



Recognizing the “A” in DEIA: Effective Ways to Improve Accessibility for Mass Spectrometrists

ASMS Diversity and Inclusion Committee

Chair: Candice Z. Ulmer, Ph.D.

Workshop Facilitator: Saiful Chowdhury, Ph.D.

Tuesday, June 6, 2023

5:45 – 7:00 pm

ASMS Diversity and Inclusion Committee

The ***mission*** of the Committee is to promote and reinforce diversity within the membership of the ASMS by fostering a culture of inclusion and mutual support. This mission is supported by attention to equity and initiatives to enhance and support a broadly representative membership.

The Committee is charged with the design of activities and projects that promote an inclusive climate and increase participation of ASMS members who represents diverse cultural, gender, social, and scientific backgrounds.



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(USDA-FSIS)*



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(SCIEEX)*



Baljit Ubhi



Workshop Agenda

[5:50 - 6:00pm]

- Introduction of Session
- Introduction of Panel Members

[6:00 - 6:15pm] Discussion on Physical Disabilities

[6:15 - 6:30pm] Discussion on Sensory Disabilities

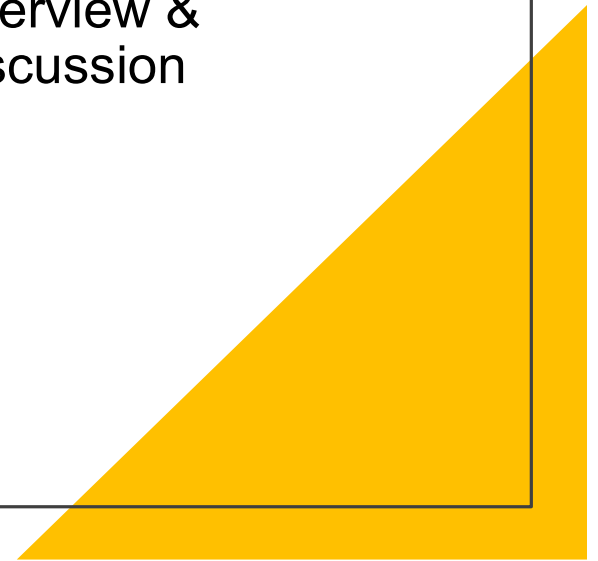
[6:30 - 6:45pm] Discussion on Cognitive Disabilities

[6:45 - 6:55pm] Questions from Audience

[6:55 - 7:00pm] Wrap Up

Physical Disabilities

Overview &
Discussion



Overview of Physical Disabilities

- Physical disabilities are impairments that affect a person's physical functioning, mobility, or dexterity.
- They may result from conditions such as congenital disabilities, injuries, or chronic illnesses.
- Physical disabilities can limit a person's ability to perform tasks that require physical strength, coordination, or mobility.
- Examples of physical disabilities include
 - Paralysis
 - limb amputation
 - muscular dystrophy
 - cerebral palsy

Accommodations for Physical Disabilities

(in the classroom/laboratory)

Accessible Facilities:

- Ensuring wheelchair ramps or elevators are available for easy access.
- Providing accessible restrooms with appropriate grab bars and clear pathways.
- Installing handrails on stairs and non-slip surfaces to enhance safety.

Assistive Technology and Equipment:

- Providing assistive devices such as adaptive keyboards, trackballs, or voice recognition software for students with limited mobility or dexterity.
- Offering accessible computer stations or adjustable desks to accommodate various physical needs.
- Providing specialized tools and devices like wheelchairs, walkers, or mobility aids as needed.

Classroom Modifications:

- Adapting seating arrangements to accommodate students who use wheelchairs or require specific seating positions.
- Modifying desks or tables to allow for proper positioning and access for students with physical disabilities.
- Creating clear pathways and removing physical barriers in the classroom to ensure smooth mobility.

Accommodations for Physical Disabilities

(in the workplace)

Accessible Workspace:

- Providing accessible parking spaces close to the entrance.
- Ensuring the workspace is on an accessible floor with ramps or elevators.
- Modifying doorways and hallways to accommodate wheelchairs or mobility devices.
- Installing adjustable-height workstations or desks to accommodate different needs.

Assistive Technology and Equipment:

- Providing ergonomic chairs, keyboards, and mice to support comfort and reduce strain.
- Offering speech recognition software or alternative input devices for individuals with limited mobility or dexterity.
- Installing specialized equipment, such as screen readers or braille displays, for employees with visual impairments.
- Providing assistive devices like reachers or grab bars to enhance independent movement and accessibility.

Workstation Modifications:

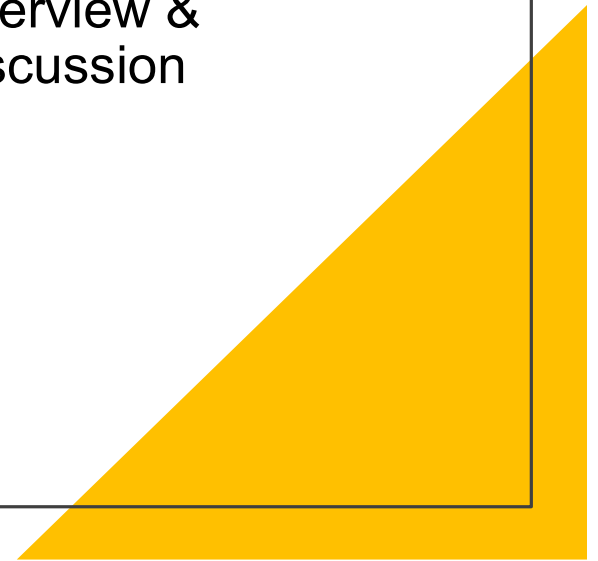
- Adjusting the height and placement of desks, tables, and equipment to accommodate wheelchair users.
- Installing handrails and grab bars in restrooms and other common areas.
- Creating clear pathways and removing obstacles to ensure smooth mobility within the workspace.
- Ensuring the availability of adjustable lighting and glare reduction measures for employees with visual sensitivities.

Flexible Work Arrangements:

- Allowing flexible work hours or remote work options to accommodate medical appointments or mobility limitations.
- Offering teleconferencing or video conferencing tools to facilitate remote collaboration.
- Modifying work schedules or job responsibilities to suit the employee's physical abilities and limitations.

Sensory Disabilities

Overview &
Discussion





Overview of Sensory Disabilities

- Sensory disabilities involve impairments or difficulties in one or more of the senses, including vision, hearing, taste, smell, or touch.
- These disabilities impact a person's perception and reception of sensory information.
- Examples of sensory disabilities include:
 - visual impairments (e.g., blindness or low vision)
 - hearing impairments (e.g., deafness or hearing loss)

Accommodations for Sensory Disabilities

(in the classroom/laboratory)

- 1. Visual Accommodations:**
 - Providing written materials in large print or braille for students with visual impairments.
 - Using high-contrast materials or visual aids to support learning and comprehension.
 - Implementing screen reading software or magnification tools for students with low vision.
 - Offering preferential seating near the front of the classroom for students with visual impairments.
- 2. Hearing Accommodations:**
 - Using assistive listening devices, such as hearing aids or FM systems, to enhance sound clarity for students with hearing impairments.
 - Providing captioning or transcripts for audio or video content to support students with hearing loss.
 - Using visual cues, gestures, and facial expressions to supplement verbal instructions for students with hearing impairments.
 - Reducing background noise and reverberation in classrooms to improve sound quality for students with hearing sensitivities.
- 3. Tactile Accommodations:**
 - Providing braille or tactile materials, such as raised-line drawings or tactile graphics, for students with visual impairments.
 - Using hands-on learning experiences and manipulatives to support understanding for students with tactile sensitivities.
 - Offering adaptive equipment, such as adaptive keyboards or touch-sensitive devices, for students with dexterity or fine motor skill challenges.
- 4. Olfactory and Gustatory Accommodations:**
 - Implementing fragrance-free policies or minimizing strong scents in the school environment to accommodate students with sensitivities to smells.
 - Providing alternatives or accommodations for students with specific dietary needs or allergies related to taste or smell.

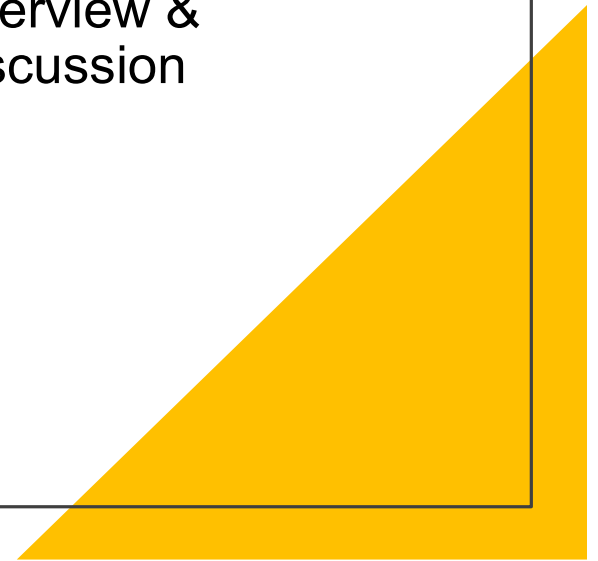
Accommodations for Sensory Disabilities

(in the workplace)

- 1. Visual Accommodations:**
 - Providing task lighting or adjustable lighting to accommodate individuals with visual impairments.
 - Using high-contrast colors for signage, labels, and written materials.
 - Offering screen magnification software or large-print materials for employees with low vision.
 - Implementing accessible digital technologies, such as screen readers or screen magnifiers, for individuals with visual impairments.
- 2. Hearing Accommodations:**
 - Providing assistive listening devices, such as hearing aids or personal amplification systems, for individuals with hearing impairments.
 - Ensuring clear and consistent communication by using visual cues, written instructions, and gestures when interacting with employees with hearing impairments.
 - Offering captioning services or providing transcripts for audio or video materials.
 - Creating quiet spaces or implementing soundproofing measures to reduce noise distractions for employees with hearing sensitivities.
- 3. Tactile Accommodations:**
 - Providing accessible and tactile signage, such as braille or raised lettering, for individuals with visual impairments.
 - Offering adaptive equipment or tools with tactile features to facilitate work tasks.
 - Providing alternative methods for information dissemination, such as using tactile graphics or 3D models for individuals with visual impairments.
- 4. Olfactory and Gustatory Accommodations:**
 - Implementing fragrance-free policies to accommodate employees with sensitivities to scents.
 - Ensuring availability of fragrance-free or unscented products in shared spaces like restrooms.
 - Allowing employees with specific dietary needs related to taste or allergies to have access to appropriate food options.

Cognitive Disabilities & Neurodiversity

Overview &
Discussion

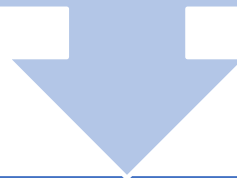


Overview of Cognitive Disabilities

Cognitive disabilities refer to a range of conditions that may affect a person's ability to process information and think clearly.

These conditions can affect a person's ability to learn, communicate, and perform daily tasks.

These disabilities can be caused by a variety of factors, including genetics, brain injury, infection, or environmental factors.



Common cognitive disabilities include:

Intellectual Disability

Stroke or Brain Injury

Alzheimer's disease

Autism Spectrum Disorder (ASD)

Hess, T. M., & Helfrich-Miller, K. J. (2015). Cognitive impairment: A guide for families and caregivers. *American Family Physician*, 92(7), 599-606.

Ross, R. E., & Balcerzak, J. A. (2020). Cognitive disabilities. *American Family Physician*, 101(3), 147-154.

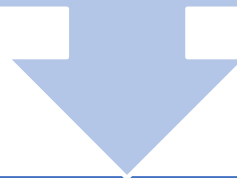
Meppelink, R., de Jong, N., Hermens, H. J., & Vollenbroek-Hutten, M. M. (2020). Assistive technology and occupational therapy interventions in children with cognitive and motor disabilities: A systematic scoping review. *Assistive Technology*, 32(2), 94-105.

Overview of Neurodiversity

Neurodivergence describes people whose brain differences affect how their brain works. That means they have different strengths and challenges from people whose brains don't have those differences.

The possible differences include medical disorders, learning disabilities and other conditions. The possible strengths include better memory, being able to mentally picture three-dimensional (3D) objects easily, the ability to solve complex mathematical calculations in their head, and many more.

Neurodivergent isn't a medical term. Instead, it's a way to describe people using words other than "normal" and "abnormal." That's important because there's no single definition of "normal" for how the human brain works.



Common Neurodivergent Conditions Include:

Cognitive Disabilities

Attention Deficit
Hyperactivity Disorder
(ADHD)

Dyslexia

Autism Spectrum
Disorder (ASD)

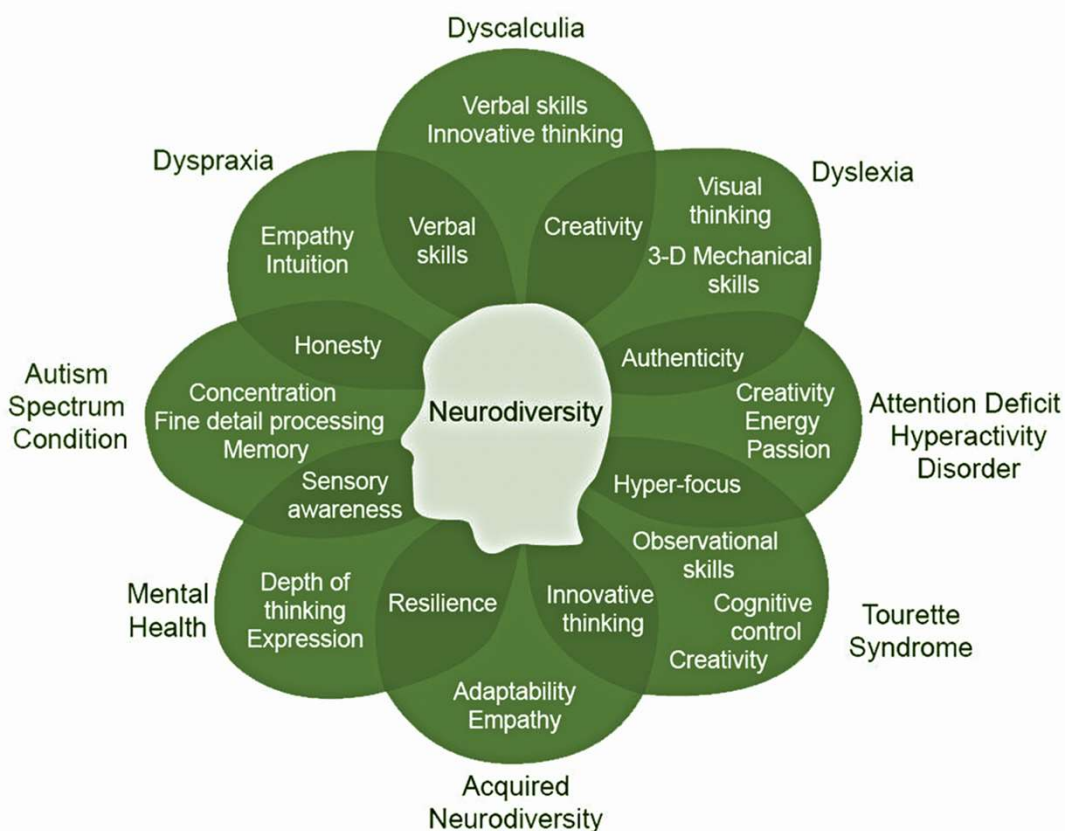
Harvard Business Review: Neurodiversity is a competitive advantage (<https://hbr.org/2017/05/neurodiversity-as-a-competitive-advantage>)

Harvard Medical School: What is neurodiversity? (<https://www.health.harvard.edu/blog/what-is-neurodiversity-202111232645>)

John Hopkins University: Neurodivergence at a glance (<https://imagine.jhu.edu/blog/2022/10/05/neurodivergence-at-a-glance/>)

Cleveland Clinic: Neurodiversity (<https://my.clevelandclinic.org/health/symptoms/23154-neurodivergent#:~:text=%E2%80%9CNeurodiversity%E2%80%9D%20is%20a%20word%20used,average%20or%20%E2%80%9Cneurotypical%E2%80%9D%20person.>)

Embracing Neurodiversity



What are some things I can do to support someone who is neurodivergent? There are many things people can do to be supportive of neurodivergent individuals. Some of the most important things you should keep in mind include:

Listen. People who are neurodivergent may feel misunderstood or left out. Be willing to listen to them. Let them know you hear them and respect them and their choices.

Communicate in ways that help them. Sometimes, people who are neurodivergent prefer written communication such as instant messaging, texting or emails over a phone call or face-to-face conversation. Give them the time and tools they need to communicate.

Avoid value-based labels. Experts recommend against using the terms “high-functioning” and “low-functioning” to describe conditions like autism. They often assume a person’s level of function based on how much they behave like someone who’s neurotypical.

No two neurodivergent people are the same. The personalities and preferences of neurodivergent people can be widely different, even when they have the same underlying condition.

Don’t assume that anyone is incapable or unintelligent. People who are neurodivergent often have conditions or preferences that make them stand out or appear different.

Treat everyone with respect. You can “normalize” and provide others with accommodations in a way that honors their human dignity.

- List from Cleveland Clinic



Image from <https://breezy.hr/blog/practical-ways-to-attract-neurodiverse-talent>

Neurodivergent Accommodations

(in the classroom/laboratory)

Extended time on assignments or tests

Frequent breaks during class or testing

Preferential seating in the classroom

Use of a note-taker or audio recording device

Access to written and verbal instructions

Use of visual aids or graphic organizers

Modified assignments or assessments to reduce complexity or length

Use of assistive technology, such as text-to-speech software or speech-to-text software

Use of a scribe to write down answers dictated by the student

Providing directions in multiple formats (e.g., written, verbal, visual)

Neurodivergent Accommodations

(in the workplace)

Written instructions or checklists to help with task completion

Access to job coaching or mentoring

Use of assistive technology, such as text-to-speech software or speech-to-text software

Reduced distractions in the work environment

Flexible work hours to accommodate fluctuations in energy levels or concentration

Frequent breaks during the workday

Use of visual aids or graphic organizers to help with task organization

Providing verbal instructions in addition to written instructions

Simplifying complex tasks or breaking them into smaller parts

Providing additional training or on-the-job support as needed

Inclusive accommodations for those with disabilities aren't new, but can greatly improve quality of life





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Questions?



Reasonable Accommodations for Disabilities

(Federal Government Sector)

On July 26, 2010, President Obama issued [Executive Order 13548](#), which provides that the Federal Government, as the Nation's largest employer, must become a model for the employment of individuals with disabilities.

- Increased recruitment
- Increased hiring
- Increased retention