D-ESL

Inclusive video game design ideas for a language course
Inclusion Guidelines when making a Video Game

Accessibility guidelines for players with cognitive disabilities

Introduction

Cognitive disabilities impact people's perception, memory, attention, problem-solving, and comprehension. Some examples are attention deficit hyperactivity disorder(ADHD), Dyslexia, and Dyscalculia. The point is to create adaptations that tackle shared challenges among them.

Why are these guidelines needed?

All games use the players' cognitive capacities, which is harder for players with cognitive disabilities. Therefore, it is required to make adaptations.

Guidelines

Cognition related points/aspects

Simulation sickness

Simulation sickness occurs when your eyes tell you that movement is happening while your inner ear tells you that you are still.

To reduce it:

- allow deactivation of **head movement, screen shakes**, and **motion blur**
- allow the display of an **aiming reticle** and control the **field of view** angle.
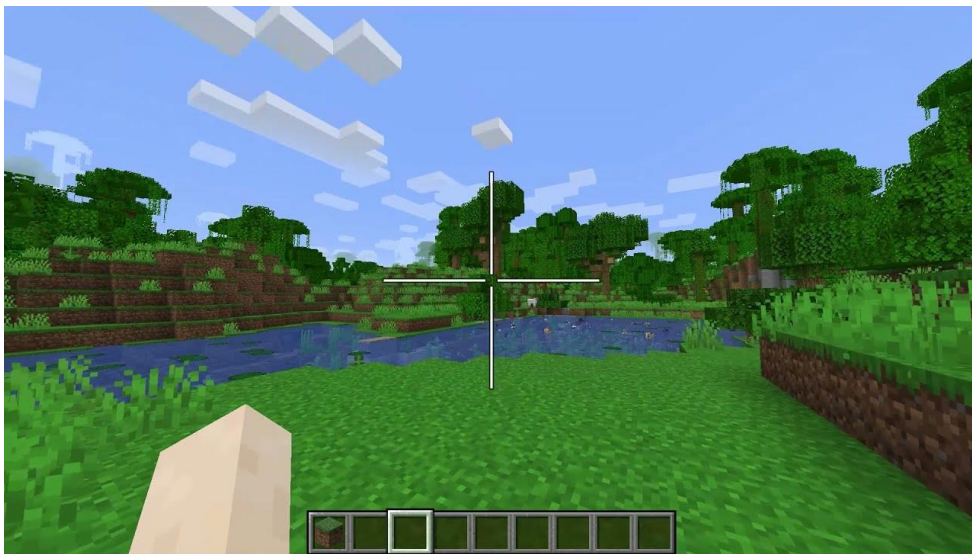- use **smooth camera** transitions instead of quick snaps and fast zooms.

Figure 1. Crosshair (aim reticle) addon in Minecraft (Mojang Studios, 2011) (source: https://i.ytimg.com)

Sensory load

Some people can be overwhelmed by the visual activity on the screen. Provide an option that lets players disable features like flashes and regular moving patterns. You can check a recorded piece of your gameplay by using the flash and pattern analyzer provided by HardingFPA

Executive function

It can take longer for players with cognitive disabilities to receive, process, and act on information.

The answer is to simplify it:

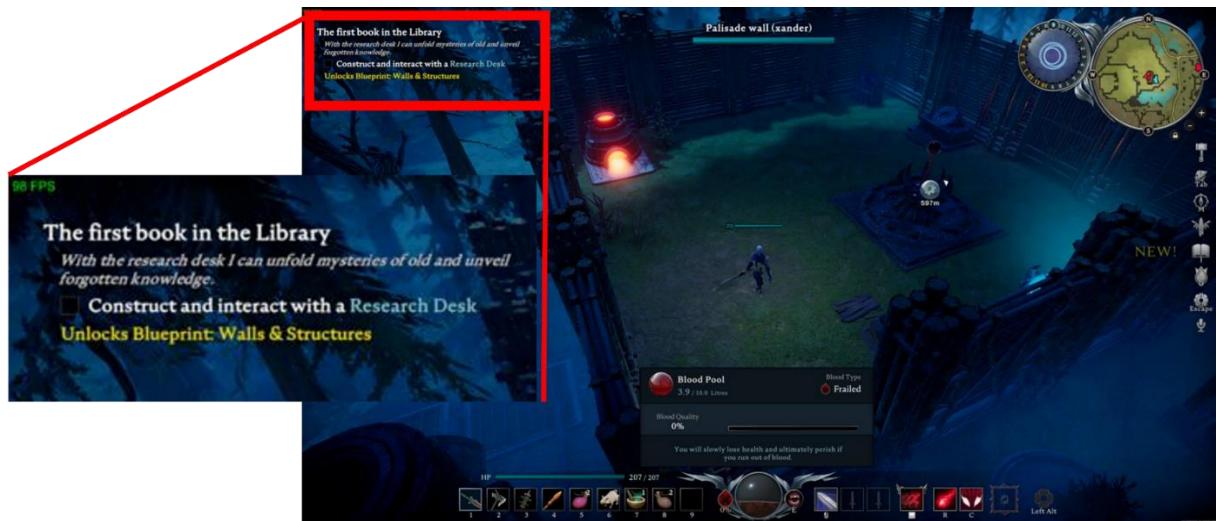- tell players what to do in clear, simple language.

Figure2. Example of objective reminder in Vrising (Stunlock studios, 2022). (source: techtribune.net)

- Help players filter information using:
  - filters on maps and menus:

Figure 3. The map in Animal Crossing, New Horizons (Nintendo, 2017) (source:

gameuidatabase.com)

  o quest journals that summarize story and objectives (in menus):
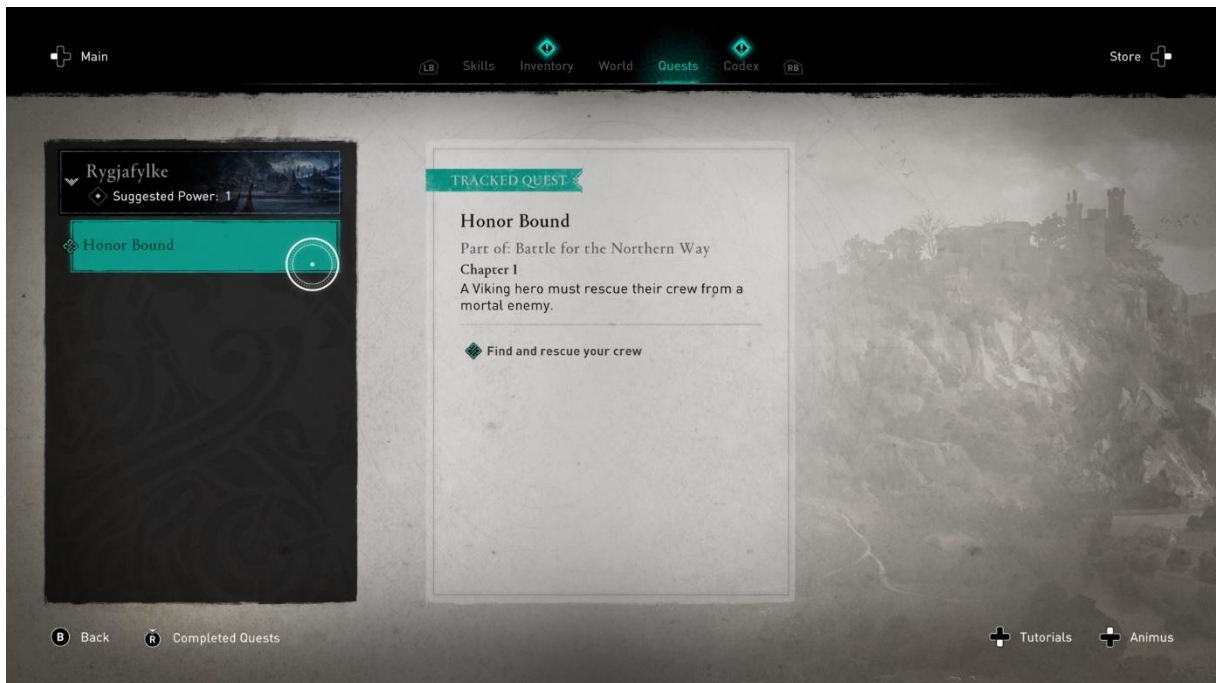
Figure 4. Quest journal in Assassin's Creed Valhalla (Ubisoft, 2020) (source:

gameuidatabase.com)

- a clear menu showing the player's items:

Figure 5. Inventory in Amnesia: Rebirth (Frictional Games, 2020) (source:

gameuidatabase.com).

- Simple, readable levels/environments.

Figure 6. Tiles in Armello (League of Geeks, 2015) (source: gameuidatabase.com).

Dyslexia

Make texts as clear and easy to read as possible:

- clean sans-serif fonts, or better: openDyslexic (opendyslexic.org) or FS-me fonts (FontSmith.com).

- mixed case rather than all caps

- 1.5 spacing

- no more than 70 characters in a line

- solid background for contrast

- Word complexity – Difficult and complex words should be avoided

- Captions

ⓘ Avoid text that advances automatically. Have the player push a button to skip to the next text.

In-game solutions

Navigation aids

Knowing where to go can be a challenge for players with SLDs. Support them with waypoints, minimaps, and objective markers.

Figure 7. In Ghost of Tsushima (Sucker Punch Productions, 2020) the wind tells you where to go (source: gamenibs.com/)

Figure 8. The Witcher 3's minimap (source: nexusmods.com)

Tutorials

Let players:

- replay/review tutorials at any time
- access useful information from the menu
- enjoy tooltips and help windows
- train in practice modes if possible

Pause and game speed

Have pause screens that show a static image of the game, and contain useful information (objectives etc.).

Manual saves

The ability to make manual saves at any time allows permits to retry a hard/difficult gameplay sequence instantly.

Controls

They should be intuitive and not too different from one situation to another. For example, equipping an item outside or inside a car should be similar.

Difficulty modes

Allow for a simplified experience for players with SLDs. The easier way is to modify game variables (maximum health, fall damages…).

Conclusion

The end goal here is to give more time to the player to process incoming input, by making input clearer, or by letting the player have more time to think about the next output they will provide to the game.
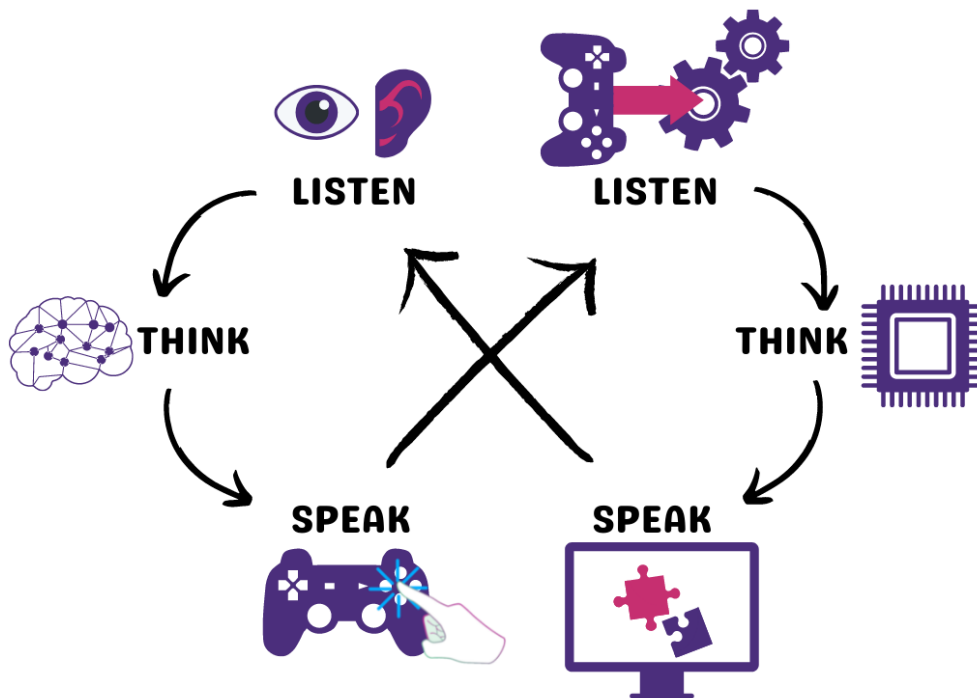

Figure 9. The conversation between human and computer - image ours (Based on: Swink. S, Game feel, 2008).

Resources and references

- [Game Maker's Toolkit]. (2019, February 7). 'Improving games for those with cognitive disabilities' [Video File]. Retrieved from https://www.youtube.com/watch?v=ObhvacfIOg0

Images

- i.ytimg.com. (n.d.). [Figure1. Crosshair (aim reticle) addon in Minecraft (Mojang Studios, 2011)]. Retrieved from https://i.ytimg.com/vi/sazXJH7Bpv0/maxresdefault.jpg
- techtribune.net. (n.d.). [Figure 2. Example of objective reminder in V rising (Stunlock studios, 2022)]. Retrieved from https://fr.techtribune.net/jeux-videos/v-rising-tips-for-beginners-survivre-a-la-vie-de-vampire/320041/
- gameuidatabase.com. (n.d.). [Figure 3. The map in Animal Crossing, New Horizons (Nintendo, 2017)]. Retrieved from https://www.gameuidatabase.com/index.php?&scrn=905#&gid=1&pid=29
- gameuidatabase.com. (n.d.). [Figure 4. Quest journal in Assassin's Creed Valhalla (Ubisoft, 2020)]. Retrieved from https://www.gameuidatabase.com/index.php?&set=1&scrn=81#&gid=1&pid=20
- gameuidatabase.com. (n.d.). [Figure 5. Inventory in Amnesia: Rebirth (Frictional Games, 2020)]. Retrieved from https://www.gameuidatabase.com/index.php?&set=1&scrn=100#&gid=1&pid=17
- gameuidatabase.com. (n.d.). [Figure 6. Tiles in Armello (League of Geeks, 2015)]. Retrieved from https://www.gameuidatabase.com/index.php?&set=1&scrn=46#&gid=1&pid=8
- gamenibs.com. (n.d.). [Figure 7. In ghost of Tsushima (Sucker Punch Productions, 2020) the wind tells you were to go]. Retrieved from https://media.gamenibs.com/d2b27dfd-1605556298326_medium.jpg

- nexusmods.com. (n.d.). [Figure 8. The witcher 3's minimap]. Retrieved from https://staticdelivery.nexusmods.com/mods/952/images/thumbnails/3361/3361-1540713284-1692549300.png

- D-ESL project. (2022). [Figure 9. The conversation between human and computer] based on: Swink. S. The conversation between human and computer. Game feel, 2008.

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