


INTERNATIONAL TRAINING
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University of Economics and
Innovation in Lublin



Educational materials: the perspective of highly sensitive adults

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A large, abstract watercolor splash graphic in shades of purple, blue, and pink, centered on the page. The text is overlaid on this graphic.

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- ▶ Sensory processing sensitivity (SPS) is proposed to be an innate trait associated with greater sensitivity (or responsiveness) to environmental and social stimuli (e.g., Aron et al. 2012). Originally measured in human adults by the Highly Sensitive Person (HSP) scale (Aron and Aron 1997), SPS is becoming increasingly associated with identifiable genes, behavior, physiological reactions, and patterns of brain activation (Aron et al. 2012). A functionally similar trait—termed responsiveness, plasticity, or flexibility (Wolf et al. 2008)—has been observed in over 100 nonhuman species including pumpkinseed sunfish (Wilson et al. 1993), birds (Verbeek et al. 1994), rodents (Koolhaas et al. 1999), and rhesus macaques (Suomi 2006).

- ▶ Sensory processing sensitivity is thought to be one of two strategies that evolved for promoting survival of the species (Aron and Aron 1997; Wolf et al. 2008). By being more responsive to their environments, these more sensitive organisms have an enhanced awareness of opportunities (e.g., food, mates, and alliances) and threats (e.g., predators, loss of status, competitors), and thus may be more ready to respond to emerging situations.
- ▶ This survival strategy is effective as long as the benefits of increased sensitivity outweigh the costs (such as increased cognitive and metabolic demand). In addition to potential costs, those with the sensitive survival strategy will always be in a minority as it would cease to yield special payoffs if it were found in a majority (Wolf et al. 2008).

- ▶ Humans characterized as high SPS (or HSP) are likely to “pause to check” in novel situations (Aron and Aron 1997; Aron et al. 2012), show heightened awareness of and attention to subtle stimuli, and appear to be more reactive to both positive and negative stimuli (Jagiellowicz 2012).
- ▶ This combination supports a tendency to process stimuli more elaborately and learn from the information gained, which may be useful in the present moment and when applied to future situations. In contrast, those low in SPS pay less attention to subtle stimuli, approach novel situations more quickly, are less emotionally reactive, and behave with less reference to past experiences.

The Origins of Sensitivity Research



- ▶ The earliest roots of sensitivity research actually stretch back 100 years when psychiatrist C.G. Jung proposed that some people are characterized by “an innate sensitiveness” (2). Since then, some parts of what we now call sensitivity have been investigated under different umbrellas (for example, while studying introversion, or in the context of behavior inhibition — our ability to control impulsive urges). It wasn’t until the mid-1990s when more specific theories on sensitivity emerged and researchers began to investigate sensitivity as a trait in its own right. These new theories sparked broad interest and stimulated new research.

The First Theories of Sensitivity and Early Empirical Evidence (1995-2015)



- ▶ The first 20 years of sensitivity research largely focused a lot on theory. This is more important than it sounds — in psychology, it's critical to have a solid theory in place before conducting empirical research to test and advance it. Three individual theories from different researchers emerged around the same time as a response to clinical observation or academic research on child development. The theories were:
 - * Sensory Processing Sensitivity (SPS) by Elaine and Art Aron, who coined the term “highly sensitive person”
 - * Differential Susceptibility (DS) by Jay Belsky
 - * Biological Sensitivity to Context (BSC) by Tom Boyce and Bruce Ellis

- ▶ The common thread shared by these theories is that they all suggest that some people are especially strongly affected by what they experience.
- ▶ During the early days of sensitivity research, studies focused narrowly on some pretty specific details of how sensitivity worked, and each of these three theories took a different approach. For example, SPS research focused primarily on personality in adults, differential susceptibility focused on infants, and BSC focused on physiological stress reactions in children.
- ▶ One important early development was a self-report measure of sensitivity known as the Highly Sensitive Person Scale — basically, a series of questions people could answer that would profile how sensitive they are. This paved the way for a large number of follow-up studies that looked at how sensitivity was related to other traits (for example, it was during this period that we learned that sensitivity is not the same thing as introversion).

- ▶ Different studies also gathered different kinds of data: SPS research looked at adults, which helped us see what parts of human behavior are — and are not — related to sensitivity. Meanwhile, Differential Susceptibility and Biological Sensitivity to Context did longitudinal research, following sensitive children over time from a young age. This gave key insights into what sensitive people need to thrive.
- ▶ Together, these kinds of studies provided strong empirical evidence for the concept of sensitivity as part of the human personality. This opened the door for the next step: exploring the brain function and genetics of sensitivity.

A Surge of New Breakthroughs (2015-2021)



The last five years of sensitivity research have been shaped by two major shifts:

- ▶ The theory of environmental sensitivity. The way we view sensitivity has been refined, and the three early theories mentioned above have been combined into a single framework. We call this framework environmental sensitivity. Terms like highly sensitive person (HSP) — or “orchids and dandelions” — are simply different ways of describing this framework.
- ▶ More empirical research on sensitivity than ever before. Research broadened and sought a deeper understanding of the psychological, physiological, and genetic components of sensitivity. New ways of measuring sensitivity in children and adolescents were developed, including assessments based on behavioral observation by trained experts.

These two shifts allowed a slew of breakthroughs in the past six years:

1. Sensitivity Is a Continuum

- ▶ Up to this period, several theories tended to differentiate between two groups of people: those who are highly sensitive and those who are not. However, new studies in much larger samples during this period led to the discovery that sensitivity should be considered along a continuum (everyone is sensitive to an extent, and some are more sensitive than others).
- ▶ Using this continuum, people can be categorized into three sensitivity groups: low, medium, or high. Each of these three groups has their own strengths and weaknesses. You can think of these groups as dandelions, tulips, and orchids. Dandelions (low sensitive people) will grow anywhere, and survive harsh conditions. Orchids (highly sensitive people) require very specific growing conditions to flourish, but when they get their needs met, they're positively stunning. Tulips (those in the middle) share a little bit of both groups: "In summary, while some people are highly sensitive (i.e. orchids), the majority have a medium sensitivity (i.e. tulips) and a substantial minority are characterized by a particularly low sensitivity (i.e. dandelions)" (Lionetti, Aron, Aron, Burns, Jagiellowicz & Pluess, 2018).

2. Sensitivity Has Its Own Personality Profile

- ▶ During this period, significant progress was also made regarding the relationship between sensitivity and other common personality traits, pointing to a specific personality profile underlying sensitivity. Specifically, research found that sensitivity is characterized by heightened neuroticism and openness to experiences, with introversion playing a smaller role than previously assumed. So, if you're creative and open to new ideas, but your emotions often change without warning, there's a good chance you would test as high in sensitivity.

3. A Sensitive Brain Comes from (Many) Genes



- ▶ In relation to the neuroscience of sensitivity, the structure and function of several brain regions, such as the hippocampus and amygdala, were found to play an important role. Meanwhile, access to new measures and larger samples also allowed for substantial advancements in our understanding of the role of genetics in sensitivity, with studies finding that about 50 percent of the differences between individuals can be explained by genetic factors — in other words, to a large degree, if you are sensitive, you were born that way.

- ▶ Dr. Elaine Aron has developed a very useful model that describes the basic characteristics of the highly sensitive person. These 5 characteristics are the most important for understanding the special nature and gifts of the sensitive person. The DOES model refers to the following key attributes of sensitives:
 - * D: depth of processing
 - * O: overstimulation
 - * E: emotional reactivity and empathy
 - * S: sensing the subtle

- ▶ Psychologist Elaine Aron, PhD notes highly sensitive people (HSPs) are often called “shy” – but, she explains, “shyness is learned, not innate. In fact, 30% of HSPs are extraverts, although the trait is often mislabeled as introversion.”

Some Differences in a Highly Sensitive Person's Brain Erasmus+

- ▶ The brain responds to dopamine differently: many of the genes involved in high sensitivity affect how your body uses dopamine — in ways we don't yet fully understand. HSPs are likely less driven by external rewards than non-HSPs. Rewards are the “gold stickers” of life, for example, a job promotion, a paycheck, or inclusion into a social group. Similar to introverts, HSPs are simply not as excited by the things that many others chase. This is part of what allows HSPs to hold back and be thoughtful and observant while they process information. It also likely prevents them from being drawn to the same highly stimulating situations that end up overwhelming them.
- ▶ The mirror neurons are more active: HSPs don't necessarily have more mirror neurons than others, rather, their mirror neuron systems are more active. In 2014, functional brain imaging research found that HSPs had consistently higher levels of activity in key parts of the brain related to social and emotional processing. This higher level of activity kicked in even in tests involving strangers, meaning HSPs can easily extend compassion to people they don't personally know. (The effect was still highest with loved ones, however).

- ▶ HSP really do experience emotions more vividly: hidden away in the front of the brain is the ventromedial prefrontal cortex (vmPFC). This area is hooked into several systems involving emotions, values, and processing sensory data. When we say that highly sensitive people process things more deeply than others, there's a good chance it happens right here. While the role of the vmPFC is not yet completely understood, it's definitely associated with emotional regulation, and it enhances the things we experience with a certain emotional "vividness."
- ▶ Everyone experiences life more vividly during emotional moments, not just HSPs, but high sensitivity is linked to a gene that increases this vividness, essentially turning up the dial. That gene allows emotional enhancement to have a much greater effect on the vmPFC as it processes experiences. What does this mean for HSPs? Unlike mirror neurons, this emotional vividness isn't necessarily social in nature. It's all about how vividly you feel emotions inside you in response to what's happening around you. HSPs are finely tuned to pick up even subtle emotional cues and react to them.

- ▶ Other people are the brightest things on HSP radar: for less sensitive people, it's easy to tune out other people. But for an HSP, almost everything about the brain is wired to notice and interpret others. This is clear from the many other parts of the brain that get extra-active for HSPs in social situations. For example, the brain imaging study mentioned above also showed increased activity in the cingulate area and the insula — two areas that, together, may form our “seat of consciousness” and moment-to-moment awareness. For HSPs, these areas become far more active in response to images of other people, especially those exhibiting a relevant social or emotional cue. In other words: Highly sensitive people actually become more alert, almost “more conscious,” in a social context.

The Gift of Being an HSP: the Good and the Bad



- ▶ 1. HSPs really, genuinely care — and they're good at it: if a loved one, colleague, or acquaintance is going through a tough time, it's very difficult for an HSP to walk away from the emotional situation without getting invested, thinking deeply about the issue, and offering their insights.
- ▶ 2. HSPs tend to be highly creative: they're attuned to subtleties of all kinds, and a richness in things that others may overlook. They draw inspiration from their complex inner lives, and in turn, create beauty, joy, and inspiration for others.
- ▶ 3. HSPs are incredibly conscientious and take great pride in their tasks: they work hard to make sure things are done right and make great employees in roles that allow for autonomy, space, and time to ponder.
- ▶ 4. HSPs feel things deeply: while this can be hindering when negative emotions arise, it also means that feelings of elation can reach a higher intensity than in non-HSPs.
- ▶ 5. HSPs are very sensitive to animals: because they're so in tune with the energies, emotions, and lesser-noticed things in life, they're often especially sensitive to animals and how they are handled.

- ▶ 6. HSPs have passion like no other: it's very easy for an HSP to experience genuine, blind passion for a topic — so much so that it seems they're almost bursting with it.
- ▶ 7. HSPs are a genuine bunch: they have a hard time faking interest in topics, people, tasks, and activities that don't suit them, leaving more time to cultivate themselves, friendships, and the interests that help them to feel fulfilled.
- ▶ 8. HSPs make life about finding meaning: they're often driven by an internal search for meaning, and if something doesn't feel meaningful, they can't just "do it anyway" — they need to silence or filter it out.
- ▶ 9. HSPs are great at having deep, meaningful conversations: they loathe small talk and unnecessary discussions because really, who has time for that?
- ▶ 10. HSPs are amazing problem solvers: HSPs are extremely contemplative and will often take time to process and ponder an issue following a conversation. They're not "out of sight, out of mind" types of people, and will keep cognitively working on solving problems and coming up with ideas if a conversation hasn't completely resolved a question.

Resources

Articles:

- ▶ https://scholar.google.ro/scholar?hl=ro&as_sdt=0%2C5&q=highly+sensitive+adults+psychology&oq=highly+sensitive+adults+psy
- ▶ <https://www.nature.com/articles/s41398-017-0090-6#author-information>
- ▶ https://books.google.ro/books?hl=ro&lr=&id=KZwhAgAAQBAJ&oi=fnd&pg=PT12&dq=highly+sensitive+traits+aron&ots=48laUHTvBT&sig=yoylcFzC_T99AGtdDF6AFvvdZ4U&redir_esc=y#v=onepage&q=highly%20sensitive%20traits%20aron&f=false
- ▶ https://books.google.ro/books?hl=ro&lr=&id=nlqSAgAAQBAJ&oi=fnd&pg=PP1&dq=highly+sensitive+traits+aron&ots=mAh4_zXXq5&sig=8nC7FH01danq80hqTZLtybVUHXg&redir_esc=y#v=onepage&q=highly%20sensitive%20traits%20aron&f=false
- ▶ <https://royalsocietypublishing.org/doi/full/10.1098/rstb.2017.0161>
- ▶ <https://onlinelibrary.wiley.com/doi/full/10.1002/brb3.242>
- ▶ <https://sensitivityresearch.com/research/>

Websites:

- ▶ <https://highlysensitiverefuge.com/things-highly-sensitive-people-need-happy/>
- ▶ <https://highlysensitiverefuge.com/heres-everything-researchers-know-about-high-sensitivity-as-of-2021/>
- ▶ <https://highlysensitiverefuge.com/highly-sensitive-person-brain/>
- ▶ <https://highlysensitiverefuge.com/highly-sensitive-person-not-crazy/>
- ▶ <http://www.hsp-eu.com/what-is-high-sensitivity.html>
- ▶ <https://www.financialexpress.com/opinion/why-highly-sensitive-people-are-a-boon-to-humanity/1747378/>
- ▶ <https://sensitivityresearch.com/research/sensitivity-publications/>
- ▶ <https://hsperson.com/test/highly-sensitive-test/>

Podcasts:

- ▶ <https://highlysensitiveperson.net/hspodcast/>
- ▶ <https://thesimplyluxuriouslife.com/podcast44/>
- ▶ <https://podcasts.apple.com/us/podcast/the-highly-sensitive-person-podcast/id907839868>
- ▶ <https://player.fm/series/emotional-badass/saying-yes-as-a-highly-sensitive-person>
- ▶ <https://player.fm/series/emotional-badass/betrayal-bonds-boundaries-and-high-sensitivity>
- ▶ <https://player.fm/series/emotional-badass/explanations-for-hsp-children>
- ▶ <https://player.fm/series/emotional-badass/when-will-i-feel-the-superpowers-of-high-sensitivity>
- ▶ <https://player.fm/series/emotional-badass/compatibility-and-boundaries-for-hsps-within-relationships>

Videos:

- ▶ <https://www.youtube.com/watch?v=6DezjkilrSY>
- ▶ <https://www.youtube.com/watch?v=FQLBnUBKggY>
- ▶ <https://www.youtube.com/watch?v=xYTeeytvuwo>
- ▶ <https://www.youtube.com/watch?v=sEi0VnCOJOY>
- ▶ <https://www.youtube.com/watch?v=C7u7kDuA2tM>
- ▶ <https://www.youtube.com/watch?v=VEkO8Ry4AHs>
- ▶ <https://www.youtube.com/watch?v=UEwJtYsu6Zo>
- ▶ <https://www.youtube.com/watch?v=pi4JOIMSWjo&t=1s>
- ▶ <https://www.youtube.com/watch?v=WGoymZBwdmA>

▶ *Thank you for your time and attention*

▶ Q&A

