

Accommodating Neurodiverse Users using Chat Support

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<https://shorturl.at/QEgsT>



Introductions

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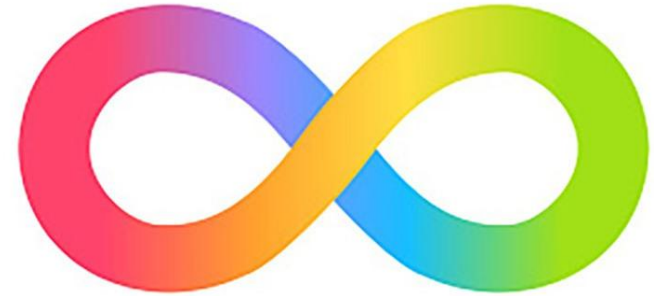


Overview

- Introduction to neurodiversity
- Autism is a spectrum
- Common challenges in autism and other neurodiverse people
- Telephone communication is a barrier
- Chat support is an accommodation
- Autistic employees
- Universal design is good design

Definitions

Neurodiversity refers to the virtually infinite neuro-cognitive variability within Earth's human population. It points to the fact that every human has a unique nervous system with a unique combination of abilities and needs. - Judy Singer



Neurodivergent: individual with one or more neurological conditions.

Autism, ADHD, Anxiety, Depression, Tourette, Apraxia of Speech, Aphasia, Dyslexia, etc.

Neurotypical: individuals with typical neurological development or functioning.

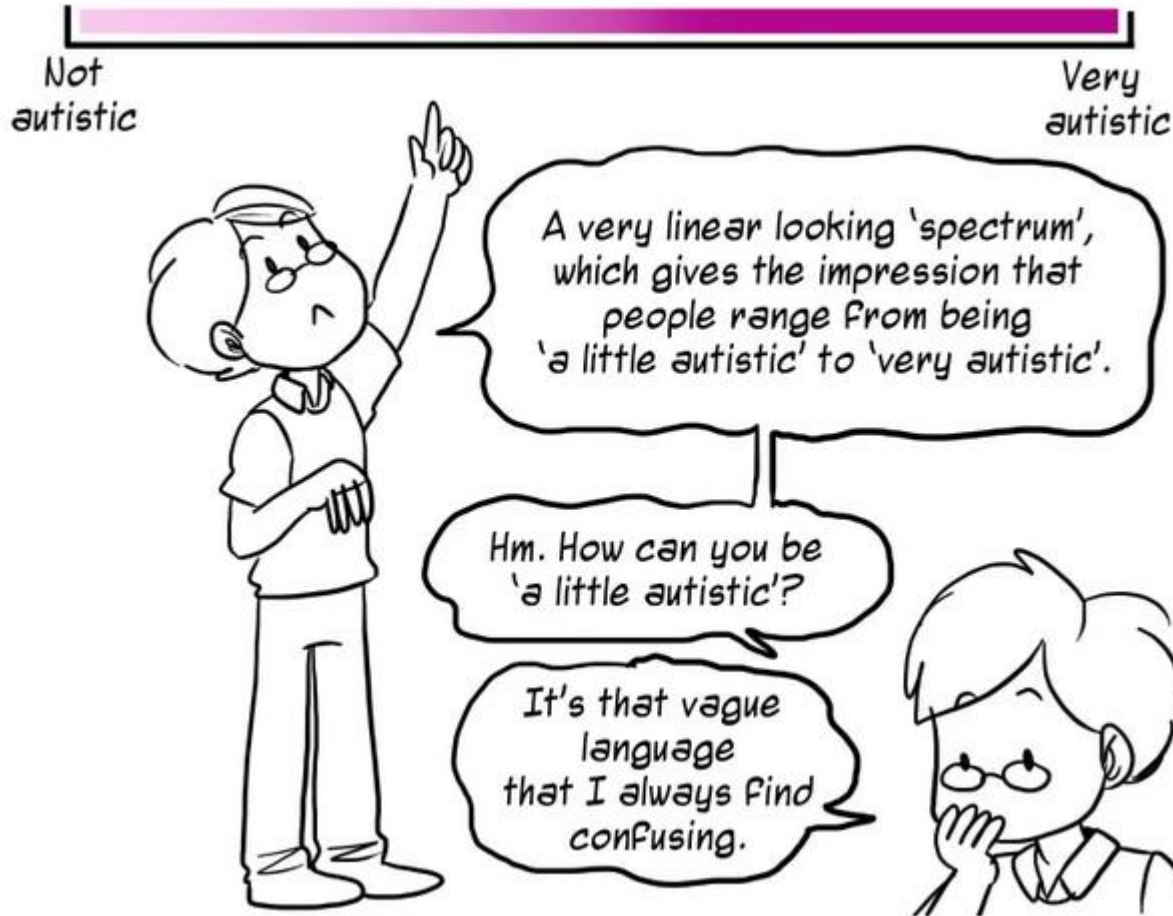
Autism is a Spectrum

The autism spectrum encompasses a variety of characteristics, including

- differences in social communication,
- repetitive behaviors,
- sensory sensitivities.

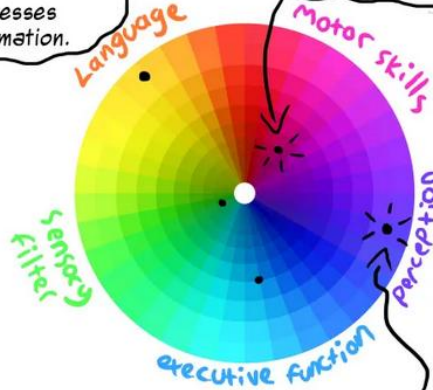
Each person with autism is unique, and their experiences can vary significantly.

Additionally, a person with autism has fluctuating capacity over time.

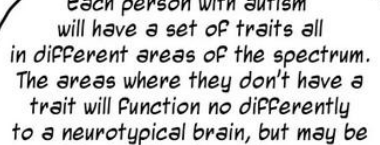


The spectrum consists of many different 'traits', or ways in which the brain processes information.

Some traits create difficulties in every day life.
(hence being diagnosed)



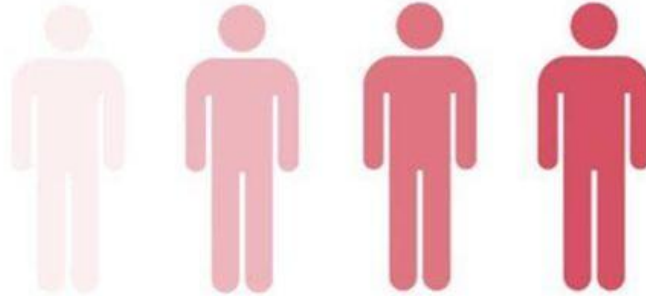
But also many traits are useful in every day life.



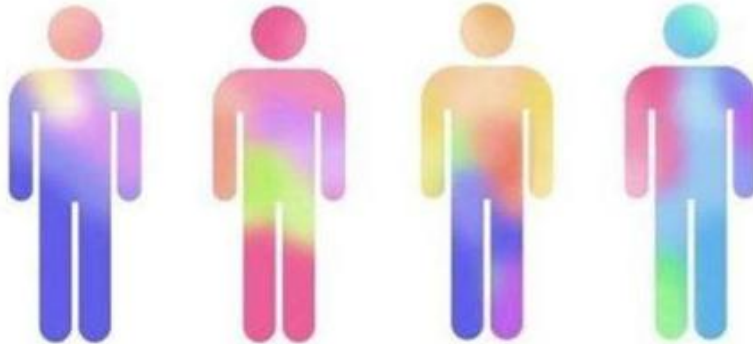
Each person with autism will have a set of traits all in different areas of the spectrum. The areas where they don't have a trait will function no differently to a neurotypical brain, but may be affected by circumstances. In example, I am good at making conversation (language). But I get sensory overload in loud and crowded spaces, which then makes conversation very hard for me.



the spectrum doesn't look like this.



we are far more.



Challenges

- Audio processing delay
- Social skills
- Situational mutism/fluency
- Working memory
- Anxiety

Audio processing delay

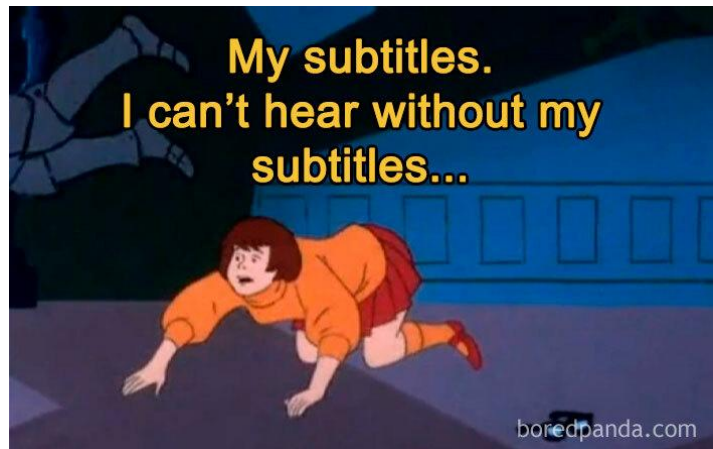
APD is NOT hearing loss. It is a difference in the way the brain is organized.

Symptoms

- Difficulty prioritizing sounds (speech in a crowded bar, multiple people talking at once)
- Misunderstand words
- Struggle to process verbal instructions
- Taking longer to process verbal speech

- For real world stories, see the subreddit <https://www.reddit.com/r/AudiProcDisorder/>

Live chat removes the reliance on auditory processing and takes the conversation to an entirely visual process, which mitigates these difficulties



Social skills

- Difficulty instinctively knowing what other people mean.
- Asking for clarification can come across as combative.
- Difficulty knowing when to speak, stop talking.

C. Write these words in **alphabetical order**.

1. take

aekt

value

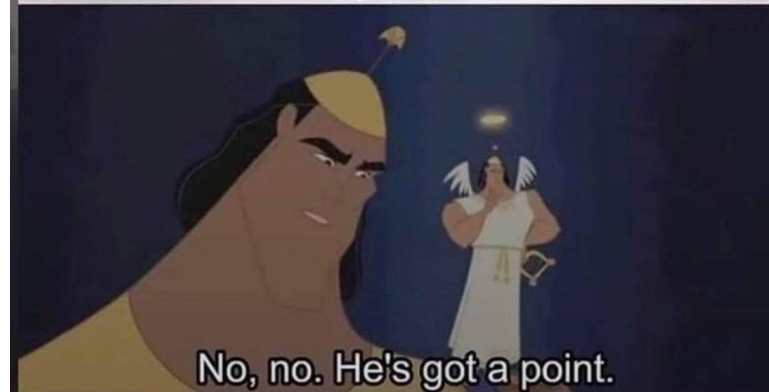
aevuv

use

esu

2. royal

alory



Scripting

Scripting can be a way for folks with autism to express themselves when they may have difficulty with spontaneous or original language. It allows them to communicate thoughts, emotions, or ideas using familiar and memorized scripts.

In the real world this can look like phrases you always use in specific situations. For example, when it's warm out I end most interactions with a very cheerful "stay hydrated!".

Live chat provides the ability to pre-write scripts for standard parts of conversation like greetings, wrapping up a conversation, etc, that can be triggered with a hotkey.

;	greet	→ do you have any questions about the Olark chatbox?
;	lmk	→ have an excellent day and let me know if anything else comes up! :)

Situational Mutism, speech disorders

Some autistic individuals experience situational mutism

Speech disorders

- Stutter
- Apraxia of Speech or Dysarthria
- Aphasia

Accent or temporary disability

Working Memory

Working memory is the small amount of information that can be held in mind and used in the execution of cognitive tasks, in contrast with short-term or long-term memory.

For example, working memory is what allows someone to:

- Ask relevant follow up questions during a conversation
- Complete a multi-step process
- Accurately repeat a phone number or email address
- Complete the steps of a recipe when not looking at the recipe

Anxiety

Social anxiety disorder is an intense, persistent fear of being watched and judged by others.

Generalized anxiety disorder usually involves a persistent feeling of anxiety or dread that interferes with how you live your life.

Autistic people have higher rates of both forms of anxiety than neurotypical people.

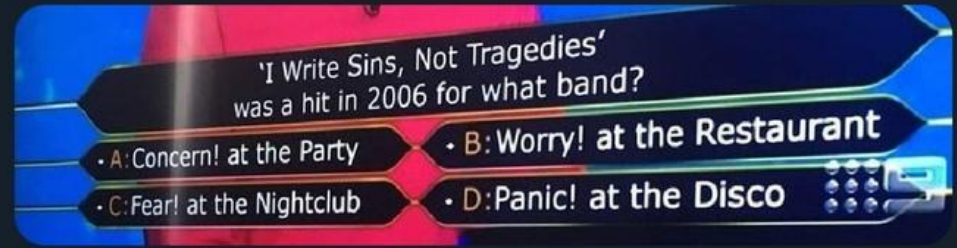


Hannah Thompson

@HLThompson93

What's it like living with anxiety:

[Tweet übersetzen](#)



13:03 · 27 Feb. 20 · [Twitter for iPhone](#)

50,7K Retweets **174K** „Gefällt mir“-Angaben

Camouflaging/Masking

Intentional scripting and application of learned social behavior

- Exhausting
- Detrimental to mental health
- Anxiety, depression, suicidality

Me after a long day pretending to be a neurotypical



@lifeinautismworld

Day to day communication

- Accessing services
- Education
- Health care
- Shopping
- Seeking assistance



Anything but the phone

Results from survey of 245 autistic individuals asking which communication mode they prefer when accessing services.

Phonecall is ranked last.

Howard, P. L., & Sedgewick, F. (2021). 'Anything but the phone!': Communication mode preferences in the autism community. *Autism*, 25(8), 2265-2278.
<https://doi.org/10.1177/13623613211014995>

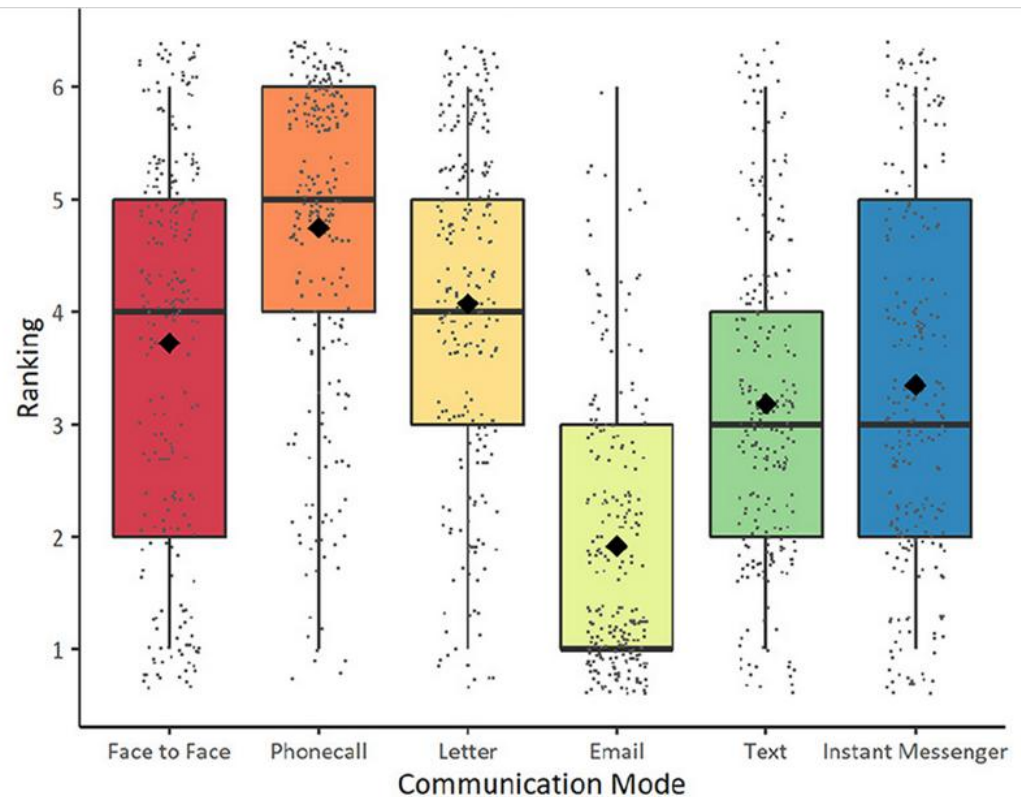


Figure 1. Communication mode preference rankings when accessing services.

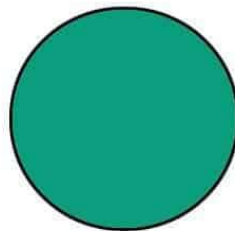
Solid horizontal lines represent the median ranking, solid black diamonds represent the mean ranking, boxes represent the interquartile range, and dots represent individual data points.

1= most preferred mode; 6= least preferred mode.

Barriers to telephone use

- Fewer social cues without visual aid (social skills)
- Unpredictable timing to receive call, waiting on hold (anxiety)
- Incorrect scripts prepared (social skills)
- Lags in conversation (audio processing delay, social skills)
- Hard to understand the speaker (audio processing delay, social skills)
- Hard to filter out speech from noise (audio processing delay)
- Difficulty with speaking can make it hard to be understood (situational mutism, other speaking difficulties)
- Forgetting reasons, complete details for call (working memory, anxiety)
- Forgetting details of the call immediately afterwards (working memory, anxiety)

THINGS I'D RATHER DO
THAN MAKE A PHONE CALL



● BE EATEN BY
A DINOSAUR
THAT SHOWS
NO MERCY

Real life examples

Responses to a Reddit post asking about phone call anxiety in the neurodiversity subreddit

- “It took me 7 hrs to make a very important phone call.. I cried out of frustration bc I have such a weird thing about phone calls.. I feel dread and panic when my phone rings. I can't use songs for phone calls bc I start to hate the song I use because it reminds me of phone calls.. anxiety attacks everytime” - wairu_907
- “I hate talking on the phone because I can't tell when it's my turn to talk. This results in awkward silences and interruptions.” - cephalopodchampion
- “It sucks because I'm looking into mental health support for some other issues but the initial assessments are all via the phone and it's a huge obstacle for me” - PotatoPortal123
- “I only accept calls from friends and family members and strongly prefer text and email. I generally request that people text me to request permission to call me. I like how many businesses (especially travel businesses like taxis and airlines) do more things now online or via their app or text alerts.” - LilyoftheRally

How live chat supports neurodiverse users

User perspectives

- Writing gave people ‘time to think about what I want to say’, provided the opportunity to ‘arrange my thoughts and ask all my questions before sending’ and the ability to ‘make sure it looks good and reads well’ so their words ‘have the effect that [they] are looking for’.
- The time it gave them to form a response was frequently highlighted, with several people pointing out that ‘there is no expectation of an immediate reply’, even in a live online chat, because there is the ‘lag’ time of typing. Removing this immediacy reduced anxiety: ‘I can think of the response . . . without panicking or struggling to find the words I need’.”

Howard, P. L., & Sedgewick, F. (2021)

Why Barbara loves live chat - more than any other contact method!

- Real-time Interaction
- Instant Clarification
- Fewer Formalities
- Efficiency
- Easy to modify
- Transcripts
- Multitasking

Now chatting

Hi! Let's get some quick info so we can better serve you:

* indicates a required field

Email*

barbara@olark.com

Name

Barbara

START CHATTING

powered by *Olark*

X

Barbara's coworkers notice and appreciate

“Did you know that Barbara is a construct of machine learning? At least, that's the only explanation I have for her volume of chats, short of super powers.”

-Joe, Olark Chief Brit

Autism-related workplace strengths

- average to very high intelligence
- good verbal skills, rich vocabulary
- ability to think in visual images and identify patterns
- propensity to think outside the box and generate novel solutions to problems
- ability to absorb and retain large amounts of information, especially about topics of special interest
- detail oriented
- ability to focus for long periods on areas of interest
- ability to perform repetitive tasks where accuracy, rules and routine are important
- reliability and punctuality
- honest, loyal, fair and just
- non-judgemental listening

Employment Implications

- People with autism are severely under or unemployed
 - 80% of autistic people are under or unemployed despite 60% of them having cognitive abilities at or above those of neurotypical people.
- Different neurotypes prefer different positions
 - Employment that minimizes masking increases job and life satisfaction
- Employing autistic people benefits companies
 - 30% higher productivity

Universal Design is Good Design

Accommodating any one specific group can help usability for all users.

- Captions intended to accommodate deaf users also help people with audio processing delay.
- Heading structures designed for screen readers also helps to organize page information for people with attentional or memory challenges.
- Creating an intuitive tab order for screen readers also helps people who rely on keyboard navigation.



**FOCUSING
ON ACCESSIBLE
DESIGNS
BECAUSE IT'S A
LEGAL REQUIREMENT.**

**FOCUSING ON
ACCESSIBLE DESIGN
BECAUSE GOOD
ACCESSIBILITY
BENEFITS EVERY USER.**

The best design is one that provides options.

Want more info?

For more info about Olark Live Chat and accessibility you can start with <https://olark.com/ada-accessible-live-chat>

For more information about the University of Washington Libraries and the accessibility work done there, visit their [Accessibility at the Libraries](https://www.lib.washington.edu/services/accessibility) page at <https://www.lib.washington.edu/services/accessibility>.

Questions?



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- Neurodiversity subreddit <https://www.reddit.com/r/neurodiversity/>
- Web page: NeurodiversityHub <https://www.neurodiversityhub.org/>