Our Time: Time Perception and Autism

Part of the panel: Analytic Hour, Time Experiences, and Their Neurobiological Vicissitudes (with E. Heitner, N. Riccio, I. Rozentsvit)

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This paper was presented at the International Forum for Psychoanalytic Education’s (IFPE) 23rd Annual Interdisciplinary Conference, part of the panel: Analytic Hour, Time Experiences, and Their Biological Vicissitudes. The aim is to demonstrate the neurobiological vicissitudes of time perception in general, and in individuals with Autistic Spectrum Disorder (ASD) in particular. Using examples of children with ASD is helpful because ASD is a neurodevelopmental disorder, and this particular population of children represents a “sample” of non-normative neurological development. In addition, the prevalence of ASD has increased significantly in recent years. According to the Center for Disease Control and Prevention (CDC) (2012), about 1 in 88 children are diagnosed with ASD across racial, ethnic and socioeconomic groups. A nearly fourfold increase in parent-reported ASD between 1997-1999 and 2006-2008 has been documented with a 78% increase in occurrence in 2002-2008 and a 1.16% to 2% increase in parent reported ASD diagnosis in the United States for children (ages 6-17) in 2007-2012 (Blumberg, Bramlet, Kogan, Schieve, Jones & Lu, 2013; Center for Disease Control and Prevention, 2012; Boyle, Boulet, Schieve, Cohen, Blumberg, Yeargin-Allsop, Visser & Kogan, 2011).

Individuals experiencing autism have difficulty with time perception as well as pairing sights and sounds that occur concurrently (Mascarelli, 2010). These deficits characterize some of the cognitive impairments and atypical information processes recognized in autistic children, such as those concerned with working memory,
multitasking and planning (Gil, Chambres, Hyvert, Fanget & Droit-Volet, 2012; Mascarelli, 2010). In addition, the “over-stimulation” often cited by children when they describe their experience in a classroom or social interaction/situation might be attributed to the lack of organization and integration that occurs with timing deficits.

Research thoroughly investigating these time deficits in children diagnosed with ASD is lacking, and evidence is often contradictory, with some studies finding no evidence for time impairments, while others finding significant shortfalls (Gil et al., 2012; Martin, Poirier & Bowler, 2010; Mascarelli, 2010; Szelag, Kowalska, Galkowski & Pöppel, 2004; Wallace & Happé, 2008). One explanation is that autistic children have a wider window of time in which they bind sights and sounds, creating the awkward social experience of difficulty simultaneously pairing someone’s words with the movements of their lips.

Mascarelli (2010) suggests that “training exercises” for sensory processing issues commonly utilized with children to “bind” this window are similar to CBT techniques, such as the learning of specific skills and strategies.

Understanding underlying neurological mechanisms at work in the brain of an autistic child may shed light for practitioners, educators and parents and children alike about the causes or reasons for the difficulties that impact them. To illustrate, using magnetoencephalography (MEG), an imaging technique that is especially sensitive to split second changes in brain activity, Roberts, in 2009, found that children with ASD have a slight delay in processing sounds compared to neuro-typical individuals. This might be caused by an inadequate development of white matter in the brain (which reflects on insufficient insulation of the nerve fibers, which normally helps to transmit
electrical signals through the brain from one area to another, as well as making connections/associations). This can lead to problems encoding and processing information (Mascarelli, 2010). Another study, by Booth, Wallace, and Happé (2011), showed abnormalities of development of the corpus callosum, the most myelinated/insulated brain structure, in individuals with diagnosis of ASD. As for repetitive behaviors exhibited by children diagnosed with ASD, they may be explained as being compensatory for inability to predict incoming events.

Gil et al. (2012) looked into whether there were timing deficits in autistic children versus those that do not have this diagnosis. This study showed no impairment in ASD in the perception of time, and that children with ASD have “the raw material” (meaning the brain structure is the same) to be able to perceive time. In the meantime, clinicians report that these children do process information atypically and day-to-day clinical observations of this group of children suggested deficits in some temporal judgments resulting in difficulty coping with time and sequence (Gil et al., 2012; Lavoie, 2005). Mel Levine, co-founder of All Kinds of Minds Institute, describes these children as being in some kind of a “time warp,” having trouble conceptualizing time concepts (Lavoie, 2005). They have difficulty predicting how long an activity or task might take and sequencing, which, as we could all imagine, interferes with planning and organization in everyday life tasks. It can result in procrastination and losing track of time, not remembering dates, events or instructions. This may be why IQ and the follow-through of tasks might be inconsistent with one another. More specifically, children that present with an elevated capacity to hold information and carry out tasks might do poorly when asked to perform when instructions are not given immediately prior to the task they are asked to plan.
My own work with children diagnosed with ASD shows that they are capable of completing tasks with support, but because of their struggle with time transitions and perceiving time/space, they cannot make appointments, meet deadlines or sustain organization. In addition, these children often have trouble generalizing information learned since it seems to be processed more locally or analytically, rather than holistically or globally (Gil et al., 2012).

To illustrate, if a situation occurred that has had a negative outcome or impact, they might be able to process (with a great deal of support) what happened and when it happened (before or after a certain time, right as someone said something) but when they are asked to generalize or translate this information to be used for future reference (or put the ‘take-away’ in their tool box), they are not able to do it successfully. This inability results in repeated negative outcomes and consequently often leads to misunderstanding and displaced blame on behalf of the caregiver or professional (perceiving that the child is doing it purposefully).

The difficulty with time sequencing paired with processing deficits (inability to efficiently understand and function within a complex social or stimulating situation) can pose a challenge when they are asked to exercise a higher order of thinking such as relate the current situation to a similar one that has occurred in the past, remembering the past situation and then be able to generalize a take-away, or predict what might happen in the future based on information of the past.

With children and adolescents experiencing ASD “in mind,” an interesting connection and similarity is found in various disciplines and ways of knowing, in which the experience of life and the world, including time perception, is analyzed and discussed.
Some parallels can be made between the therapeutic intervention with autistic children and the psychoanalytic realm.

In 1917’s *Mourning and Melancholia*, Freud discusses the ways in which we cope with loss. Green (2013) describes pathological mourning (melancholia) as being a deep, echoing experience of grief, which places an individual in a dark place, frozen in time—time doesn’t heal and nothing matters.

“The shadow of the object (a parent) falls upon the ego (a child)” (Freud, 1917). Freud is talking here about the intra-psychic relationship with the parent/ caregiver as a representative of the outside world, and how deeply this relationship colors the child's life and perception of self.

Using different language and different concepts (which were called later the "object relations" concepts), Melanie Klein suggested that people live in different states of mind - paranoid/schizoid position (mode) or depressive position. In depressive position, everything is processed and nothing is frozen (so personal development ensues); in paranoid-schizoid position, one's development is frozen/ sealed/ arrested by anxieties, insecurities and paranoia.

In his 1991 paper ‘Analysing the Matrix of Transference’, Thomas Ogden, an object relations theorist and practitioner, talks about another state - “the autistic-contiguous position”, which is sensory-dominated. He suggests that in this “position” (mode of being), an individual experiences anxiety characterized by “unspeakable terror of the dissolution of boundedness,” which results in feelings of leaking, falling or dissolving into endless, shapeless space (Ogden, 1989).
As I read this, I thought of the autistic children with whom I have worked, whose mode of perception, thinking, feeling, and being, can be considered primitive (but not pathological) (Grandin, 1995). They experience feelings of reverberating sensory overstimulation and almost need-like desire and duty to "stim" (or otherwise known as self-stimulation). It is my assertion that the way in which self-stimulation (as related to children diagnosed with ASD) is used in the literature is a misnomer because it is rather a compulsive behavior resulted from feeling overwhelmed with hypersensitivity to internal and external stimuli. This feeling of over-stimulation comes in the form of overly rocking, flapping, swaying, spinning, or exhibiting repetitive verbal or physical behaviors. "Stimming" is used to help manage anxieties, fear, anger, and other negative emotions, including an overwhelming amount of sensory input that occurs often (excess of noise, light, heat, cold). While helpful to them, stimming also tends to happen at such a consistent and constant rate that it stands in the way of these children’s interactions with others and relations with things going on outside of themselves. It appears that autistic children have their own unique rhythm and connection to time and sequence, but it is all internal and seemingly asynchronous with the outside world.

Autistic children often present as oversensitive (and can’t withstand) to touch and sound. These children tend to seek out deep-pressure sensations, producing a calming effect that come from tools such as sand-weighted shoulder rests, heavy blankets when sleeping, weighted vests and other such tools. Children describe that without these tools, they feel they can “lift off” into the air, feeling jumpy and “all over the place,” like their “muscles won’t calm down.” (Does this sound like something Ogden (1991) was talking about? :}
The *autistic-contiguous* position is associated with the most primitive mode of attributing meaning to experience. It is a psychological organization in which the experience of self is based upon the ordering of sensory experience, particularly sensation at the skin surface...[referencing work of Bick]. In an autistic-contiguous mode, the predominant anxiety is that of the collapse of the sense of sensory-boundedness upon which the rudiments of the experience of a cohesive self are based. This loss of boundedness is experienced as the terror of falling or leaking into endless, shapeless space...[referencing work of Rosenfel]. The individual often attempts to defend himself against this type of anxiety by means of 'second skin formation'...[referencing work of Bick]. Examples of defensive efforts of this sort include tenacious eye contact, continuous and unrelenting talk, compulsive wrapping of oneself in many layers of clothing, etc.

Temple Grandin’s invention, the “squeeze machine”, a deep touch pressure device, helped her overcome her own problems of oversensitivity to touch and which alleviated her self-described “nervousness” (Grandin, 1992).

In the foreword to Temple Grandin’s (1995) book, “Thinking in Pictures,” Oliver Sacks suggests an illustration of how many people mistakenly view an individual with autism:
“The word “autism” still conveys a fixed and dreadful meaning to most people—they visualize a child mute, rocking screaming, inaccessible, cut off from human contact. And we almost always speak of autistic children, never of autistic adults, as if such children never grow up, or were somehow mysteriously spirited off the planet, out of society.”

This idea of children with ASD “never growing up” jolts a thought about the experience of what Freud calls the melancholic state, Klein the paranoid-schizoid position, and Ogden the autistic-contiguous position. In Freud's and Klein's case, there is a conceptualization of one's development frozen in time and sealed off; in Ogden's description of autistic-contiguous position—a person is holding on to what is within his/her skin, literally, because he/she is scared of the outside and being dissolved into the endless and shapeless space. In all situations, the person is living within and arrested by their own sense of reality, coping or soothing the anxieties in a repetitive manner that is cyclical and un-evolving.

A question arises: Utilizing this information, how can we put it into practice therapeutically? Among several interventions used today, music therapy is a unique tool in that it is timing-based and therefore can aid in the process of children experiencing ASD in the timing of reciprocal interactions. Music pairs the sound and the rhythm, while also motivating the child to interact and join. I was first introduced to joining by the Son-Rise Program from the Autism Treatment Center of America several years ago. Joining is an intervention that involves actually joining children in their repetitive behaviors, rather than stopping them, with the understanding that children exhibit these behaviors for
reasons important to them, and the goal to connect with the child on a deeper level through mutual respect and interest (Autism Treatment Center of America, 2013).

Considering the difficulty children with ASD have in coping with temporal perceptions and processing, it might be understood that they might perceive and process information differently. This also impacts the response to a stimulus, whether it is someone talking to them, a noise they hear or even music playing. Often, music therapy can be used to motivate children with ASD to interact and join, or—come together with others, separating from their individual focus to have a mutually-social experience.

Keeping in mind that temporal perception is closely related to rhythmic movement, it is suggested to tailor musical input to the individual responses of children with ASD (Schaefer, 1999). For example, using stimuli in short durations so that they can be more easily identifiable or distinct and less confused with other sounds.

In addition, the therapist should try to move and speak in synchrony with the child – joining their pace and process; tuning in to one another. “Timing of stimuli is just as important as the quality. This helps the child to learn how to control and therefore predict the timing of sounds and will improve the child’s ability to integrate sequence of sounds” (as cited in Schaefer, 1999). The therapist and the child share the social control over the interactive sequence—the child notices her effect on others and vice versa.

To draw from my work, children who are anxious and prefer routine, for example, experience rigidity in thoughts, needing to know what they can expect and have a general fear of the unknown. What proves effective for children who are particularly anxious is that I might allow the child to anticipate what might happen so that a decision can be made about how to handle a given situation. (I.e., “In two minutes, we will….in five
minutes…”) The therapist, therefore, matches the level of intrusion to the child’s level of tolerance (Schaefer, 1999). This is in the same way the psychoanalyst would measure the tolerance for interpretation and join the patient in her silence or mirror her suffering. (I.e., “First you…then”, and if the child is receptive… “then I…”). Thus, after some time working with the child, she will understand that if, for instance, you point to the clock, it means the session’s time is almost up and coming to a close. This way, we provide a kind of Winnicottian holding environment where it is all right to be imperfect and go back in time to a previous level. It is all right to let yourself experience what is going on inside because it is safe. It is different from the frozen-time of the melancholic or one in the paranoid schizoid position - because in this holding environment, everything is possible and nothing is frozen. Everything is fluid. So, as Kavaler-Adler (2013), the object relations theorist, might say, we can help the child experience the time as an internal object which is holding rather than persecutory.

As the running joke goes with the special, quirky, lovable and inspiring children with whom I have the distinct pleasure and privilege to work with: …Normal is a setting on a washing machine...that is all.

Lived experience that appears to stray from what might be considered the “norm” is not a pathology which needs to be fixed or averted. Yet, it is a state of mind that needs to be explored more from the inside out; and with that unique understanding, be treated differently than how we are used to treating states we consider to be dysfunctional. Instead of pushing—joining. Instead of pathologizing—understanding.
References

Autism Treatment Center of America (2013). Autism treatment and the son-rise program.  


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