Too Tired! Energy and Wellness in 2E Children

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Marlo Payne Thurman (formerly Marlo Rice) has developed a theory based on her 20 years of working with twice-exceptional children as a psychologist and educator. In a two-part article she discusses the unique relationships among intelligence, sensory stimulation, and energy; and she looks at the impact of these factors on learning, social and emotional function, and the mental and physical health of our gifted and twice-exceptional (2e) populations.

PART 1

Introduction

When I began my work with gifted children, the field of education had not yet adopted the term "twice-exceptional." Characteristics associated with high intelligence were barely discussed in courses, and not a single text-book covered giftedness. That a child could be both gifted and learning disabled was something we did not consider. Little did I know then that the next 20 years of my life would be dedicated to understanding gifted, asynchronous children.

Looking back on those years, we certainly lacked a good understanding of giftedness; but what I think we lacked even more was a basic understanding of how individuals process sensory information, based on their level of intelligence. Even today, we are only beginning to understand sensory issues and their impact on social and emotional functioning and behavior.

What Sets the Gifted Apart

In 1979, Jean Ayres described intelligence as "The ability to interact with the physical environment with thoughts and ideas." According to Dr. Ayres, "Intelligence seems to correspond to the number of neurons in the brain and the number of connections between those neurons." She also said that children with sensory processing difficulties have "average or above average intelligence" but have developed in an "uneven way." (Ayres, 1979) Dr. Ayres was alluding to the notion that children of high intelligence have more neurons and, therefore, the capacity to process more information, an idea that, in my opinion, is still largely undervalued.

We know that asynchronous (uneven) development is common in gifted and twice-exceptional populations. While we can speculate as to which came first, high intelligence, uneven development, or sensory processing difficulties, we can certainly agree upon the relationship. Yet, we're only beginning to realize how asynchronous development affects our gifted and 2e children.

It seems that a considerable amount of energy goes into processing sensory information, energy that is not always available to gifted individuals with disability. It is my premise that if we lack sufficient energy to simultaneously compensate for skill deficits and filter out extraneous sensory information, our bodies access "flight or fight" mechanisms, which tap into our emergency energy reserves. The result is often a positive effect coupled with a negative effect. The positive effect is continued cognitive processing; the negative effect may be an increase in symptoms and/or behaviors that look like mental health disorders or that exacerbate developmental disabilities. To understand this logic, we must first discuss learning.

Learning

For each of us, new learning occurs best when we have the right amount of information coming in – not too much, not too little. If new concepts or experiences come at us too quickly, we feel anxious and over-stimulated. We may then shut down, tune out, or avoid; and we can feel rigid, irritable, and fatigued. If we lack information, on the other hand, we might feel bored, restless, or annoyed. We then might fidget,

seek novel stimulation, or daydream.

We regulate our internal arousal levels by engaging in our world or withdrawing from it. We can respond physically, emotionally, or cognitively. When we block certain stimuli out, we can appear detached or hyper-focused. For example, our children often tune out everything but the screen and sound when watching television. Physical withdrawal takes us out of the setting or causes us to create a large physical space between ourselves and an overwhelming stimulus.

School, however, teaches us to remain in the classroom and on task. A standardized curriculum sets content, pacing standards, and developmental expectations regarding productivity. Typical schools expect all children to learn and perform within a norm, unlike the real world, where individuals are rewarded for offering up their best abilities, despite age or school training.

Ideally, children have arousal levels that keep them calm and alert in the classroom and provide just enough information for new learning to take place and to stay on task. Those children who engage or perform at a different level, either above or below the average, however, are subject to issues with arousal because the presentation of material is not well matched to the levels of input and output that are comfortable for them.

For the average gifted student (one with no areas of delay or asynchrony) who is under-challenged, we see a lack of stimulation, boredom, and inattention. It's hard to attend when the material being covered is well below one's ability. When I talk to individuals who don't understand that gifted, inattentive children are often bored, I like to suggest that these adults spend a few weeks as students in a fourth- or fifth-grade classroom. It wouldn't take long for any normal adult to look pretty fidgety, restless, and inattentive once the novelty of being in the fifth grade again wore off. In fact, as the weeks progressed, I would expect to see irritability, attention problems, and possibly even aggression as attempts to modify the adult's fidgety or daydreaming behavior increased. When we are bored, we do what we need to do to stay awake, alert, and engaged. Our minds require that. When our attempts at engagement are met with disapproval or failure, the outcome is likely a negative one.

The Energy Problem

Twice-exceptional children face an even more complicated dilemma. Not only are they often bored and under-stimulated, but, given their intelligence, they are also over-aroused and anxious when faced with tasks of production that should be easy for them. A child may start out with the equivalent of a master's thesis on turtles, for example; but by the time the child struggles to organize her complex ideas and get those thoughts onto paper, what comes out may sound like "I have a little turtle that lives in a box in my room." To fully understand the frustration and difficulty of this situation, we must consider energy.

About 10 years ago, I sustained a mild traumatic brain injury. After the accident, I was still as "smart" as I had always been; but I couldn't do things with the same consistency and efficiency as before. I could, however, do pretty much everything as long as I found a way to stay rested. My cognitive therapist explained to me the role of energy in cognitive processing, and a light came on for me in regard to both my situation and that of the twice-exceptional clients with whom I was working.

The therapist explained that, as humans, we consume energy to perform cognitive tasks, to engage in physical activity, and to experience social interactions and emotions. While these different tasks are not mutually exclusive, we do have a finite allotment of energy for each. Simply put, we can be cognitively, physically, or emotionally too tired to perform one type of task, although we could still successfully engage in other types. For example, our children often tell us they are too tired from school to complete their math homework, but we see them able to run around outside or play with friends. Given the rules of energy, my therapist explained, children are not "conning" us. They are accurately reporting on the energy state that is depleted, although other states still have fuel.

According to the rules of energy:

1. We cannot borrow from one energy state to fuel another.
2. Each energy state, once consumed, can be replenished only by sleep, food, and time.

3. Every day we get a fresh allotment of energy in each state.
4. Every individual has a differing amount of energy in each state; but when consumed, the response is the same for everyone.
5. To sleep well, all three of the energy states should be equally depleted.

The therapist also explained that we can certainly fall asleep without adequate cognitive processing, physical activity, or meaningful social time in our lives; but we only feel rested, refreshed, and happy when these three states are in balance. For 2e children, who consume tremendous amounts of cognitive energy in compensation for their disabilities, finding a balance to feel both calm and alert, while maintaining an even flow of energy consumption, is challenging.

Making things even more difficult is one additional variable, the body's "fight or flight" defense mechanism. This reserve energy source, fueled through the adrenal system, allows us to press on, if necessary, when we are cognitively, physically, or emotionally tired. However, dipping into our adrenaline-fueled reserves is costly, as I learned following my injury. Despite my best attempts at compensating for my head trauma, my consistent, day-to-day functioning failed. I simply could not continue to rely on my emergency energy reserves, and over time developed adrenal fatigue.

Cognitive energy levels are not equal for all individuals. Gifted athletes can press on physically because they have more stamina, just as cognitively gifted individuals can perform complex thinking tasks longer than others can because they have a larger-than-average "slice" of cognitive energy. However, gifted individuals also expend more cognitive energy than others because they think more thoughts, take in more information, and do so over a longer period of time. In other words, typical gifted children can keep going long after their peers have lost interest. The asynchronous, twice-exceptional learner, on the other hand, cannot. Because these individuals must consume larger amounts of cognitive energy to compensate for their learning disabilities, a shortage results in their cognitive energy level. It would be nice if their giftedness simply diminished with their fatigue; but what we find is that the deep abstract reasoning portions of the mind still crave input, long after the more peripheral aspects of sequencing, organizing, multitasking, and demonstrating knowledge through written output are depleted. As a result, the 2e child is both bored and over-aroused.

The Role of the Sensory System

There is more to this theory than learning, engaging or withdrawing from stimulation, and the energy states necessary for consistent performance. The sensory system also plays a part. One of the biggest consumers of our cognitive energy is the taking in, processing, filtering, and storing of input from the outside world through our senses. We learn in school about the five senses: seeing, hearing, touching, tasting, and smelling; but we also process information about motion, pressure, temperature, and the inner states of our body's responses to breathing, digestion, circulation, and so forth.

At birth, assuming we have an adequate caretaker, we are carefully swaddled; fed when hungry; and protected from bright lights, loud noises, and uncomfortable temperature variations. For most of us, this results in a calm and alert body system that can, over time, successfully take in, filter, and process increasing amounts of new sensory information. Gifted children, however, remain out-of-sync in their sensory processing. Their high cognitive potentials allow them to take in larger-than-normal amounts of sensory information; but their sensory "filters," even if maturing at an advanced rate, take a while to catch up. Nevertheless, gifted children have more cognitive energy, enabling them to accurately filter, despite having more information to filter. In other words, having extra cognitive energy works to their advantage, unless that energy is needed elsewhere.

For the twice-exceptional child, on the other hand, an entirely different phenomenon seems to occur. In my observation, 2e children develop, from a very young age, an ability to tap into their energy reserves as a means of staying alert and focused. Given the energy they need to filter their also-heightened amounts of sensory information, and the equally large amount of energy needed to compensate for their asynchronous skills, 2e children come up short in the cognitive energy department. However, it has been my experience that these children quickly learn to tap into their emergency energy reserves to make up for the shortfall.

While the emergency energy supply is generally allocated for short-term use, it can be accessed on a day-to-day basis as well. However, because this reserve system is fueled through what we'll call an adrenal ("fight or flight") response, the borrowed energy does not give the child the same outcome as drawing on cognitive energy does. Relying on so-called adrenal energy has a severe impact on the overall body system.

To better understand the adrenal response, consider this scenario. Imagine yourself home alone, at night. Overly tired, you struggle to fall asleep, only to be startled awake by some foreign sound. Your mind automatically prepares your body for a reaction. Nothing more happens, but now you notice the faucet dripping, the neighbor's dog whining, the uncomfortable position of your blanket and pillow. Your startled awakening has led to a heightened state of discomfort and over-arousal. Now, as you again try to fall asleep, you find that your thoughts are racing. Things that seemed trivial yesterday now require your immediate attention – your aunt's forgotten birthday, the transmission service on your car – all have become problems that you feel you must deal with instantly. So despite being extremely tired, you can't sleep. The next morning, you might find that you feel a bit sick; but if all goes well, you rest the following night and the adrenal state has passed.

Now, imagine being a 2e child who must continue to dip into his energy reserves each and every day to allow him the necessary energy for functioning. This method of "getting by" is, in my opinion, at the very heart of the mental health issues and exacerbated behavioral and social/ emotional symptoms often seen in our gifted and learning disabled population.

In Part 2 of this article, we'll look at the obstacles to accurately diagnosing 2e children and at ways to better meet their physical, emotional, and intellectual needs.

Reference

Ayres, A. J. (1979). *Sensory Integration and the Child*. Los Angeles: Western Psychological Services.

PART 2

Marlo Payne Thurman (formerly Marlo Rice) has developed a theory based on her 20 years of working with twice-exceptional children as a psychologist and educator. In Part 1 of this article she discussed the unique relationships among intelligence, sensory stimulation, and energy. In Part 2, she looks at the impact of these factors on learning, social and emotional function, and the mental and physical health of our gifted and twice-exceptional populations.

Review

Let's start by reviewing the points made thus far in Part 1 of this article.

1. All individuals need the right amount of new information coming in to feel calm and alert.
2. Too much information creates feelings of anxiety and results in avoidance.
3. Too little information causes us to feel bored. We react to boredom by seeking more stimulation.
4. Twice-exceptional individuals feel both bored and over-stimulated.
5. Cognitive energy is greater in the gifted, but it gets used up to filter additional sensory information and sustain more thoughts.
6. Sensory processing is learned by time spent in the body and, therefore, cannot be inherently "gifted."
7. Twice-exceptional individuals must dip into their energy reserves to compensate for the cognitive energy shortage created when their sensory filtering, gifted thought processing, and learning disability compensation consumes too much energy.
8. Reserve energy is fueled through the complex bio-physical responses usually saved for short-term emergencies, the "fight or flight" mechanism.
9. The use of reserve energy on a regular basis causes a number of complex problems that manifest in

physical, mental, socio-emotional, and behavioral dysfunction.

10. Heightened sensory responses create heightened arousal levels, altering sensory sensitivity – a "chicken or egg" phenomenon in twice-exceptional individuals.

A common thread running through these points is the way in which gifted and 2e individuals process sensory information. Not surprisingly, in my work with over 5,000 twice-exceptional children, I have found that most have sensory modulation issues.

Understanding Difficulties with Sensory Modulation

Sensory modulation issues are best described as the inability to filter sensory information and process only what's important. A good way to understand sensory modulation is to first understand the continuums of arousal and the "adrenal" response. Consider the following situation.

While hiking in the mountains, you become lost. You see a trail, but with the sun going down you're hesitant to take it, not knowing for sure where it will lead. Sitting for a moment to gather your thoughts, you hear the distinct cry of a mountain lion. Immediately, your fight-or-flight response kicks in. You have renewed physical energy for your hike, your pack feels lighter, and it even seems as though your thoughts are clearer.

Now, let's say that you can't find your way out of the forest. The mountain lion seems to be getting closer with every step you take. As it grows dark, you're so on edge that the snap of every twig along the way startles you. Your breathing, heart rate, skin response, body temperature, blood flow, vision, and hearing are all heightened. You pick up a stick to defend yourself, if necessary, and hike on. Assume that suddenly a friendly but unannounced hiker crosses your path. Depending on your state of arousal, you might actually hit the person accidentally with the stick, even though you're much more likely to find a person on the trail than a mountain lion.

Carrying this further, what if you never encountered anyone or anything at all, but you remained so afraid of being attacked that you couldn't sleep? After several days, your heightened arousal could cause you to actually lose track of time, be unable to read simple directional cues like sunrise and sunset, or even stop feeling hunger or pain. Countless instances are told where seasoned hikers with fairly minor injuries die just from making stupid mistakes.

The point of this example is that as sensory arousal increases, sensory sensitivity is heightened and the adrenal response kicks in. Furthermore, there seems to be some critical point at which logical thought decreases. If the physical aspects of the adrenal response are not dispelled through a fight-or-flight outlet, as in our example, then our stored fight-or-flight reaction seeks another outlet. We need something to do with all that adrenal energy, especially once our reasoning skills have reached a cognitive processing "wall." Our bodies have prepared us to run or fight, so it actually feels good when we get to do one or the other. Without this release of pent-up energy, we might get angry and take our frustrations out on an object or even on another living being.

With 2e children, aggressive behavioral outbursts, or dark, internalizing behaviors such as head banging, cutting, etc., allow unused physical energy to flow. But over time, the adrenalin state that arises in filling the energy shortage and the subsequent need for a release of the physical part of the adrenal state can become a regular part of the way we operate. More specifically, because a child's body is readily prepared to "fight a mountain lion," the unused physical portion of the energy acquired from the adrenal response state can be released on a demanding mother or a peer, or it can take the form of anger turned inward.

Very often when a child has a "meltdown," we are actually dealing with a situation in which no cognitive reasoning energy is intact. The child is unreasonable, illogical, and unable to see even an obvious solution to the problem. Even more, children in this situation might tell us that everyone hates them, that they will never have friends, and that nothing will ever change. No logic will help them see that things will feel different tomorrow. The children, however, still have plenty of emotional and physical energy to spend, leaving us to deal with a rather ridiculous emotional drama or physical outburst.

More often than not, the child who melts down has been in a heightened adrenal state for several days

prior, although we may have missed the clues. Moms sometimes tell me that they can see rages coming on in their children, who look "glassy eyed." Interestingly, changes in pupil dilation are a physical symptom of a heightened state of arousal. What we describe as the look of a "deer in the headlights," is actually a rather accurate description of the child's pupils not properly reacting to the surrounding light source. Sugar or simple carbohydrate cravings; sensory sensitivity; inability to sleep; mood swings; and even high, shallow breathing patterns are all adrenal-response indicators that we can observe.

The Effects of a Struggle with Sensory Modulation

We know that individuals who struggle with sensory modulation can't seem to find and maintain appropriate levels of arousal for their day-to-day tasks. As semi-functional adults, these people have learned to work in short bursts or push themselves up against time deadlines to create the necessary levels of arousal for task completion.

Twice-exceptional children with arousal problems have not yet found ways to cope, and inflexible school systems sometimes eliminate strategies that could work. These kids often report feeling as if they are constantly falling apart. One young man told me, "There are either ping pong balls in my head that make me crazy, or there is white noise, like on the old TV screens, that makes me too sleepy to think." When children struggle with arousal, their academic skills falter, their friendships dissolve, and their self-esteem plummets. For 2e individuals, sensory modulation is an inherent problem, given the asynchrony between their cognitive demand for new stimulation and their drain of cognitive energy due to sensory filtering and compensation. Add in the adrenal response and we have a recipe for disaster.

Often, when looking back, we aren't quite sure what happened when everything went wrong; but it's important to remember where it all started. The arousal state was activated, the sensory sensitivities increased, and the need for additional cognitive energy to filter the newly heightened state of sensory processing went up. This series of events shortened the cognitive fuel available for other situations.

Obstacles to Accurate Diagnosis

In the mental health world, we are forced, for lack of a better system, to rely mostly on the clinical histories and behavioral observations that the patient presents with. For the majority of our diagnoses, we must rely on professionals who, despite clear expertise in other areas, have very little experience with gifted children. Furthermore, most psychiatrists and psychologists have little, if any, training in sensory processing. With the complexity of our twice-exceptional children, the task of accurate diagnosis is challenging, if not impossible, even for the skilled practitioner. Twice-exceptional children present us with questions that are difficult to answer: What is a mental health disorder for a 2e child? Do mental health disorders look the same or different for the gifted and twice-exceptional populations? Are 2e children more susceptible to mental health disorders, or are they just more likely to be misdiagnosed?

Children who are under-aroused appear to be off task. They fidget, look restless, become impulsive, and can't complete tasks. Are these not the very same characteristics for which we diagnose AD/HD? Clearly some sort of imbalance is created in the 2e child's over-use of reserve energy. When a child is depressed, couldn't that possibly be the body's way of saying "Stop using your adrenal reserves"?

Over-arousal equates with anxiety. Is anxiety in the twice-exceptional population the same as it is for other populations? Over-arousal causes withdrawal, rigidity, conformity, and adherence to predictable routines (and I can think of several diagnoses that fit this bill). But wouldn't that be the logical course for anyone living in a fight-or-flight world?

Mood disorders raise another set of questions. Don't they seem to be, at least in some part, the vacillation between states of over- and under-arousal? Even in the obvious case of autism, aren't extreme states of inaccurate and heightened sensory processing difficulty at the core of the diagnosis? Aren't our social skills affected when we are unable to register the world around us accurately?

Missing Our 2e Kids

In my experience, an uncomfortably large percentage of 2e individuals go through life without being

identified. Some of my most intelligent, creative, and talented clients fail to receive high scores on IQ tests; or their extremely discrepant assessment scores (for one child ranging from the 99th percentile to the 5th percentile) are reported as normal by poorly trained clinicians who simply average the highs with the lows to derive middle-of-the-road IQ scores. These are children who might spend five hours per night on homework and have high absenteeism due to physical illness. They are also children who, in this age of No Child Left Behind, are ignored, receiving no services because, with C's in all classes, their performance is average. With their needs unrecognized and unmet, these same children are being referred to professionals for help for depression, anxiety, aggression, mood instability, or even cutting behavior (increasingly common in gifted girls). Worse yet, some of these kids simply give up and drop out of school entirely.

Just as concerning is the high number of twice-exceptional behaviorally disordered or mental-health challenged individuals who never even receive a cognitive assessment because they simply appear lazy or unmotivated. These are kids who get angry and act out. It's my opinion that the greatest loss to society are these most creative and intelligently different-minded children who, for whatever reason, cannot reach anyone's standard of potential because they are trapped behind an unrecognized challenge that prevents them from being seen with any cognitive potential at all.

Where We are Now

I know that behavioral interventions alone are not the solution for our twice-exceptional children because they fail to address the heart of the problem. Psychiatric referrals and medications are not the only answers because, in my opinion, the mental health conditions in many of our 2e kids are not innate; I see them as secondary to the imbalances in energy, sensory processing, and cognition. I see our traditional education programs failing these children because 2e kids are not challenged in their cognitive strengths or supported in their processing weaknesses. Special education services often overlook 2e kids; and, when they are served, it's often under an emotional or behavioral disability label.

For now, I'm left with more questions than answers. We are just coming into our knowledge about twice-exceptional individuals. We don't even know what the actual incidence of twice-exceptionality is. My colleagues and I agree that gifted children with learning disabilities occur in much more than 5 or 7 percent of the gifted population, as commonly believed in the past. In fact, twice-exceptionality may be closer to the norm than the exception in gifted populations.

Looking to the Future

As professionals and parents, we must better address the energy issues that shut our 2e kids down. We must understand arousal, identify the individual sensory issues of each child (because each is very different), and provide sensory accommodation and modulation training to help them feel safe and in control. To do this, we often must rely on a child's behaviors to indicate what we can do to help the child reach a calm/alert state. Then, once children are in that state, we can begin addressing cognition and learning.

We must also be prepared to face hard facts about the inefficacy of our existing models of education. Our 2e children will never be adequately served in regular schools, existing gifted programs, or traditional special education models. They need educational systems that attend to their complexity as learners.

I see a need for more information on what is normal for a gifted or twice-exceptional child. We cannot continue to compare these children to typical IQ peers. In addition, we need more appropriate programs to educate these children. 2e kids need programs that employ good services for special needs, behavioral issues, sensory processing difficulties, and social issues, and at the same time teach to their strengths.

Furthermore, we must recognize that many of our 2e kids are physically sick. As a board member of the United States Autism and Asperger's Association, I have had the opportunity to speak with some of the most highly skilled biomedical physicians in the world. Their findings, as well as the direct feedback I am receiving from physicians working with my own referred clients, indicate that a much higher-than-typical percentage or our 2e kids have adrenal fatigue, oxidative stress, nutritional imbalances, high levels of toxicity, and gut issues that manifest as food allergies, problems with digestion, or food intolerance. Polish psychiatrist and

psychologist Kazimierz Dabrowski told us that gifted individuals tend to be more sensitive (e.g., they tend to display overexcitabilities). I have often wondered if the physical issues that the biomedical physicians are seeing in over-stimulated, gifted children contribute to this sensitivity. *[For more information on biomedical interventions, see the November, 2009, issue of* 2e Newsletter*.]*

Finally, we must advocate for better training for our educators and our medical professionals. Our twice-exceptional children, once exhausted and depleted, look mentally ill. If we simply go down that path, I believe we are treating only their symptoms, failing to identify and treat the root issues. It's time we start down a different path, one where cognition above the norm and cognitive asynchrony are considered meaningful in diagnostics, education, mental health, and medicine.

Marlo Payne Thurman, M.S., is a school psychologist, education consultant, and member of the 2e Newsletter *Editorial Advisory Board. She specializes in assessment, advocacy, cognitive training, sensory and behavior support, and socio-emotional coaching for individuals from around the country who are gifted yet asynchronous. Marlo is also the founder of the Brideun School for Exceptional Children in Colorado, which designed a play-based, therapeutic school model exclusively for twice-exceptional children. She now operates Brideun Learning Communities and, in addition to her private practice, provides consultative support to new 2e program start-ups. Marlo holds a board position with the United States Autism and Asperger's Association and is working in that capacity towards the development of a "very high functioning" division within USAAA for individuals who are both gifted and on the spectrum of autism or Asperger Syndrome.*