each of these examples, it is the difficulty in changing from a prior set (for example, childhood, a partner's changing demands, a particular sexual thought, or the fear of punishment) that creates difficulty for them in the present situations.

The second of the Executive Control Functions that we will discuss is Inhibitory Control (or response inhibition). "Response inhibition refers to one's ability to refrain from doing things that do not contribute to one's intentions or goals" (Yeager & Yeager, 2013). Yeager and Yeager (2013) describe three component, or interrelated, processes that are involved in response inhibition:

- *The ability to refrain from executing one's natural (prepotent) response to a situation*
- *The ability to perform "interference control" once a course of action has been initiated, and thus protect the response from disruption by competing events and responses*
- *The ability to interrupt a response once it has been initiated*

Response inhibition, at its core, is the ability to stop ourselves from performing one response so that we are able to perform another, more contextually relevant, response. You can see from this definition that Response Inhibition and Cognitive Flexibility are closely related. Without response inhibition, "we would be at the mercy of impulses, old habits of thought or action (conditioned responses), and/or stimuli in the environment that pull us this way or that." (Diamond, 2013) Response inhibition makes it possible for us to engage our Cognitive Flexibility to change from one response to another.

Difficulties with response inhibition may be expressed as: difficulty waiting, interrupting others, making careless mistakes, displaying hyperactivity, poor self-reflection, misinterpreting other's intentions, restlessness, road rage, gambling, risk-taking behaviors, and money/financial issues.

Difficulties with Response Inhibition can have a number of effects on sociosexual development and expression. Difficulties with Response Inhibition may lead to sexual risk-taking behaviors (such as unprotected sex and/or sex with multiple partners), addiction to pornography, angry (and uncontrolled) interactions with significant other, use of drugs or alcohol during sex, and placing oneself in unsafe situations. Each of these have in common the impulsive, or lack of control, of some particular response (such as sex, pornography, anger, use of drugs, or desire for companionship) that places the individual at risk. The ability to inhibit each of these responses in the moment, may allow the individual to make different choices, consider alternatives to current actions, and/or take into account contextual information that may alter one's responses.

The third, and final, Executive Control Function that we will discuss today will be Working Memory. "Working memory is the term used to refer to a system responsible for temporarily storing and manipulating information. It functions as a mental workspace that can be flexibly used to support everyday cognitive activities that require both processing and storage such as, mental arithmetic" (Alloway, 2006). Working Memory then describes an active process where things are brought into and out of a mental workspace that we are able to guide and adapt our behavior based both on previous experiences and on contextual factors in our environment. This process also works closely with Response Inhibition and Cognitive Flexibility to help us respond adaptively to others.

Working Memory deficits are much plainer in academic settings, where their impact is more readily observable. Difficulties like mental arithmetic and poor reading comprehension are very evident during school. But, Working Memory difficulties can have profound effects on life skills. They may lead to becoming confused when there is too much information; difficulty remembering the rules or demands, or direction in a particular situation (or context); forgetful of, or missing appointments and deadlines; requiring repeated explanations to complete tasks; and difficulty remembering to complete basic hygiene and home living routines.

Working Memory difficulties may also impact on sociosexual development and expression. The individual may have difficulty remembering sexual education information away from the time and context in which it was taught. The individual may also have difficulty remembering privacy rules at a time when they

have a particular sexual impulse (such as masturbation). They may be forgetful in relationships; not remembering things that are important to their partners. In all of these examples, it is not only the remembering, but the active process of remembering, taking into context, and bringing up prior information, that defines the Working Memory deficit.

One other concept bears discussion as we complete this section of the podcast on Executive Functions; Hot vs. Cold Executive Functions. This relatively recently identified distinction is fairly important when considering the effects of difficulties with Executive Functions on the sociosexual development of individuals with ASD. Hot and cold executive functions can be defined in the following ways (Zelazo & Carlson, 2012) (Peterson & Welsh, 2014) (Woltering, Lishak, Hodgson, Granic, & Zelazo, 2015):

- “Cold” executive functions are the goal-directed, future-oriented skills that are manifested during relatively decontextualized, nonemotional conditions
- “Hot” executive functions are the goal-directed, future-oriented skills that are elicited in contexts that engender emotion, motivation, and tension between immediate gratification and long-term rewards

Individuals with ASD may be able to complete “cold” executive function tasks quite well. It may only be when the heat is turned up on the executive function (such as when emotion, motivation, context, or delay of gratification) that the individual may experience difficulties with Cognitive Flexibility, Response Inhibition, and Working Memory. From the examples I have given, it should be apparent that the situations that require each of these executive functions in the context of sociosexual development and expression tend to involve emotion, motivation, and often, delay of gratification. This may be the reason that many individuals with ASD struggle with expression of previously learned information during different and varied contexts.

Today’s podcast has focused on the four Neuropsychological Frameworks for understanding the behavior of individuals with ASD. Each of these frameworks may help both to understand why a particular behavior may have occurred, as well as provide some guidance for areas that can be worked on to assist sociosexual development and expression. The next two podcasts will focus on Cognitive Features (including Attention, Memory, and Information Processing) and Thinking Patterns (including black-and-white thinking, literal thinking, and

rule-bound thinking) that may affect sociosexual development in individuals with ASD.

A transcript of this podcast, along with citations and a related bibliography, can be found on the flexiblemindtherapy.com website.

Thank you for joining me today.

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