Disability Mapping Guide for Children's Digital Game Producers

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IDEA Categories of Disabilities Mapping[1]

IDEA Category	Gaming Considerations	Accessibility Support Feature Set
Autism This is a developmental disability that is also known as Autism Spectrum Disorder (ASD). This disorder results in a number of symptoms, but mainly affects (a) a child's social and communication skills and (b) tolerance for multiple sensory inputs.	The ability to perceive emotional constructs or interpret correct game play and "right answers" vs. "wrong answers" may be impeded for these children.	• Concrete language is used instead of figurative/abstract language. • When facial expressions and body language appear, corresponding words are used to reinforce meaning. • Representations of objects and people are literal • When gamers are given options, provide—whenever possible—specific choices rather than "do whatever you want," or make "whatever you want" one of the options. • A mixture of positive game reinforcements (visual, audio and text) is used to signal when a correct or incorrect game move or problem solution has been entered. • Visually clean game space

IDEA Category	Gaming Considerations	Accessibility Support Feature Set
Blindness and Visual Impairment Some children in this category will be blind with no serviceable sight, while others may have very low vision even with correction.	Students will have difficulty seeing text and other screen elements. Students who are blind will be unable to see any features of the game or use the mouse to engage in game play.	• All game play controls are keyboard accessible. • Instead of drag-and-drop, moveable game pieces are activated by keyboard selection or tapping. • Audio description is used to identify all game controls, buttons, dialogs, reinforcement cues and on-screen info. • On-screen text size can be enlarged. • • Visual display contrast can be increased. • Color scheme can be changed or set to black & white. • Sound effects are used to reinforce when players have selected or moved pieces or activated game controls. • No critical game information is portrayed by color alone. • Periodic visual and audio prompts continue to remind the player of the next step.
Deafness and Hearing Impairment This category includes children who have significant hearing impairment, as well as some students who may be profoundly deaf.	Essential game information and cues delivered via sound will be difficult or impossible for these children to hear, even with amplification.	• All spoken game dialogue is available via closed captions or on-screen text. • Re-sizable fonts • Audio game cues and essential sound effects are also be made available via sight, such as a gently flashing indicator or momentary iconographic on-screen device. • Audio volume of spoken dialogue is individually adjustable to allow for increased volume and does not dip below "medium soft". • Visual cues accompany auditory clues/cues, e.g,, **_POW!_**

IDEA Category	Gaming Considerations	Accessibility Support Feature Set
Deaf/Blindness Children in this category have both significant visual and hearing impairments.	These children will be unable to effectively access game information or controls by sight or sound.	• Alternative text ("alt text") labels are used to identify all game controls, buttons, dialogs, reinforcement cues and on-screen information. • All game play controls are keyboard accessible. • Game play and help information is available through a refreshable braille display.
Developmental Delay ("DD") A delay in one or more of the following areas: physical development; cognitive development; communication; social or emotional development; or adaptive [behavioral] development.	Children with developmental delays may be chronologically older than the usual cognitive age range for the game's users. If the characters in the game are very young, some DDs will reject the game as a 'baby's game,' even if the game skills are at the right level.	• Multiple game inputs: touch, mouse, keyboard, switch • Multiple game difficulty levels • Timed and untimed PLAY options • Built-in self-directed experimentation separate from actual gameplay. • A mixture of positive game reinforcements (visual, audio and text) is used to signal when a correct or incorrect game move or problem solution has been entered. • Clear representations of positive and negative spatial relationships
Emotional Disturbance This term covers a number of mental disorders, including anxiety disorder, bipolar disorder, obsessive-compulsive disorder, schizophrenia and depression.	Children with anxiety disorders or schizophrenia may be overly sensitive to sudden loud sounds or bright flashing indicators.	• All audio outputs are individually adjustable. The audio levels of (a) music, (b) sound effects, and (c) narration/audio description can be independently adjusted or turned off completely. • The color scheme used in the game is selectable. • Timed play can be turned off.

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Intellectual Disability (formerly referred to as *Mental Retardation*) Children with this type of disability have significantly below average intellectual functioning. Down syndrome is one example of this type of disability.	The average level of game difficulty may be too difficult for these students. Spoken audio for the game may be at too high a vocabulary level for this population.	• Game intro and explanation sections are replayable. • Each game level is replayable. • Timed play can be turned off. • Captions and audio descriptions can be used at the same time to reinforce meaning. • Periodic visual and audio prompts continue to remind the player of the next step.
Multiple Disabilities A child with multiple disabilities has more than one condition covered by IDEA, not including deaf/blindness.	Considerations for this population will vary depending upon the mix of disabilities.	• Any combination of accessibility features can be used at the same time. • See more entries in the "Developmental Delay" and "Intellectual Disability" sections of this document
Orthopedic Impairment This includes a wide variety of neuromotor or musculoskeletal impairments and degenerative diseases. Some examples are cerebral palsy, muscular dystrophy, and limb deficiency.	Many of these conditions will severely impact hand movement and fine motor control.	• All game play controls are keyboard accessible. • Instead of drag-and-drop, moveable game pieces are activated by keyboard selection or tapping. • Keyboard navigation is switchable from tab/shift-tab to left arrow/right arrow. • The hit zone of selectable/clickable objects and buttons is large and easy to access.

IDEA Category	Gaming Considerations	Accessibility Support Feature Set
Other Health Impairments This is an umbrella term covering conditions that limit a child's strength, energy or alertness. One of the most prevalent examples is Attention Deficit / Hyperactivity Disorder (**AD/HD**).	Students with AD/HD may have problems staying focused on the current game task. They may get distracted by non-essential visual background stimulation and overly busy screen layouts.	• Opening game introduction and each game level explanation is 'skippable.' A child can get right to the game. • Help is available on each game level. • Timed play can be turned off. • Both captions and audio descriptions can be used at the same time to reinforce meaning. • Periodic visual and audio prompts continue to remind the player of the next step.
Epilepsy (part of this category) is a neurological disorder in which brain activity becomes abnormal, causing seizures or periods of unusual behavior, sensations, and sometimes loss of awareness.	Seizures can be triggered by strobe effects, striped patterns, and other sources of photosensitivity.	• Avoidance of strobe effects and striped patterns, and photosensitive images. • Avoidance of in-game flashing lights on police cars, fire trucks, ambulances, and safety alarms.

IDEA Category	Gaming Considerations	Accessibility Support Feature Set
Specific Learning Disability A learning disability is a neurologically based problem that affects the ability to read, write, and do math. Examples are dyslexia, Auditory Processing Disorder, dysgraphia, and dyscalculia.	Students may have problems reading text on the screen or understanding verbal instructions.	• Linear storyline development and content presentation • Multiple means to follow a story are provided: images, spoken words, words on screen • Multiple means to solve a math problem are provided: for math, numbers, shapes, sizes, etc. • Help is available on each game level. • Timed play can be turned off. • Captions and audio descriptions are always available. They can be used at the same time (or singly) to reinforce meaning. • Periodic visual and audio prompts continue to remind the player of the next step. • Visually clean game space
Speech or Language Impairment This is an umbrella term that covers a number of communication and language impairments, which can impede interpreting the emotional meaning or non-literal uses of words.	The use of figurative language such as sarcasm and puns may be difficult to understand for this population.	• Clear game instructions and intuitive game functions • Linear storyline development and content presentation • Concrete language is used instead of figurative/abstract language. • Images are used to help support text and audio information. • When facial expressions and body language appear, corresponding words are used to reinforce meaning. • Even when there is a sight gag, use 1-2 words to reinforce.

IDEA Category	Gaming Considerations	Accessibility Support Feature Set
Traumatic Brain Injury (TBI) This term describes an acquired injury to the brain caused by an external physical force. The resulting impairments can impact such abilities as cognition, language, memory, attention, problem solving, sensory, perceptual and motor abilities.	Considerations for this population will vary depending upon the types of resulting impairments manifested.	• Game intro and explanation sections are replayable. • Each game level is replayable. HELP is available on each game level. • Timed and untimed PLAY options • Captions and audio descriptions can be used at the same time (or singly) to reinforce meaning. • Periodic visual and audio prompts continue to remind the player of the next step. • Graphics and icons are used to help support text and audio information. • When facial expressions and body language appear, corresponding words are used to reinforce meaning. • Even when there is a sight gag, 1-2 words are used to reinforce meaning.

[1] IDEA categories of disabilities: The nation's special education law is called the Individuals with Disabilities Education Act, or IDEA.
The IDEA defines the specific disability categories which are used in this chart. http://www.parentcenterhub.org/categories/

It's a New IDEA

INCLUSIVE GAMING BASICS:

I. FUNCTIONALITY

1. **Sign-in**   Sign-in should be easy. If there are multiple games on the site, the sign-in process should be consistent for all games on the site

2. **Color**   Color optimized for low vision and color-blind viewers.

3. **Contrast**   User-adjustable contrast of on-screen text and backgrounds for reading clarity

4. **Color and narrative**   No critical information is portrayed by color alone

5. **Strobe effects,**   Avoidance of strobe effects, striped patterns and photosensitive images.

    Striped patterns   Avoidance of flashing lights on police cars, fire trucks, ambulances, and safety alarms.

6. **Fonts, font size**   Fonts are san-serif, on-screen font size is adjustable, and default font size is 14 pt.

7. **Captions**   Optional display of captions is always available

8. **Game audio**   The ability to turn the game's sound on/off

9. **Music/sound effects** The ability to turn the game's music/sfx on/off, but keep the spoken word contact active

10. **Screen reader**   Screen reader compatible text and dropdown menus

11. **Image description**   Selectable image descriptions of photos, charts, and graphs via alt tags

12. **Audio description**   Audio description of all media

INCLUSIVE GAMING BASICS:

I.   FUNCTIONALITY, continued

13.	**Braille**	Text is structured to interface with braille devices
14.	**Tactile graphics**	Tactile graphics of select content
15.	**Mouse over**	Objects can enlarge on mouse-over; textual clues when applicable
16.	**Assistive listening devices**	Media interfaces with assistive listening devices
17.	**Game play speed**	Game play speed is variable, e.g., slow, medium, fast
18.	**Game play options**	Game play exclusively through keyboard-only controls, or alternate input devices
19.	**Untimed/timed play**	Timed and untimed play options
20.	**Pause/resume feature**	Pause/resume feature available throughout the game.
21.	**Hit zones**	The hit zones of selectable/clickable objects and buttons are large and easy to access.
22.	**HELP**	Help menu or icon appears throughout the game and provides support via audio and text
23.	**User controls and preferences**	User controls and user preferences dashboards are, themselves, accessible

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INCLUSIVE GAMING BASICS:

II.   USER EXPERIENCE CONSIDERATIONS

1. **Navigation**   Easy navigation by a wide range of players

2. **Instructions**   Instructions and tutorials are easy to understand (possibly a second, simplified version)

3. **Consistent language**   Consistent use of the same term or word for the same object

4. **Figurative language**   Figurative language used only when essential to the game, or when explained in context

5. **Images of objects and people**   Representations of objects and people are literal and real-world proportional

6. **Picture/word association**   The appearance of pictures and the meaning of associated words is clear.

7. **Sequence and progression**   Concepts and learning activities progress naturally from simple to complex

8. **Clues**   Environmental clues support ongoing investigation; auditory clues paired with visual reinforcement tools; an avoidance of first-time out-of-context clues.

8. **Problem solving**   The game's design supports problem solving and self-correction

9. **Motivation, reinforcement and incentives**   Players receive lots of motivational incentives during game play.

10. **Progress tracking**   Users can track their progress and achievements in a comprehensive way.

11. **Independent exploration**   Open-ended play options that meet the child's communication skills

12. **Independent exploration: "ghost town"**   Open-ended independent pre-game exploration of the environment with actionable characters in the game

INCLUSIVE GAMING BASICS:

II.   USER EXPERIENCE CONSIDERATIONS, continued

13. Independent exploration: Expanded opportunities for iterative play when the game lends itself

  Iterative play

14. Future Learning   The game affords opportunities and options for future learning

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RESOURCES:

Accessible.Games   **AbleGamers'** comprehensive accessible gaming document

Game Accessibility Guidelines   Ian Hamilton's crowd sourced compilation

Games For Change   A community of practice dedicated to using digital **games** for social **change**

International Game Developer's Association   Game Accessibility Special Interest Group

Microsoft: *Developing Apps for Accessibility*

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