





# Accessibility and SEND

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SEND Definition  
ICF perspective  
Main accessibility problems  
Case studies



# SEND Concept

**Special Educational Needs (SEN)**

Unesco 1997

UN Committee on Rights of the Child

# SEND definition

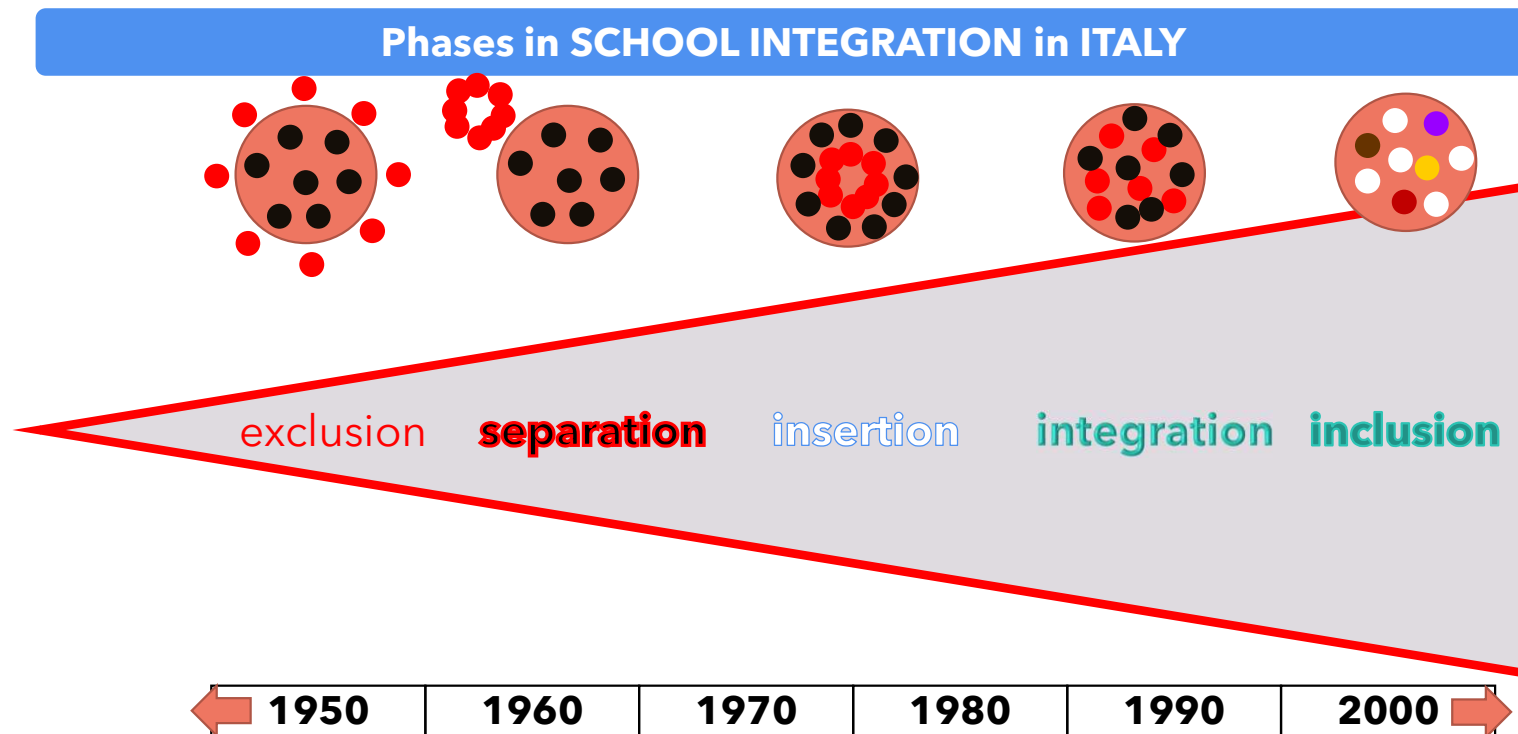
The concept of 'children with special educational needs' extends beyond those who may be included in handicapped categories to cover those who are failing in school for a wide variety of other reasons that are known to be likely to impede a child's optimal progress."

*"These children are in need of additional support which depends on the extent to which schools need to adapt their curriculum, teaching and organisation and/or to provide additional human or material resources so as to stimulate efficient and effective learning...."*

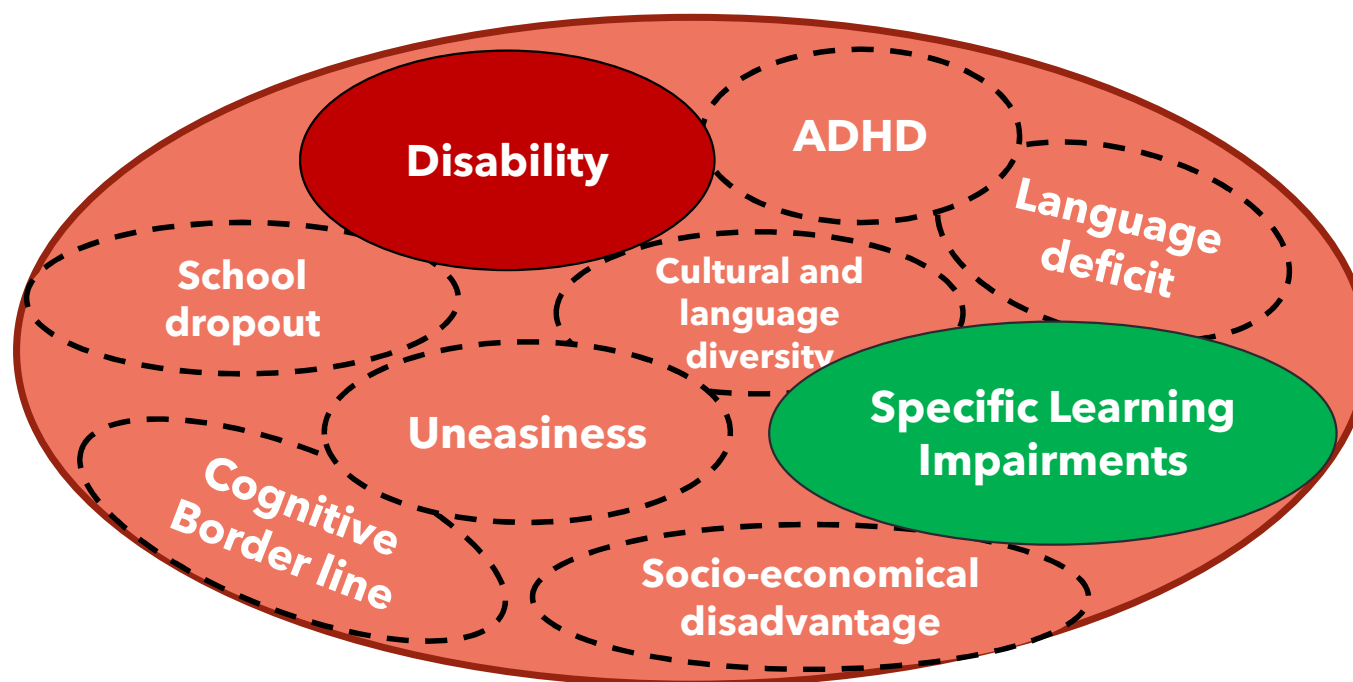
(<http://portal.unesco.org/education/en/ev.php>)



# SEND in Italy



# SEND in Italy: what it means



# SEND links

This concept is going to include children with disabilities going beyond: all learners that are *"failing"* in following school educational pathways



WHO: ICF



ONU: CRPD



# ONU: CRPD 2006

## Article 24 - 2

- a) Persons with disabilities are not excluded from the general education system on the basis of disability, and that children with disabilities are not excluded from free and compulsory primary education, or from secondary education, on the basis of disability;
- b) Persons with disabilities can access *an inclusive, quality and free primary education and secondary education on an equal basis* with others in the communities in which they live;
- c) *Reasonable accommodation of the individual's requirements is provided;*
- d) Persons with disabilities *receive the support required, within the general education system, to facilitate their effective education;*
- e) *Effective individualized support measures* are provided in environments that maximize academic and social development, consistent with the goal of full inclusion.

28/09/2021

Accessibility and SEND



# ONU: CRPD 2006

## Article 24 - 3

- a) Facilitating the learning of Braille, alternative script, *augmentative and alternative modes, means and formats of communication and orientation and mobility skills*, and facilitating peer support and mentoring;
- b) Facilitating the learning of sign language and the promotion of the linguistic identity of the deaf community;
- c) Ensuring that the education of persons, and in particular children, who are blind, deaf or deafblind, is delivered in the most *appropriate languages and modes and means of communication for the individual*, and in environments which maximize academic and social development.





# Medical versus Social Model

## **PERSONAL**

vs.

## **SOCIAL**

- |                         |     |  |
|-------------------------|-----|--|
| • Medical care          | vs. | Social integration                       |
| • Individual treatment  | vs. | Social action                            |
| • Professional help     | vs. | Individual and collective responsibility |
| • Personal adjustment   | vs. | Environmental adjustment                 |
| • Behavior              | vs. | Attitude                                 |
| • Care                  | vs. | Human rights                             |
| • Individual adaptation | vs. | Social change                            |

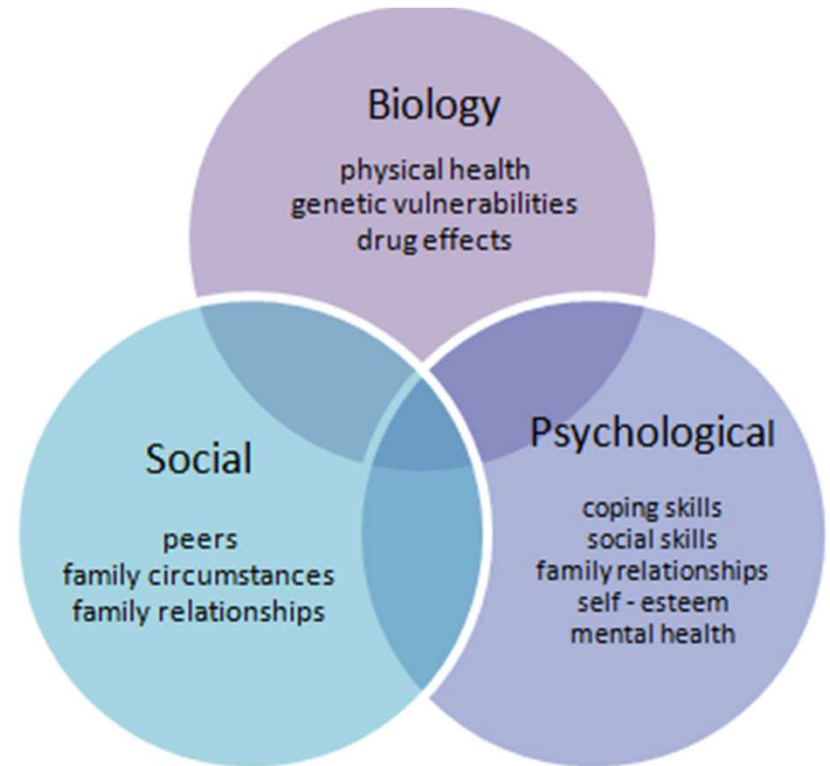
# WHO concept: toward ICF

Applying *biopsychosocial* model of individual health: health is not just absence of illness, but a *well-being condition*

The main idea is to consider the functional behaviour as part of own personal profile going beyond the classification of “handicapped”

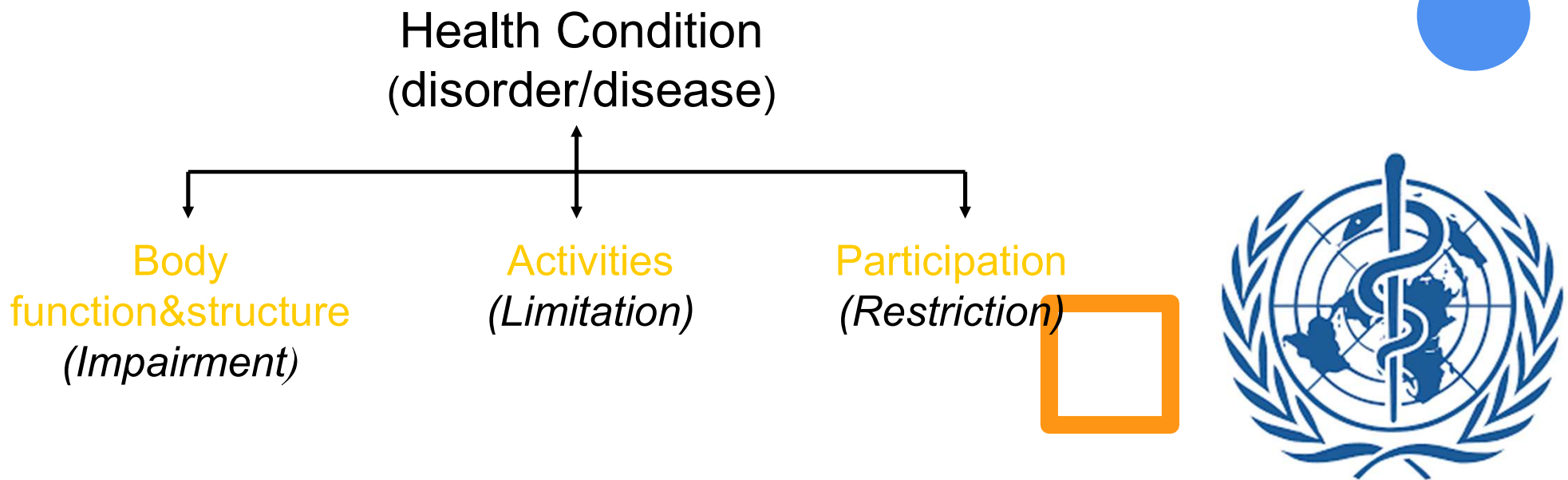
Disability is the result of combination of personal functional profile and environment.

Nobody is disabled till s/he is not interacting with a specified environment



# WHO – ICF (2001) - ICF-CY (2007)

## International Classification of Functioning, Disability and Health





# Body Function and Structures

- Physiological and psychological function of body systems
- Very specific recording of detailed functional abilities and impairments
- Not linked to cause. For example, *fluency and rhythm of speech functions* – could be from stuttering, stroke, or autism

# Body Functions and Structures Broken into Eight Chapters

|   |  |
|---|--|
| <b>Mental functions</b>   | <b>Structures of the nervous system</b>  |
| <b>Sensory functions and pain</b>   | <b>The eye, ear and related structures</b>                                     |
| <b>Voice and speech functions</b>   | <b>Structures involved in voice and speech</b>                                 |
| <b>Functions of the cardiovascular, haematological, immunological and respiratory systems</b> | <b>Structures of the cardiovascular, immunological and respiratory systems</b> |
| <b>Functions of the digestive, metabolic and endocrine systems</b>                            | <b>Structures related to the digestive, metabolic and endocrine systems</b>    |
| <b>Genitourinary and reproductive functions</b>   | <b>Structures related to the genitourinary and reproductive systems</b>        |
| <b>Neuromusculoskeletal and movement-related functions</b>                                    | <b>Structures related to movement</b>  |
| <b>Functions of the skin and related structures</b>   | <b>Skin and related structures</b>   |

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# Activities and Participation

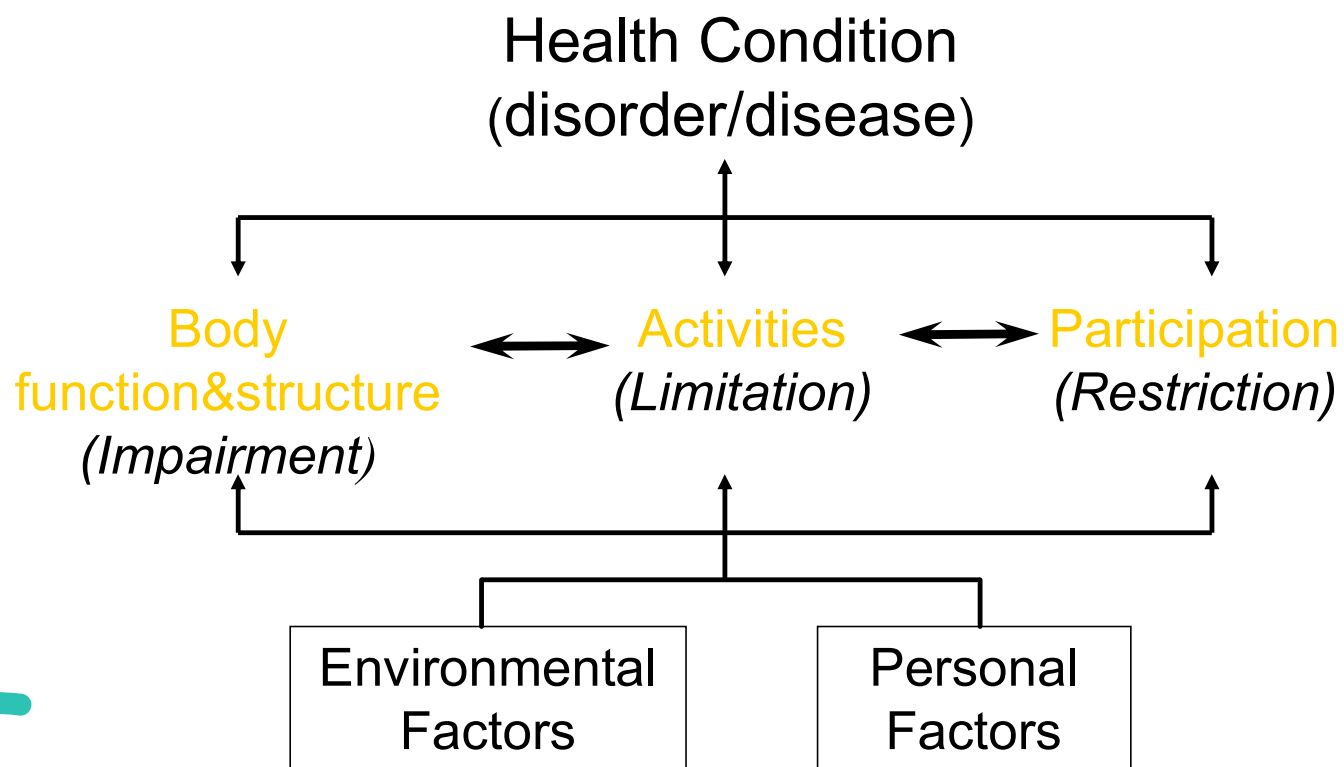
- Describes **individual's** functioning as a whole person, as opposed to function and structure of his/her body parts
- Range from Basic to Complex
  - basic would be, for example, dressing, eating, and bathing
  - complex include work, schooling, civic activities



# Classification of Activities and Participation

- 1 **Learning & Applying Knowledge**
  - 2 **General Tasks and Demands**
  - 3 **Communication**
  - 4 **Movement**
  - 5 **Self Care**
  - 6 **Domestic Life Areas**
  - 7 **Interpersonal Interactions**
  - 8 **Major Life Areas**
  - 9 **Community, Social & Civic Life**
- 

# ICF Interactions





# Environmental factors: facilitators or barriers?

- 1 **Products and technology** (e.g. for daily living, mobility, communication, education, employment, culture/recreation/sport, religion, buildings for public use and private use)
- 2 **Natural environment and human-made changes** to environment (e.g. climate, light, time related changes, sound, air quality)
- 3 **Support and relationships** (e.g. family, friends, colleagues, professionals)
- 4 **Attitudes** (e.g. family, friends, colleagues, strangers, professionals, societal attitudes)
- 
- 5 **Services, systems and policies** (e.g. relating to architecture, communication, transportation, legal, media, economic, social security, health care, education, employment, political)

# Recognising the cultural change



# Who will apply to ICF?

All persons, all learners defining their interactions with the environment

*4A for Autonomy*



Andrich



Example...





**Good design enables;  
bad design disables**

*Il buon design produce abilità;  
il cattivo design produce disabilità*

*(EIDD Stockholm declaration, 2006)*

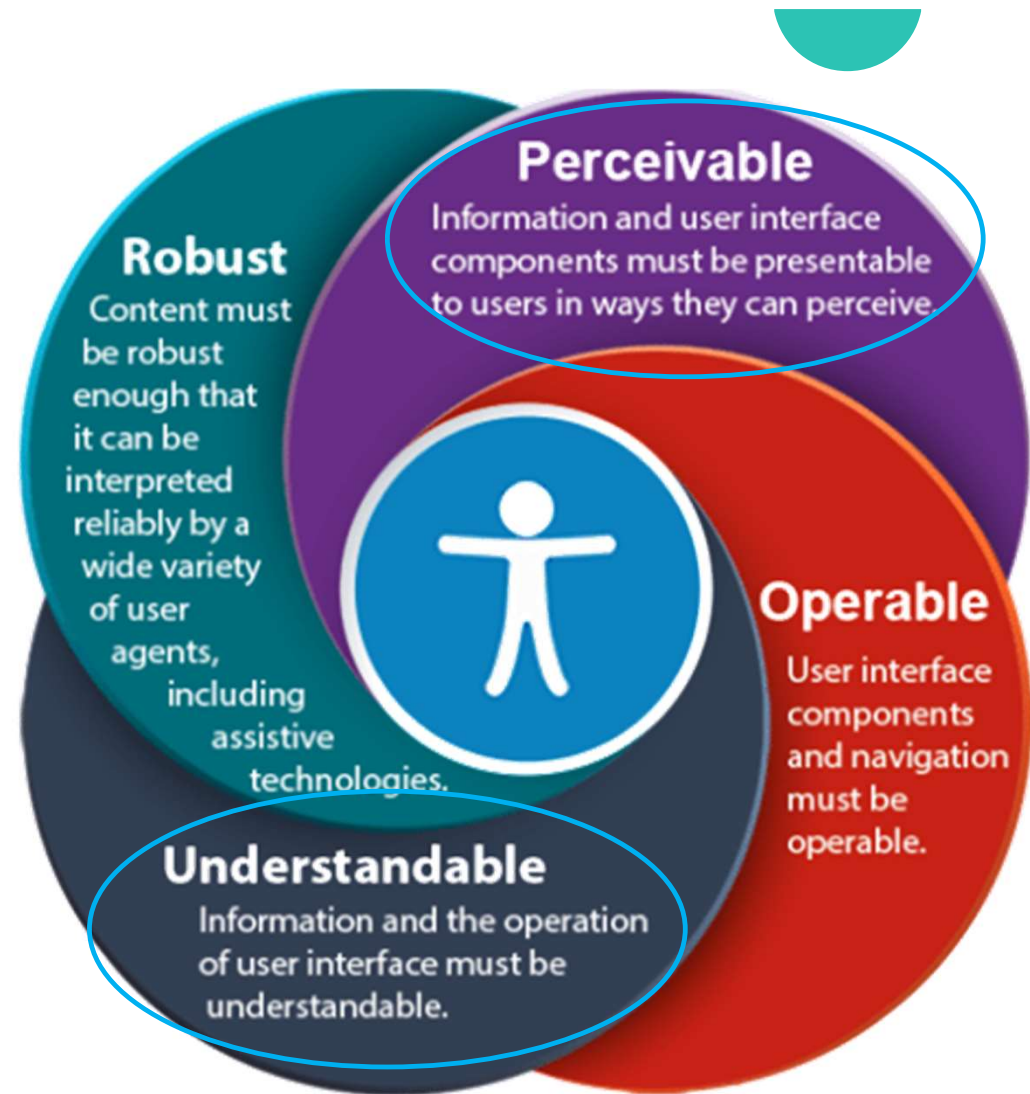


# Each solution should be:

EN 301 549 V2.1.2 (2018-08)



Accessibility requirements for ICT products and services





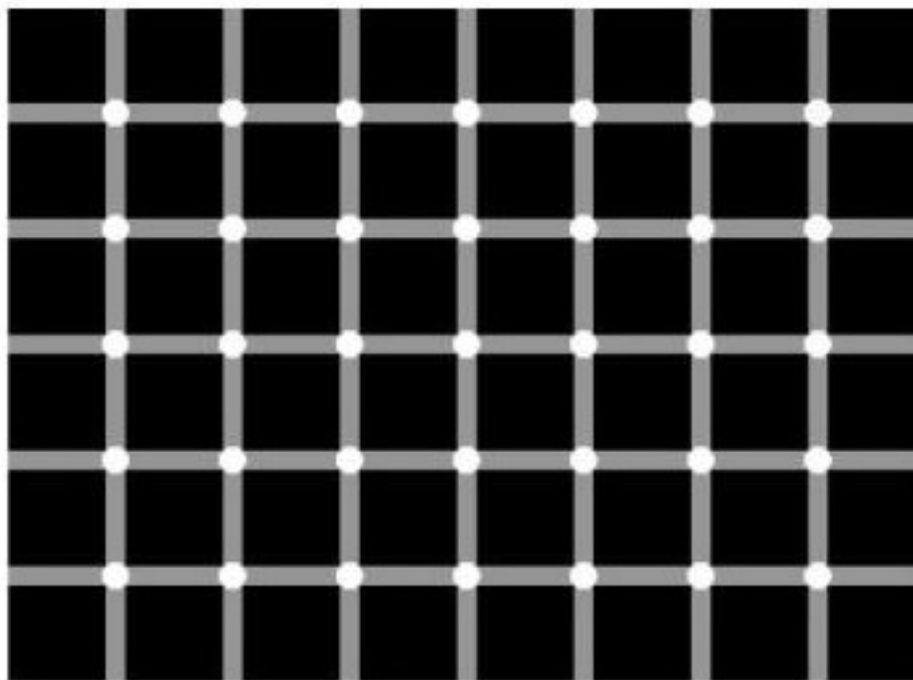
# For example: contrast levels

|      | 0%  | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 0%   |     | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc  |
| 10%  | abc |     | abc | abc | abc | abc | abc | abc | abc | abc | abc  |
| 20%  | abc | abc |     | abc | abc | abc | abc | abc | abc | abc | abc  |
| 30%  | abc | abc | abc |     | abc | abc | abc | abc | abc | abc | abc  |
| 40%  | abc | abc | abc | abc |     | abc | abc | abc | abc | abc | abc  |
| 50%  | abc | abc | abc | abc | abc |     | abc | abc | abc | abc | abc  |
| 60%  | abc | abc | abc | abc | abc | abc |     | abc | abc | abc | abc  |
| 70%  | abc | abc | abc | abc | abc | abc | abc |     | abc | abc | abc  |
| 80%  | abc | abc | abc | abc | abc | abc | abc | abc |     | abc | abc  |
| 90%  | abc | abc | abc | abc | abc | abc | abc | abc | abc |     | abc  |
| 100% | abc | abc | abc | abc | abc | abc | abc | abc | abc | abc |      |

|        | -100% | -80% | -60% | -40% | -20% | 0% | 20% | 40% | 60% | 80% | 100% |
|--------|-------|------|------|------|------|----|-----|-----|-----|-----|------|
| blu    |       |      |      |      |      |    |     |     |     |     |      |
| rosso  |       |      |      |      |      |    |     |     |     |     |      |
| giallo |       |      |      |      |      |    |     |     |     |     |      |



# Considering effects on eyes and brain



Count the black dots! :o)



# A simply try on a text

TRY TO READ THIS PHRASE TO UNDERSTAND WHAT COULD CHANGE

Try to read this phrase to understand what could change



# HINTS designing an accessible ART Beyond Gaze experience

We have to take into account:

- Cultural diversity
- Attention deficit
- Emotional disturbances
- Sensorial disability
- Motor disability
- Cognitive disturbs



# Cultural diversity

- Take into account language barriers (written and spoken)
- Provide iconic alternatives for representations of meanings
- Respect belief and sensitivities belonging to other cultures
- Include symbols and cultural references of others
- Adjust the level of engagement on basis of personal profiles
- Leave free to choose own role and level of contribution to proposed work



# Attention deficit

- Point on high level of involvement
- Develop meaningful social engagement during work in class
- Responsible learners without stressing
- Vary the type of activity and the answer requested
- Pay attention to stress/interest signals, proposing alternatives or rest



# Emotional disturbances

- Anticipate and describe what would happen, limiting surprise effects
- Leave free to participate or to find own way to participate
- Involve colleagues to support the others
- Find free the way to find distress as exit strategy against «problem behaviour»



# Sensorial disability

- Design learning experiences providing sensorial alternatives (haptics/visual)
- Design experiences based on specific sensorial channels
- Find suitable roles in games and activities
- Consider the introduction of specific languages: braille as well as sign language



# Ex. Haptic reproductions



# Motor disability

- Design activities to be accessible and exploitable in any case (also providing adaptation of environment)
- Adapt tasks to be accessible in any case (for example manipulation)
- Consider the introduction of AT already in use or purposely adopted to enhance participation (i.e. special PC interface)



# Ex. Adapting interfaces



# Cognitive disturbances

- Foster the participation within a peer-help context
- Adapt the performance requested to limit frustration and stress: simplified context decode, give time and place to get full participation among the others
- Adopt (if needed) a one-to-one support scheme for specific tasks or sub-tasks





