

Neurodiversity

Design considerations for people who perceive and process the world in different ways

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Living independently and being included in the community

(Article 19, UN CRPD)

There is no 'normal' brain

Dunles Opie W NOT USE THIS BRAIN - ABNORMAL

Igor selects the brain from "Abby someone" Young Frankenstein, 1974

What is cognition?

The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.

(Oxford Dictionary, 2015)

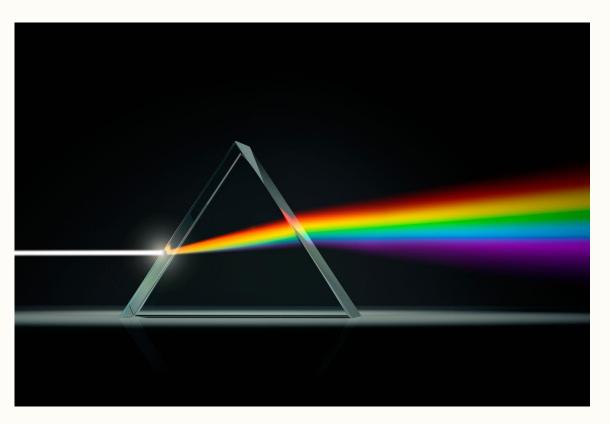


Perception & cognition are inter-related



Sensational!

We're all on a spectrum



https://www.youtube.com/watch?v=KmDGvquzn2k Carly's café

<u>https://www.youtube.com/watch?v=ycCN3qTYVyo</u> Sensory sensitivity

Australia's National Disability Strategy

(2010-2020)

1. Inclusive and accessible communities

- 2. Rights protection, justice and legislation
- 3. Economic security
- 4. Personal and community support
- 5. Learning and skills
- 6. Health and wellbeing

Accessibility

The extent to which products, systems, services, environments and facilities can be used by *people from a population* with the widest range of characteristics and capabilities to achieve a *specified goal* in a *specified context of use*.

ISO 26800:2011 Ergonomics -- General approach, principles and concepts

What if we can't specify the goal or context of use?

Principles underlying rules

Universal design to the rescue!

But how?

Implementation challenges

- Perception that Universal Design restricts creativity; confused with accessibility using a 'template' approach.
- Associated with disability.
- Overemphasis on physical aspects, and lack of understanding of sensory, cognitive, psychological and social diversity.
- Principles incomplete, complex and ambiguous.
- Concern about additional immediate costs.

Standards for cognitive accessibility

- Consumers identify important and/or troublesome products, and evaluate the usability.
- Principles that can be applied in the design of all consumer products.
- Technical standards specify how to test and evaluate whether a product has the intended features.
- Principles: provide multiple means of engagement, representation and understanding, action and expression.

Usability

The effectiveness, efficiency and satisfaction with which *specified users achieve specified goals in particular environments*.

- *Effectiveness*: the accuracy and completeness with which specified users can achieve specified goals in particular environments
- *Efficiency*: the resources expended in relation to the accuracy and completeness of goals achieved
- **Satisfaction**: the comfort and acceptability of the work system to its users and other people affected by its use

ISO 9241 Ergonomics of human--system interaction

Provide means of engagement

- Engagement, motivation, trust and confidence
- Focus, attention and feedback

Provide multiple means of representation and understanding

- Language and information
- Spatial orientation and understanding of values and sizes
- Simple, understandable and logical

Provide multiple means of action and expression

- Communication and expression
- Organisations, planning and time management
- Flexibility and equal opportunities
- Provide options for correction of mistakes

Interested in cognitive accessibility?

Draft international standards are now out for comment and Standards Australia is forming a sub-committee on cognitive accessibility to progress this work.

Please provide your contact details for an invitation.

- Begripsam Project (Sweden) <u>http://www.fungerandemedier.se/begripsam</u>
- Steel, E. J., & Janeslätt, G. (2016). Drafting standards on cognitive accessibility: a global collaboration. *Disability and Rehabilitation: Assistive Technology*. doi:10.1080/17483107.2016.1176260