Accessible Player Experiences

A New Approach to Data Informed Design for Accessible Games

the ablegamers charity

Christopher Power

Vice-President

I lead our Games User Research Strategy Associate Professor at the University of York (UK)

I have presented at:
• Game Accessibility Conference EU
• ACM CHI
• Hundreds of students who I think like my lectures?

@cdspower

Mark Barlet

Founder / Executive Director

I founded The AbleGamers Charity in 2004.

I have presented at:
- GDC 6 times
- SXSW 2 times
- White House
- Countless other places no one cares about.

@MarkBarlet

Our Team

Jen Beeston, PhD Student
Paul Cairns, Scholar in Residence
Greg Haynes, Lead Games User Researcher
Craig Kaufman, Community Manager
Steve Spohn, Chief Operating Officer
Jessie Haugh, Head of R&D
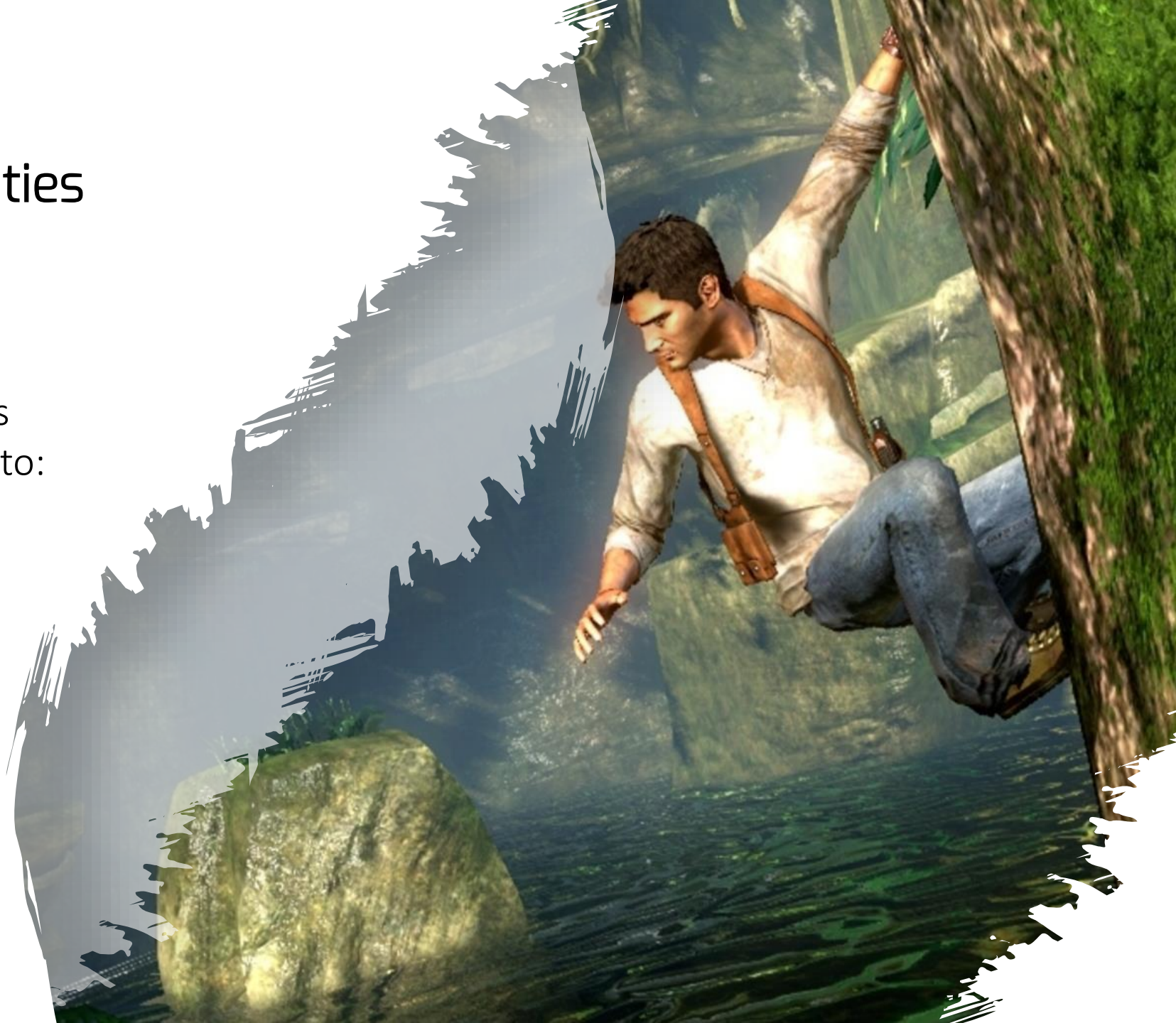Joseph Kelso, Stream Lead

@ablegamers

Players with Disabilities playing games

Accessibility is often framed as players with disabilities trying to:
- Take in information
- Take action in games
- Getting around the player-feedback loop

Playing games is so much more than just tapping buttons!

Games Are About
EXPERIENCE

Accessibility in games is about getting players with disabilities having experiences in games alongside their peers.

Accessible Player Experiences (APX) are when players can have the experience they want free from barriers related to their disability.

Potential Players with Disability

Potential Audience

Current estimates put the number of people with disabilities in developed economies as being between **13% and 22% of the overall population**.

Taking into account current gaming estimates, this means there are between **27 million and 45 million** potential players with disabilities in the U.S. market.

Our Players

Physical

57% with Upper Limb Disabilities

52% with Lower Limb Disabilities

Sensory

11% with Low Vision

6% who are Blind

3% who are Color Vision Deficient

9% with Low Hearing

4% who are Deaf

Processing

23% with Mental Health Disabilities

17% with Learning Disabilities
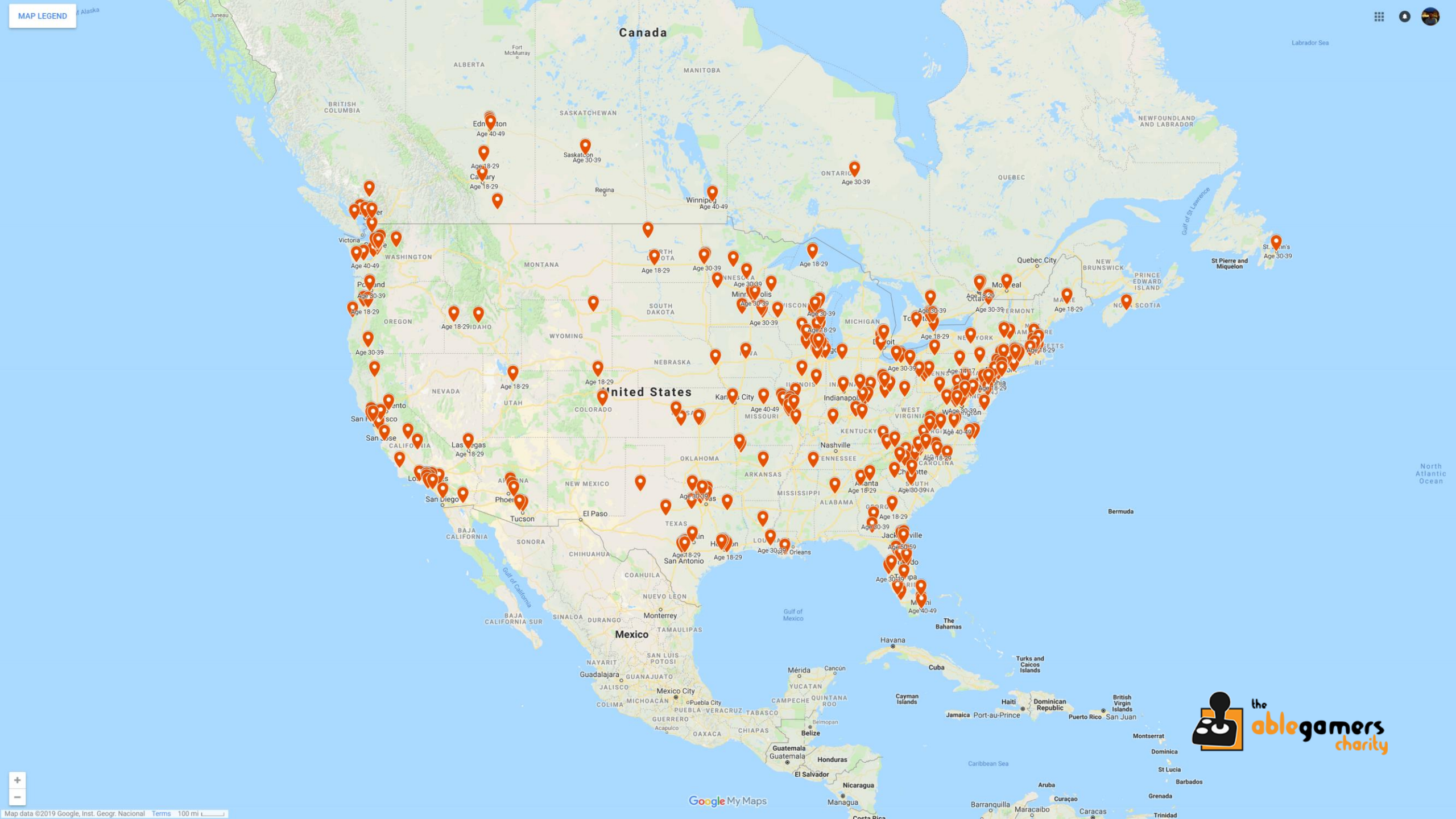
8% with CognitiveDisabilities

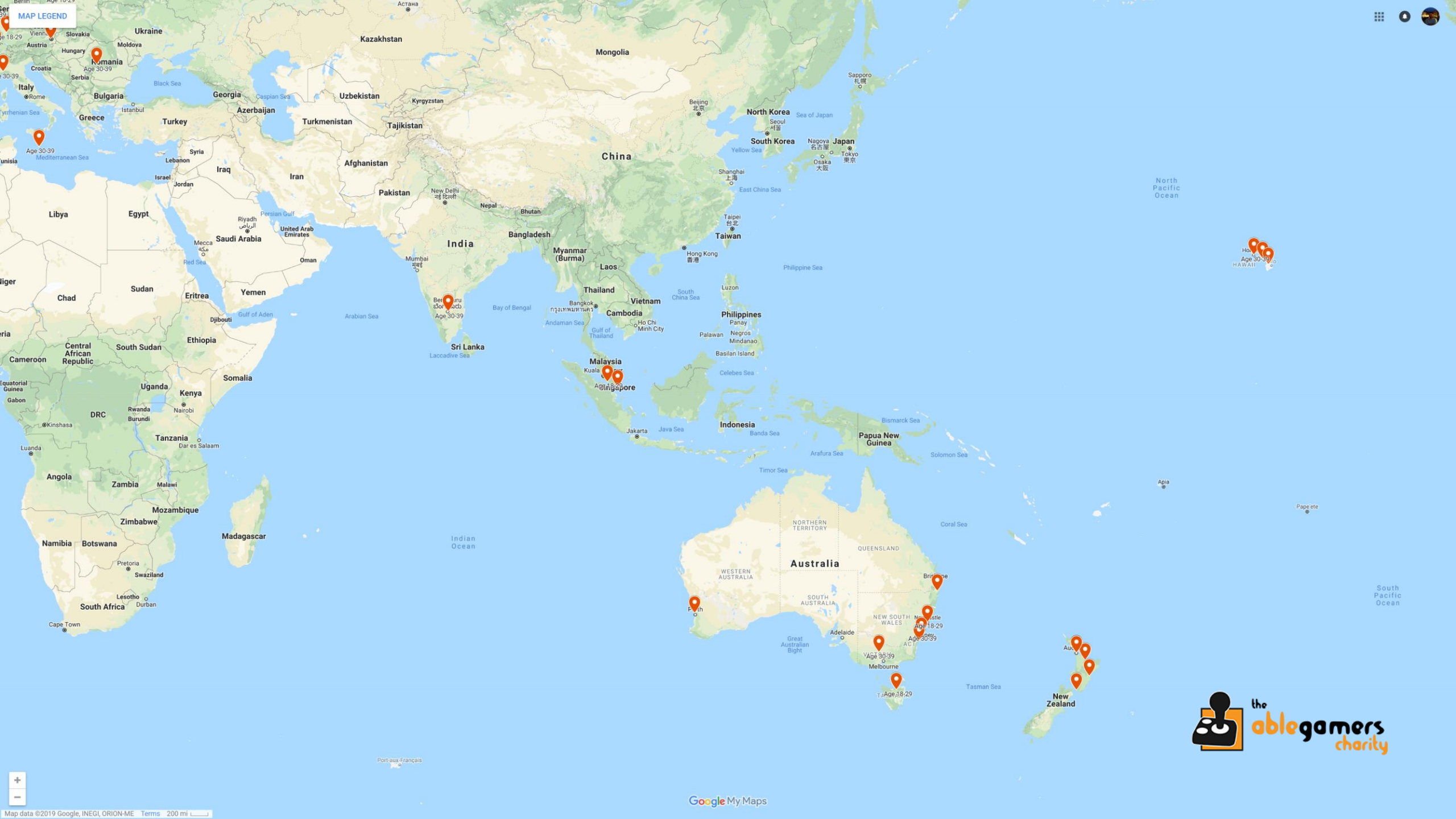10% who are Neurodiverse

Vast majority have more than 1 disability

450+

Active
Members

the ablegamers charity

Our Players

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52% with Lower Limb Disabilities

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10% who are Neurodiverse

Vast majority have more than 1 disability

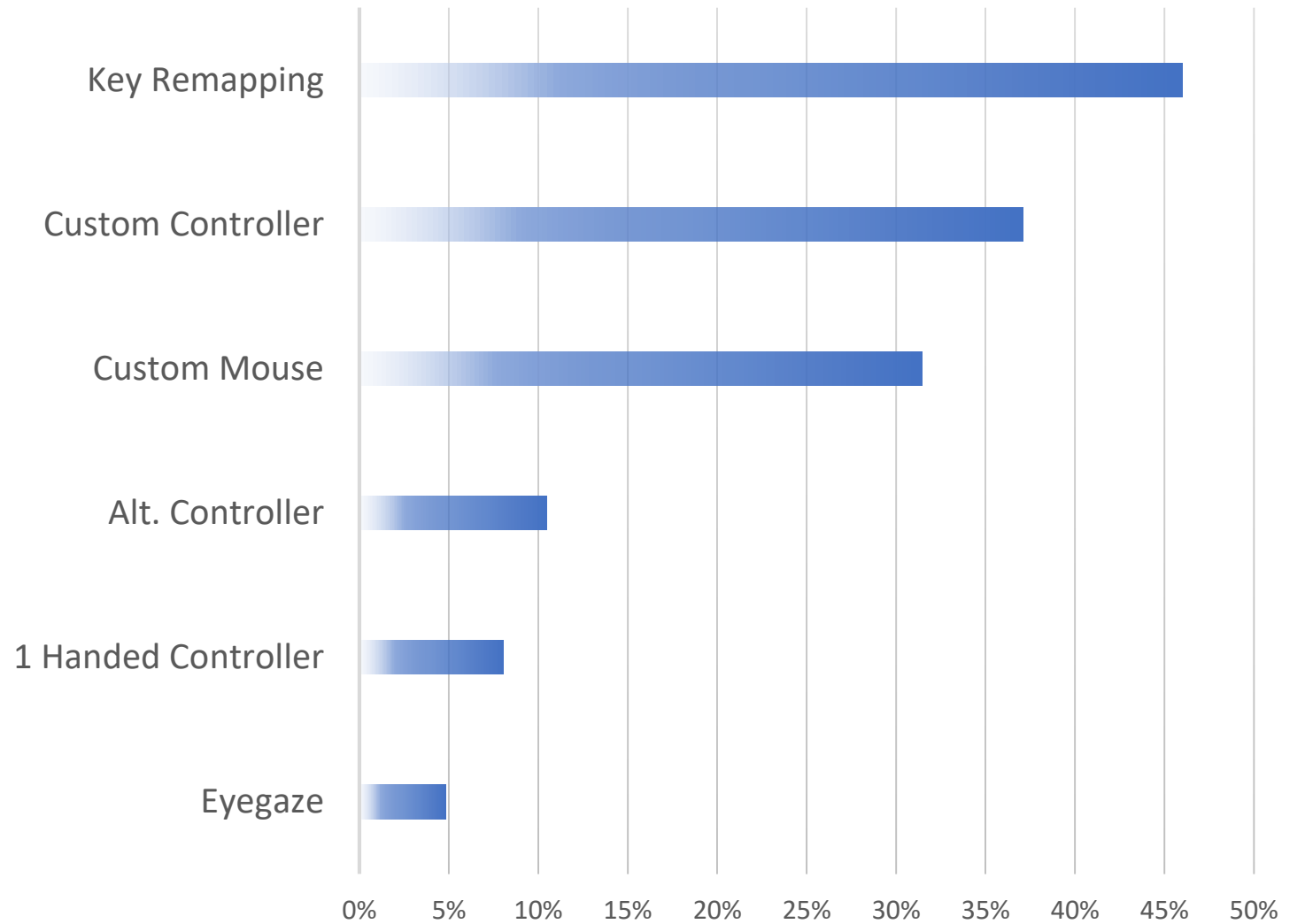**397**

Active
Members

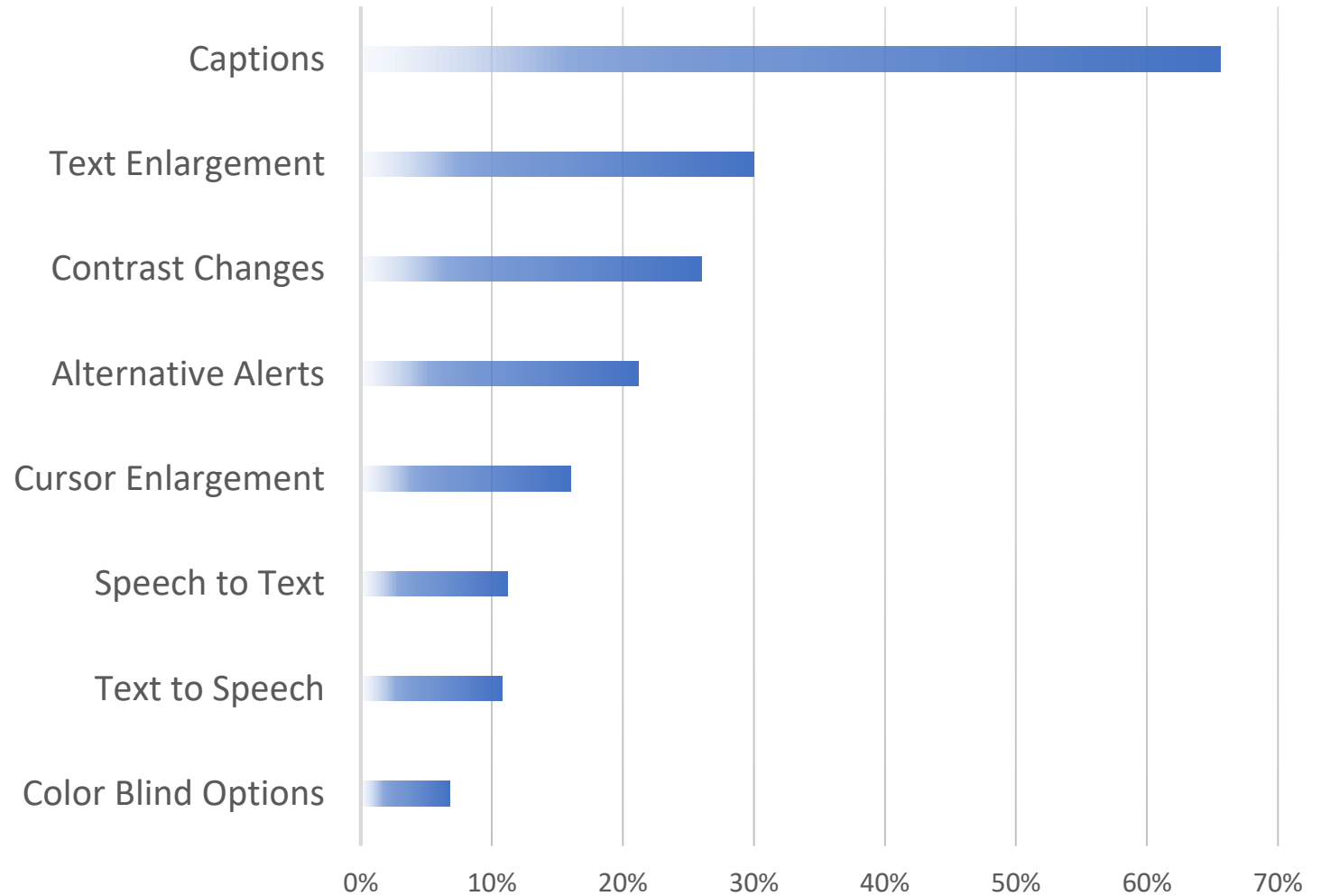# OPTIONS

Key Remapping **46%**

Turn on Subtitles **41%**

Recoloring Options **20%**

31%
Use assistive technology

63%
Use software options

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Flexibility of Presentation

Value of Gaming to Players with Disabilities
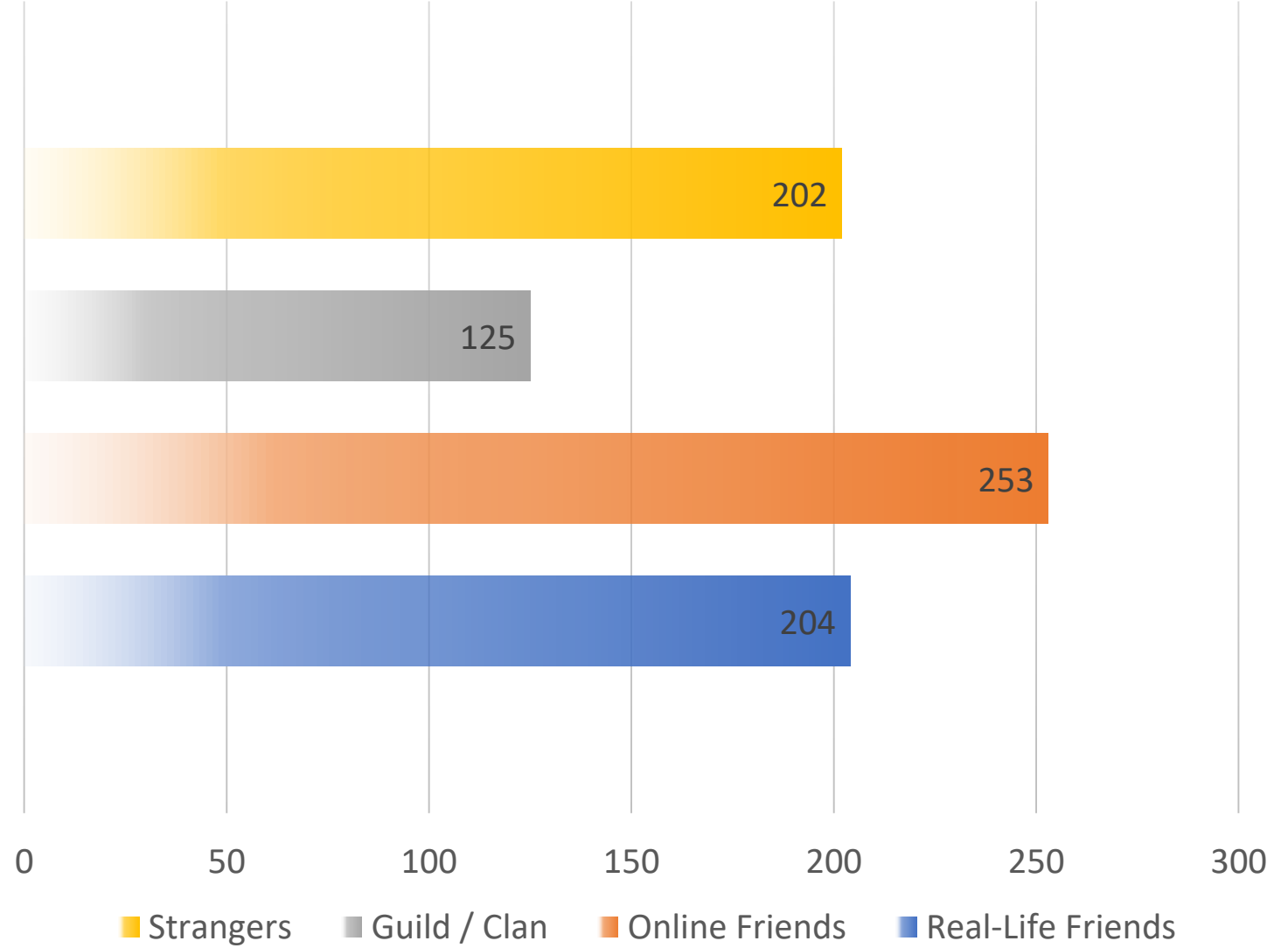
122

Player Panels members

71

PAX East Attendees

Desired Experiences

- Enabled through play
- Connected with others
- Benefit from the time played
- Diverted from everyday concerns
- Enriched in shared culture
- Fun and enjoyment in what is a way of life

Play Style

Primary Hobby: **56%**
Gamer: **58%**
Hardcore Gamer: **38%**
Casual Gamer: **35%**

Typical Session:
2-4 Hours: **48%**
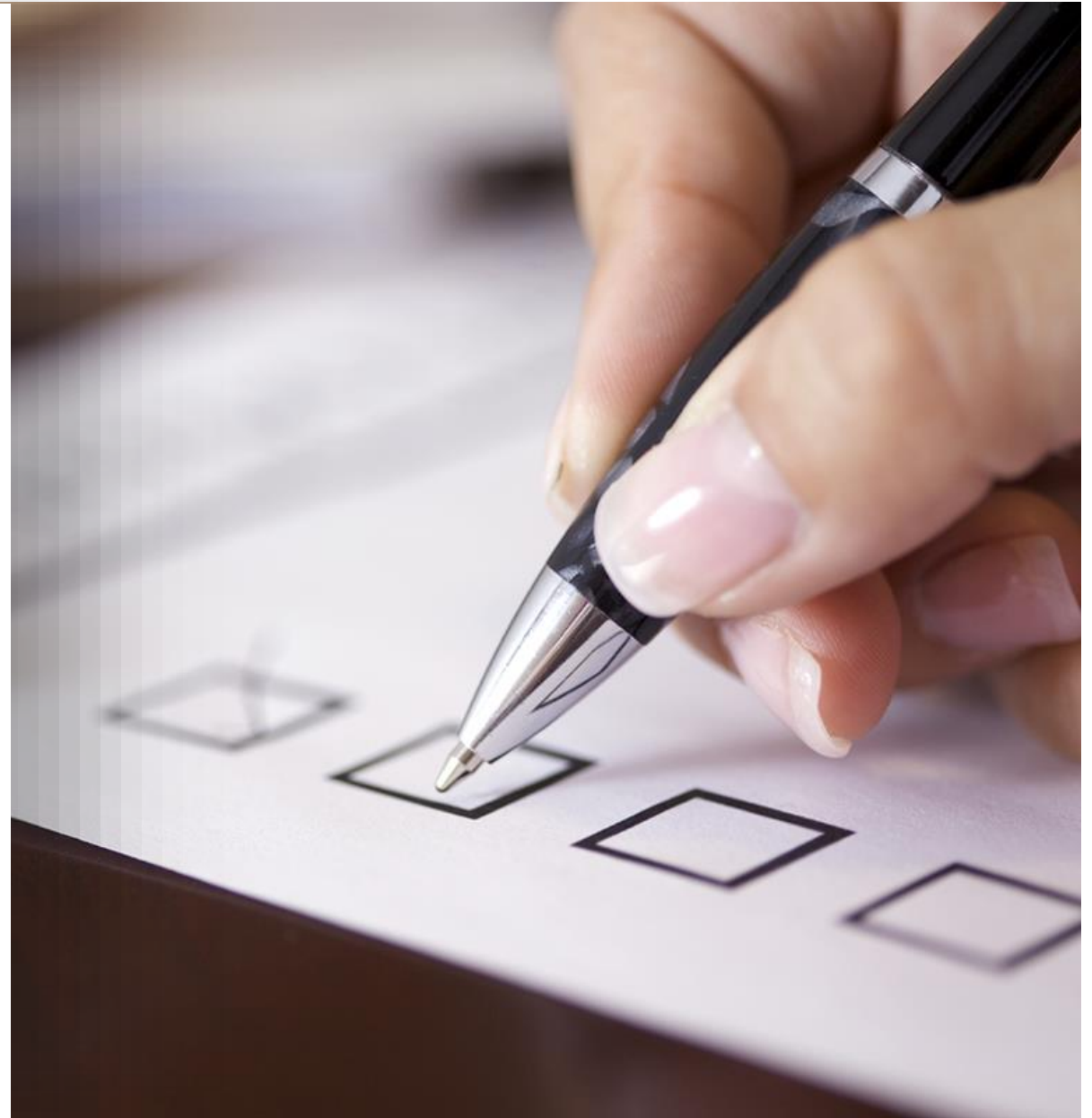Over 5 hours: **25%**

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How do we create
Accessible Player Experiences?

Current Accessibility Practices

Heavily based on checklists

Focuses on features not experiences

Stifles innovation and creativity

Evaluative not generative

Lacks systematic player data

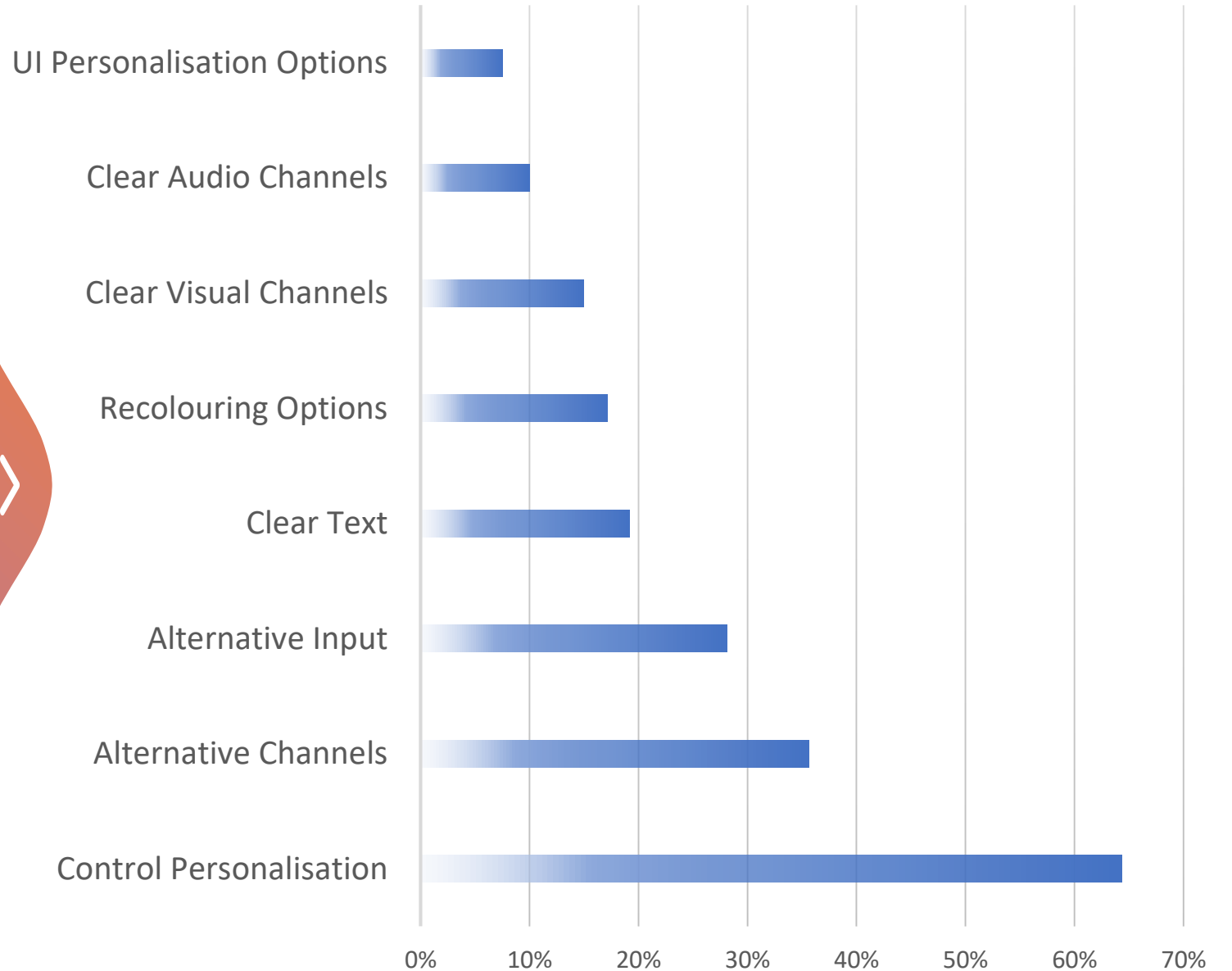# Priority Options for Players with Disabilities

What do players see as being important accessibility features?

Recruited 155 players with disabilities through AbleGamers Player Panels

"What are the top 5 accessibility options you look for in games?"

Access Options

Player Action

Understanding the Game State
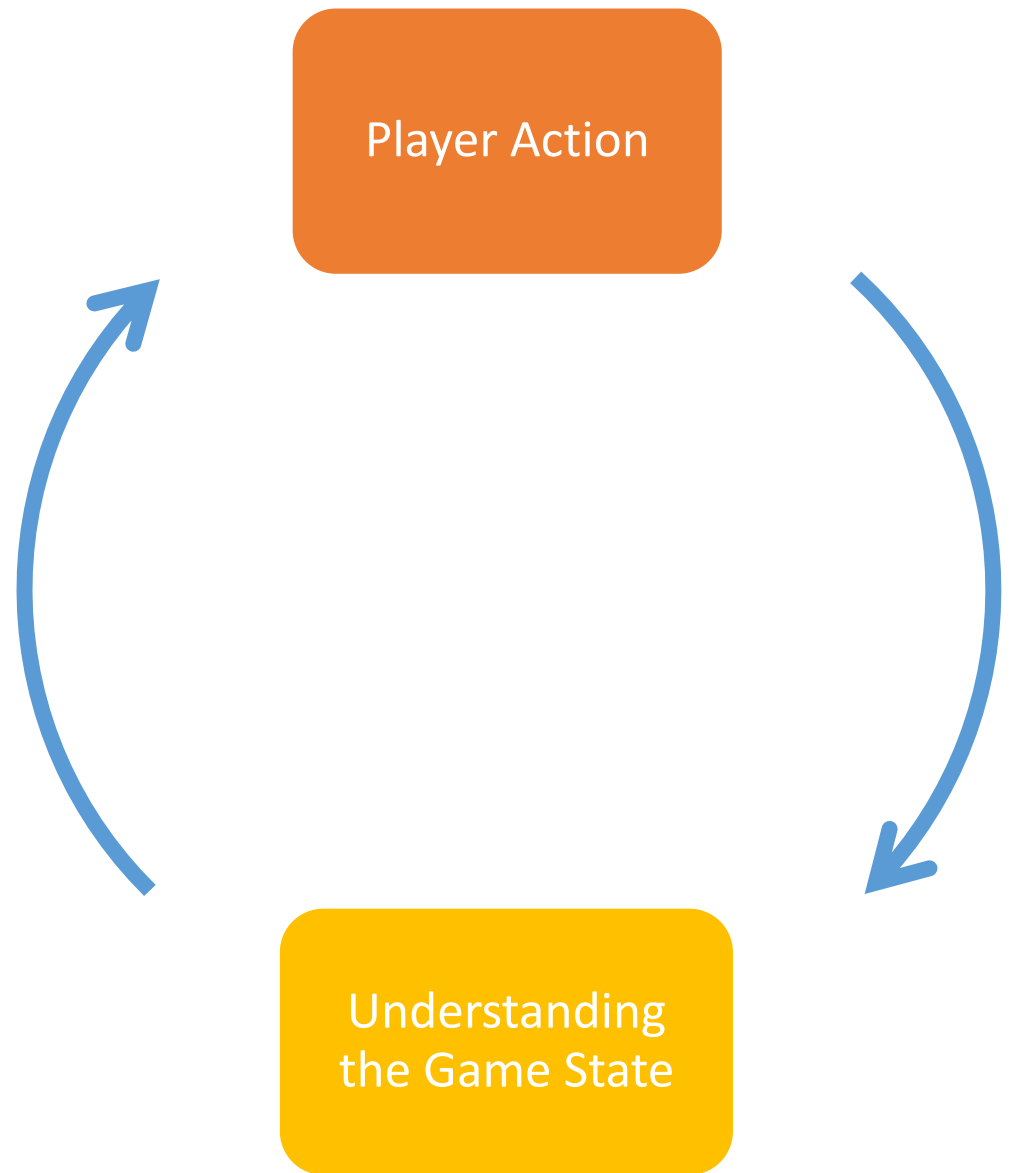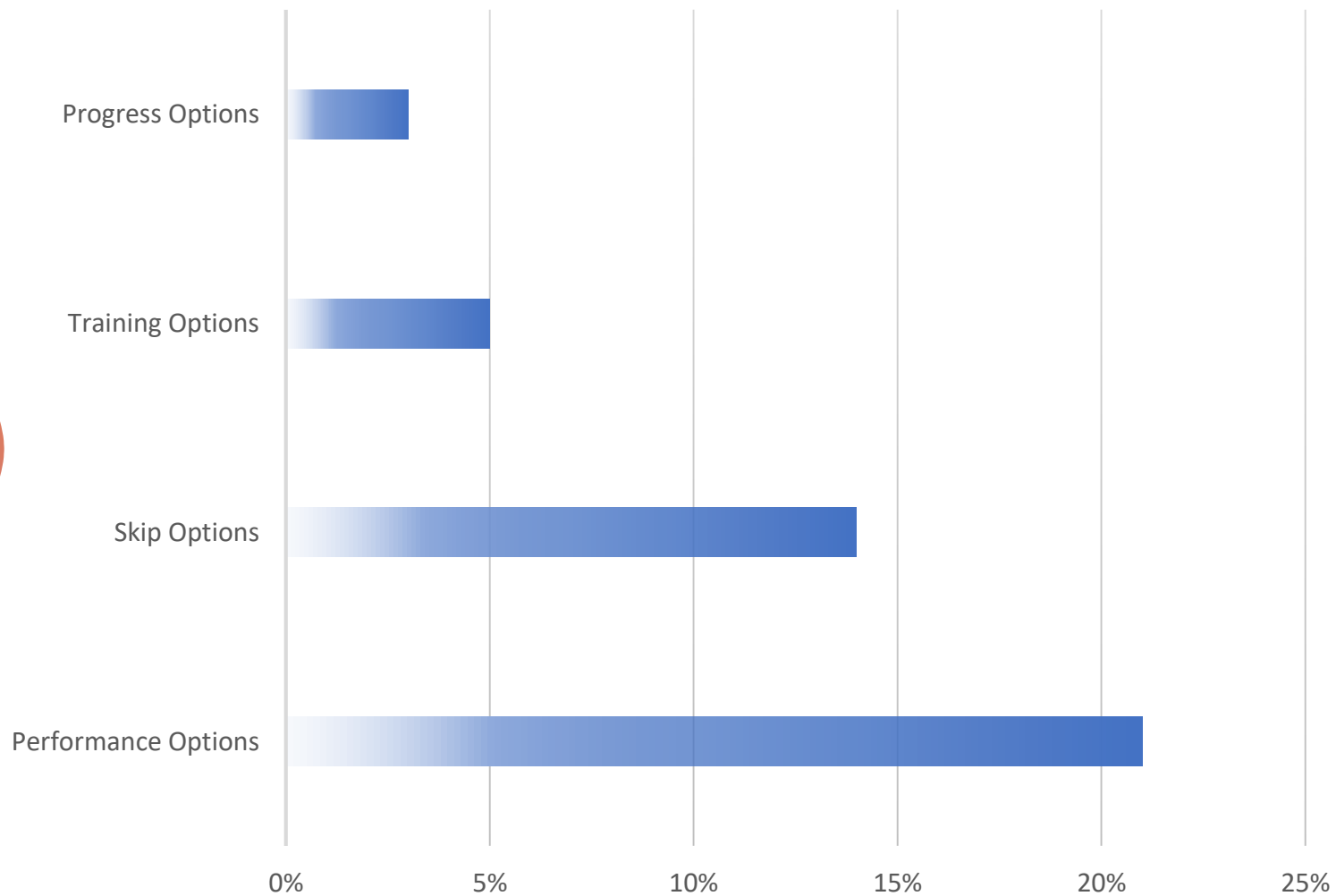
Challenge Options
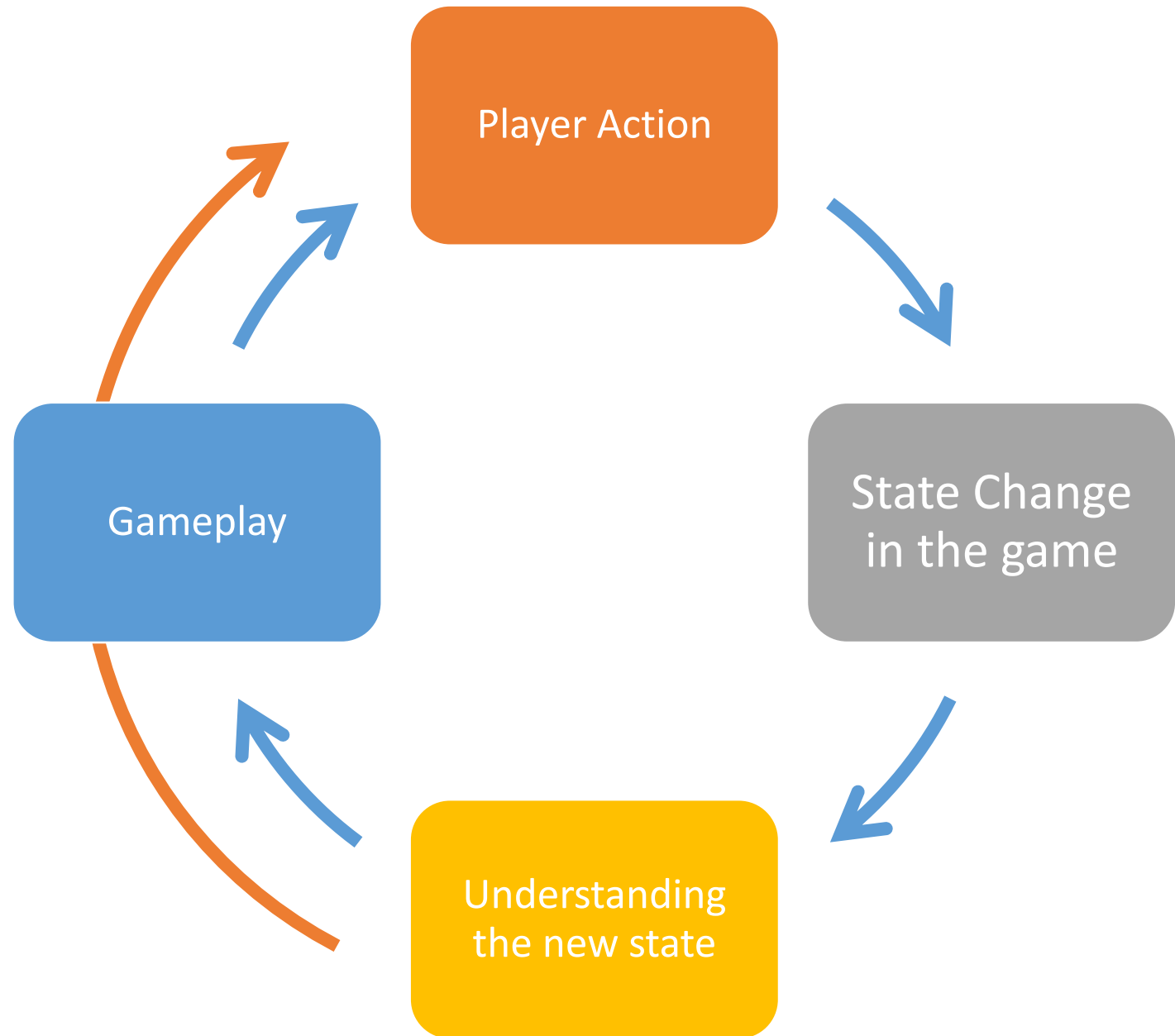
A New Approach

Design Patterns For APX

Difficult to take dozens of different options and just apply them individually

Need techniques to help do design thinking across the space of players, interfaces and gameplay
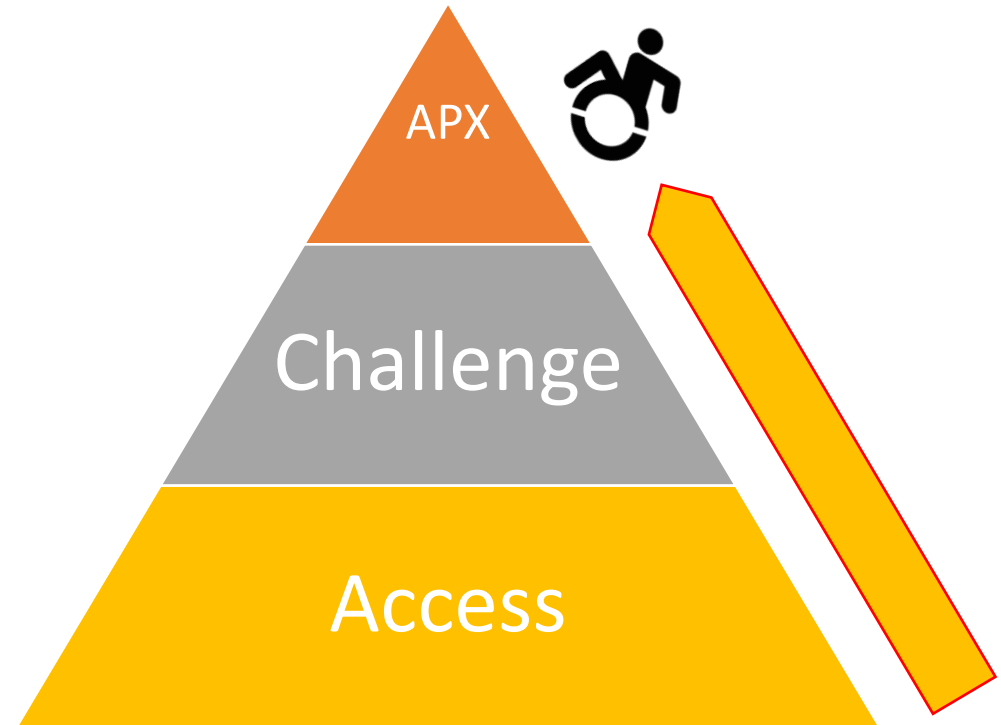
Access Patterns

Second Channel

Improved Precision

Do More with Less
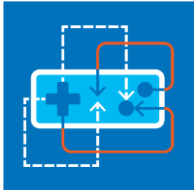
Same Controls but Different

Flexible Text Entry

Distinguish This From That

Personal Interface

Flexible Displays

Clearer Text
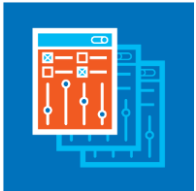
Leave it There

Flexible Controllers

Clearer Channels

Second Channel

Design Problem:

Players are unable or unreliably able to take in information via a particular modality, and cannot rely solely on it for information.

APX Design Drivers:

Players who are blind or have low vision may need an alternative to or enhancement of visual information through audio or haptic presentation.

Players who are Deaf or have low hearing may need an alternative to or enhancement of speech and non-speech sounds through visual or haptic presentation.
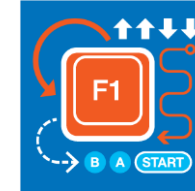
Design Solution:

Players can select additional channels of information via different modalities so they can reliably take in information from the game.

Players who are in noisy environments may need an alternative for visual information that they can access through audio or haptic presentation.

Second Channel Examples

Second Channel

Vibration indicators for kicking in Madden 2018

CAMERAS

CAMERA TOGGLE	ON
PASSING CAM	ON
OFFENSE CAMERA SETTINGS	ZOOM
DEFENSE CAMERA SETTINGS	ZOOM
FRANCHISE PLAYER ROLE CAMERA SETTINGS	PLAYER LOCK

ACCESSIBILITY

LONGSHOT SUBTITLES	ON
VISION ASSISTS	ON

Accessibility option to enlarge on field icons and add rumble effects.

COLOR BLINDNESS	NORMAL VISION
BRIGHTNESS	DEFAULT
CONTRAST	DEFAULT

Y UNDO CHANGES   B BACK   DM   THE INDIANAPOLIS COLTS ANNOUNCED TUESDAY THAT FIRST-ROUND DRAFT PICK MALIK HOOKER WILL OPEN TRAINING CAMP ON THE PUP L

In Madden 2018, players can turn on the Visual Assist mode provided in the game menus. Part of these visual assists is the Kick Meter for kick off and punting which has rumble events attached to it. Players can successfully kick by tracking the different rumble indicators through the kick meter progression. A double vibration indicates that the kick meter moves, and then there is a second vibration indicates the player can select max power. A third rumble indicates max accuracy. A blind or low-vision player can use these rumbles and the pauses in between in order to select the power and accuracy they prefer for the kick. The pauses between the rumbles decrease as the difficulty level of the game is tuned higher.

Second Channel

Distinct sound effects for distinct moves in Street Fighter II

In Street Fighter II and Street Fighter II Turbo, there are distinct sounds for each attack move that players can execute with their fighters. Each attack can be identified by sound, and thus players can use these sounds to plan defense or counter attacks if they memorize them.

Second Channel

Visual indicators for directional audio in Fortnite (Mobile)

The mobile version of Fortnite Battle Royale has a sound ring around the player character that gives the player a visual representation of the nearby directional sound.   When movement from other players is occurring close to the player character, the sound ring displays a white-colored curved line with footstep icons in the direction of the other online player. In situations where there is combat (gunfire or pickaxe melee attacks on other players or structures) occurring around the player, a red-colored curved line will appear around the player with a flame-like icon in the direction of the skirmish. Additionally, as the player character increases in proximity to the skirmish, the red sound indicator will display directional audio feedback from the in-game environment. When the player character is near a loot chest, an amber-colored curve with a treasure icon will appear around the player in the direction of the chest. The further the player character is from the previously described indicators, the opaquer the indicators will be.

Second Channel

## Spoken dialogue with text captioning in quests in Diablo 3

In Diablo 3, when a player interacts with an NPC about a quest, a caption box appears with the text for the spoken dialogue of the NPC. This caption box has a black border to help distinguish it from the background, large bold text, and two indicators of who is speaking in the scene.

Captioning for key ambient/environmental sounds in Left 4 Dead 2

Left 4 Dead 2 features a setting that enables full captioning for the game. In addition to the game's dialogue, this setting adds alerts of incoming attacks, noises that delineate special enemy types, story-related environmental cues, and specific player actions for all players (i.e. an exploding pipebomb, melee weapon hits, etc.) to the subtitling. Full captioning enhances the ways in which the player may perceive the game's events. This feature facilitates an overall understanding of what is occurring in the game's digital environment. By including this full captioning feature, players are provided with an additional way to manage their awareness and thus increase the likelihood of improved performance.

Of note, "Full Captioning" is a separate feature from Left 4 Dead 2's "Subtitle Only" option. With "Subtitle Only", players who may become overwhelmed by the details provided with "Full Captioning" still have the option to have dialogue only, or no captions at all. In this way, players are given the option to choose what kind of captioning is preferred for their respective experience.
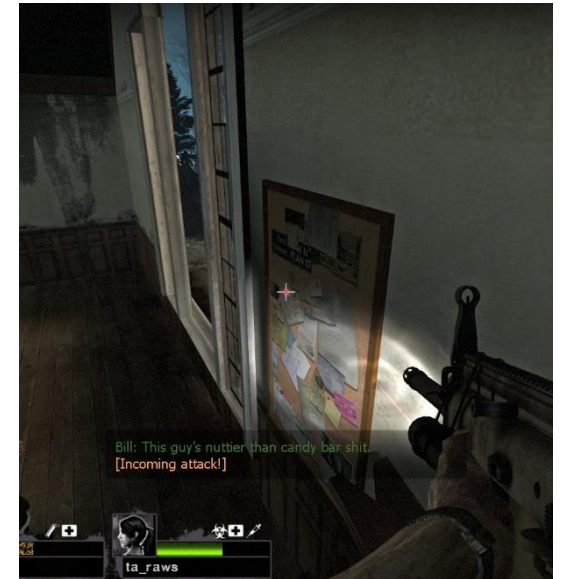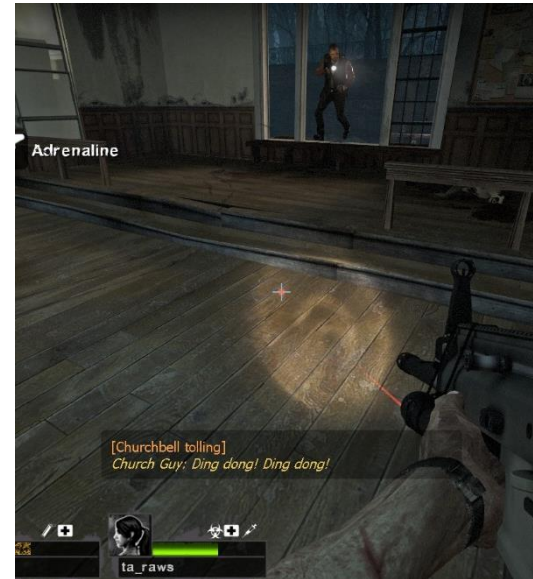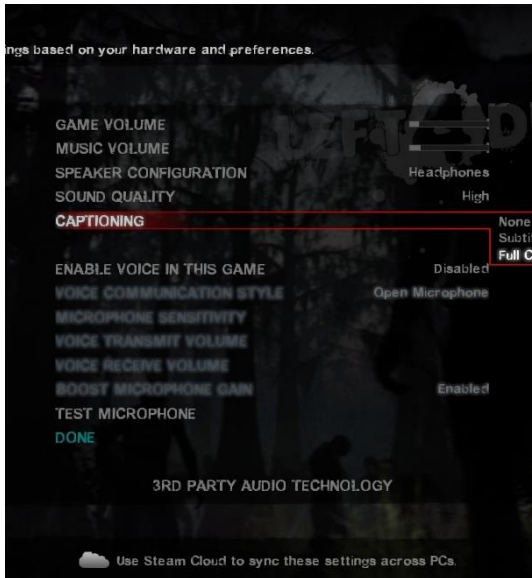
Second Channel
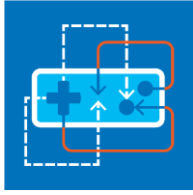
Same Controls But Different

Design Problem:

Players cannot effectively use the controls of the game in their standard configuration.

APX Design Drivers:

- Players with physical disabilities may need to remap controls to an alternative controller.
- Players with physical disabilities may need to remap controls to a keyboard and/or mouse.
- Players with physical disabilities may need to remap controls on a standard controller in order to reach the controls.
- Players with physical disabilities may need to remap controls to decrease the number of repeated key presses needed.

Design Solution:

Players are able to remap controls of the game so that they can effectively use the controls of the game or its interfaces.

- Players with physical disabilities may need to change controls that need to be held to those that are toggled on or off to reduce fatigue or strength required to activate particular actions.
- Players with physical disabilities may need to remap controls to avoid particular combinations of buttons to be able to activate particular actions.
- Players with cognitive disabilities may need to simplify controls to more easily remember the control configuration
- Players may prefer to have a different control configuration to the standard configuration.

Same Controls But Different

Completely remappable controls in Injustice 2

In addition to 4 alternate control presets, Injustice 2 allows for a player to customize controls for Light, Medium, and Heavy Attacks, Character Powers (used to unlock special attacks, power boosts, or assist elements for a character), throw moves, Meter Burn (a mechanic that allows for enhanced versions of Special Moves), interacting with environmental objects, and flipping the player character's stance. In addition, Injustice 2 also allows players to toggle on/off specific in-game control features that include Release Check (execution of Special Moves upon button release), Alternate Control (directional inputs for Special Moves), Input Shortcuts (less/more directional precision required for Special Moves execution), and Button Shortcuts (multi-button inputs for single button moves).

Same Controls But Different

Change the direction the camera moves relative to joysticks in Nier: Automata
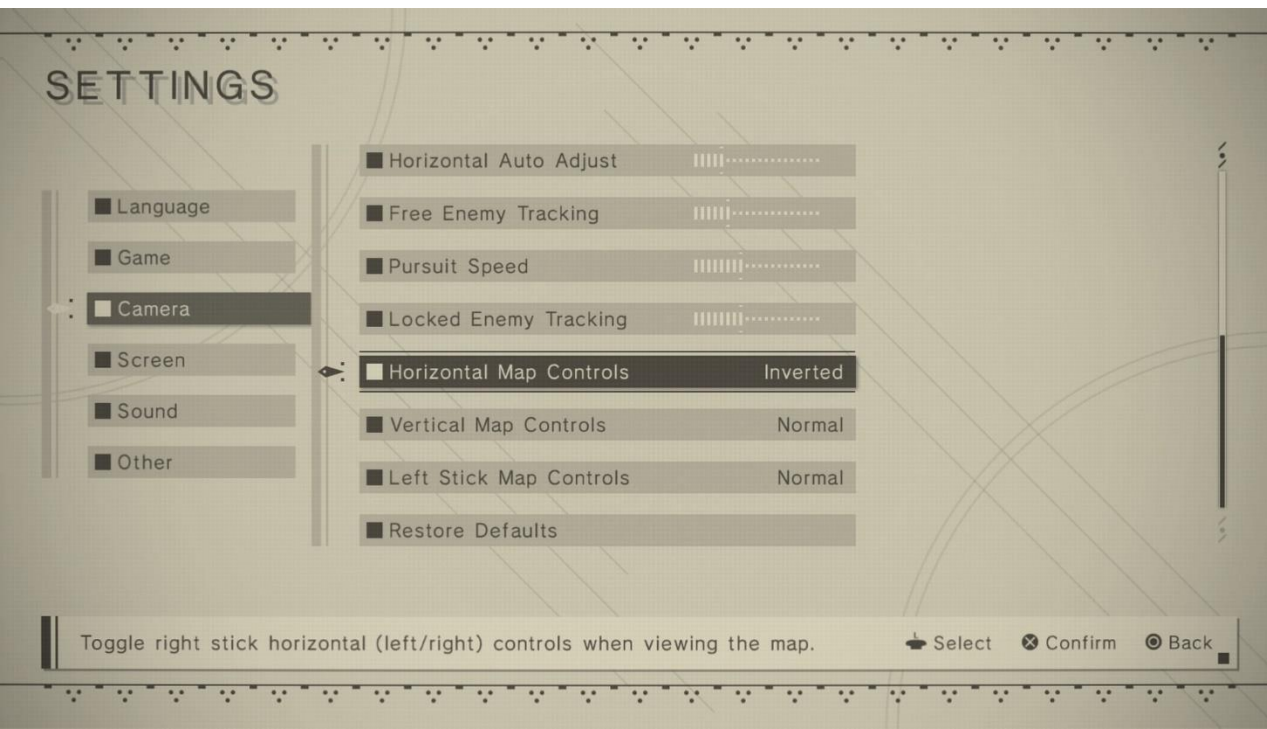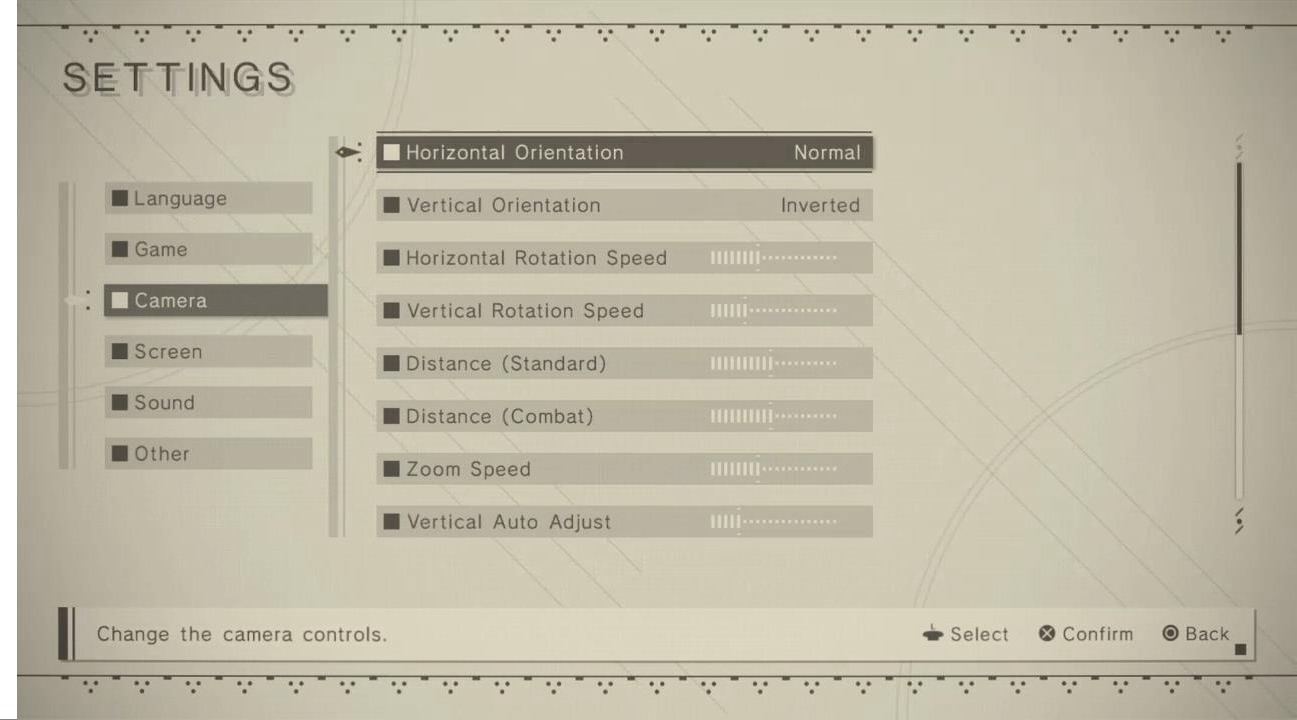
Nier: Automata includes several options that allow players to adjust the camera movement relative to the joystick controls. The game includes the option to choose between normal or inverted for both horizontal and vertical camera movement. Players may also adjust the speed at which the camera will move around the player character with horizontal and vertical camera movement sliders. Normal and inverted options are also available for when the in-game map is open using the "Horizontal Map Controls" for horizontal map rotation, "Vertical Map Controls" for vertical map rotation, and "Left Stick Map Controls" for up/down/left/right map marker movement. Players may adjust these settings to further customize controls to their preference.
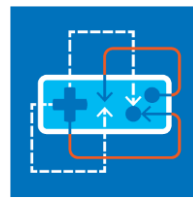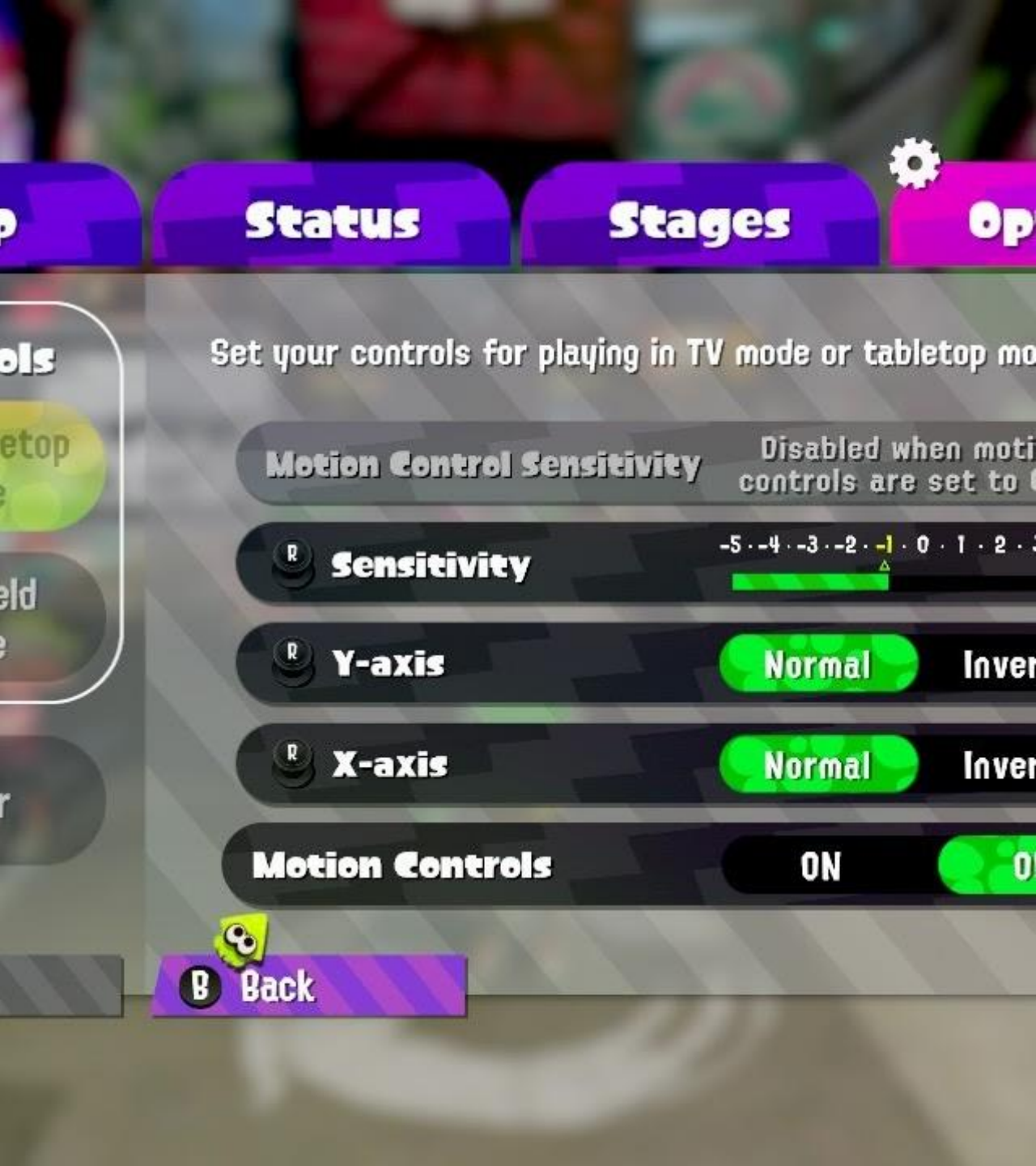
Same Controls But Different

Replace motion controls with other controls in Splatoon 2

In Splatoon 2, players have the option to turn motion controls completely off in TV/tabletop mode and/or handheld mode on the Nintendo Switch. The settings menus in the game give players the option to turn off motion controls so that aiming and camera control are not dependent on the feature. With the inclusion of this option, players may play the game using only the buttons on Nintendo Switch controllers.

Same Controls But Different

Change the style of interaction (e.g. holding a button to tapping a button, speed of required tapping) in Mass Effect: Andromeda

Mass Effect: Andromeda features the option to toggle or hold buttons for sprinting, aiming, and in-game power usage. With toggle options, for sprinting, aiming, and sustained powers, players can toggle those actions on and off with a button press as opposed to a button hold. The inclusion of toggle options gives players a way to complete actions imperative to game progression by tapping once rather than applying consistent pressure to a button.

SETTINGS

SETTINGS › CONTROLS

▲

VEHICLE: SENSITIVITY Y

◄ ▶

SPRINT CONTROLS

◄ TOGGLE / HOLD ▶

AIMING CONTROLS

◄ TOGGLE / HOLD ▶

SUSTAINED POWER CONTROLS

◄ TOGGLE / HOLD ▶

VIBRATION

◄ ENABLED / DISABLED ▶

CONTROLLER DEAD ZONE

◄ ▶

▼

Ⓛ CHANGE VALUE   ▣ RESET TO DEFAULTS   Ⓞ BACK

Certain powers such
Beam, Flamethrower,
Backlash require a bu
held down while in us

If TOGGLE is enabled,
powers will be toggle
off by pressing a butt
than holding the butt

Create/use simpler control mappings in Overcooked

In Overcooked, players may choose to play the game with controls mapped to either side of a dual stick controller. When mapped to the left side, players may use the left stick for movement and either the top buttons or the directional pad (d-pad) to complete actions like picking up/putting down items and chopping up in-game food. The d-pad also provides the buttons for dashing and switching between characters. When mapped to the right side, players may use the right stick for movement, the top buttons or face buttons to pick up/put down items, and the remaining face buttons to dash or switch characters. Both control schemes can also be mapped to one controller at the same time allowing two players to play with one controller.

By including these control schemes in Overcooked, players may play one-handed and/or put the controller on a flat surface to play. A second player may also join in to help manage the game's activities.
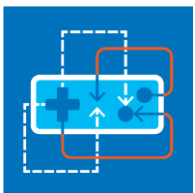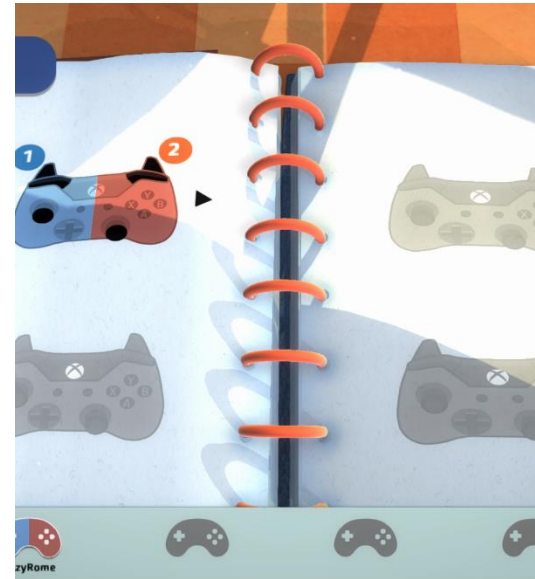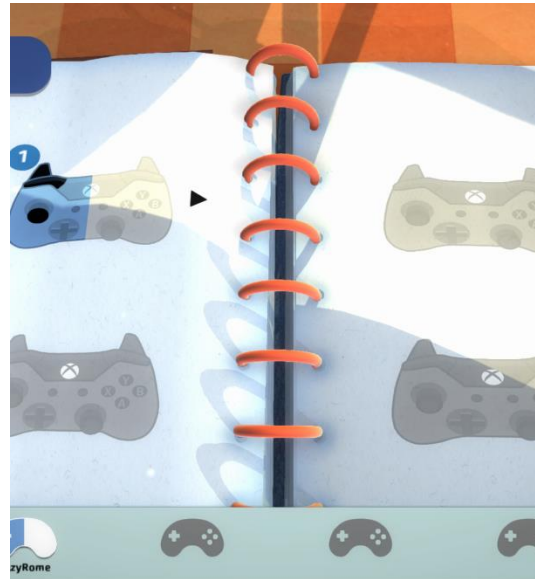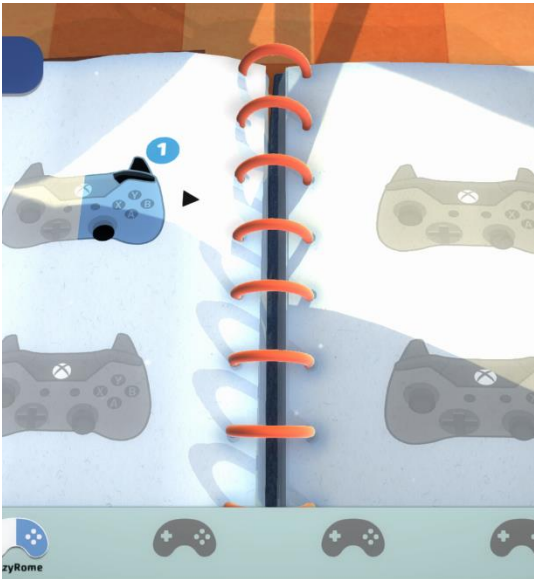
Same Controls But Different

APX Challenge Design Patterns

Challenge Patterns

Bypass

House Rules

Training Ground

Moderation in All Things

Slow It Down

Total Recall

Save Early, Save Often

Undo Redo

Helping Hand

Play Alongside

Bypass

Design Problem:

The players cannot successfully engage with a part of the game even after all possible adjustments have been made.

APX Design Drivers:

Players with physical disabilities may need to skip reflex and performance challenges to progress in the game.

Players with cognitive disabilities may need to skip decision making challenges to progress in the game.

Design Solution:

The player can skip part of the game so that they can continue to progress in it.

Players with learning disabilities may need to skip challenges involving large amounts of reading to progress in the game.

Players may need to skip a variety of timed challenges to progress in the game.

Bypass Examples

Bypass

Skip cutscenes in Ratchet & Clank

Ratchet & Clank allows players to pause any cutscene which then presents the option to skip the cut-scene. This game allows players to skip cut-scenes so that they can control how much of the game's narrative is consumed and choose to focus on the gameplay.

Ladies and gentlemen, the savior of Solana, Captain Qwark!

Skip quick-time events (QTEs) in Marvel's Spider-Man

Marvel's Spider-Man allows players to toggle an option that turns off quick time events (QTEs) in the game. When players toggle this option, QTEs are removed from sequences including those attached to boss battles. The former QTE sequences instead play out as cut scenes. Players may also pause in the middle of QTE sequences to turn QTEs off. When a player does this, the QTE input remains onscreen but the action is auto-completed.

Marvel's Spider-Man gives players the option to remove QTEs from their gameplay experience so that they can proceed in the game through auto-completion of these sequences.
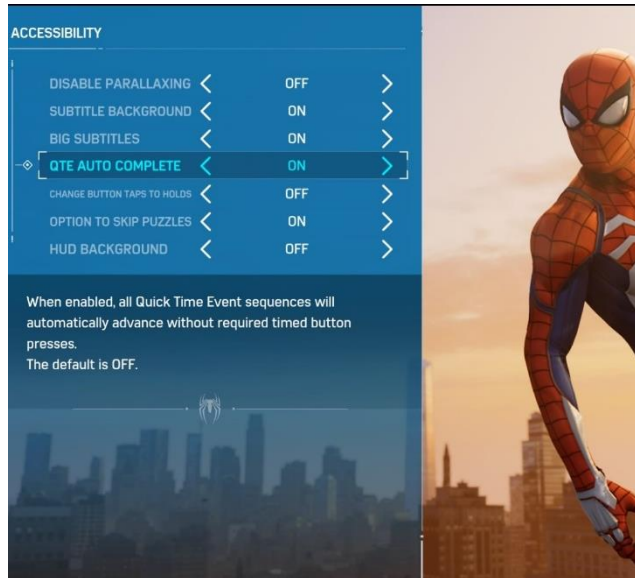
Bypass

Bypass

Skip challenges relating to game mechanics (e.g. combat, performance) in Infernium

Infernium allows players to select an option that completely removes enemies from the game. Players may select "No Enemies" in the Accessibility menu prior to initiating the game. If a player who has already begun playing the game wants to remove enemies, they can exit the game, visit the Accessibility menu, select "No Enemies," and then return to their game. Infernium allows players to play the game without enemies so that they can skip the challenges that come with enemy NPCs who will chase the player once spotted.

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Training Ground

Design Problem:

Players cannot gain the skills to succeed in a game through the usual means of training used by the game.

Design Solution:

Players can practice in a variety of ways in their own time so that they can gain the skills needed to succeed in the game.

APX Design Drivers:

Players with physical disabilities may need to practice skills to trial new control configurations.

Players may need to practice skills to gain skills competence or mastery.

Players with cognitive disabilities may need to practice skills longer to gain skill competence.

Practice skills in sandbox levels in Rocket League

Rocket League includes "Free Play" and "Exhibition Match" modes that allow players to practice their skills. In Free Play, players are able to play by themselves without other player-controlled characters or computer-controlled characters. In this mode, players are free to try new moves, make mistakes, and hone their gameplay skills without any interference from opposing characters. At any time, players may reset the ball to reposition the ball and initiate their practicing.

Players may also play an Exhibition Match against computer-controlled bots. The exhibition matches have no effect on rank and players may change factors including the difficulty of opposing bots, team size from "1v1" to "4v4" (including asymmetrical team sizes like "1v4"), and mutator settings (for example match length, max score, max speed of the ball, ball size, respawn time, etc.).

Modes like Free Play and Exhibition Match give players opportunities to practice their skills in a game environment that is independent of performance in the main game.
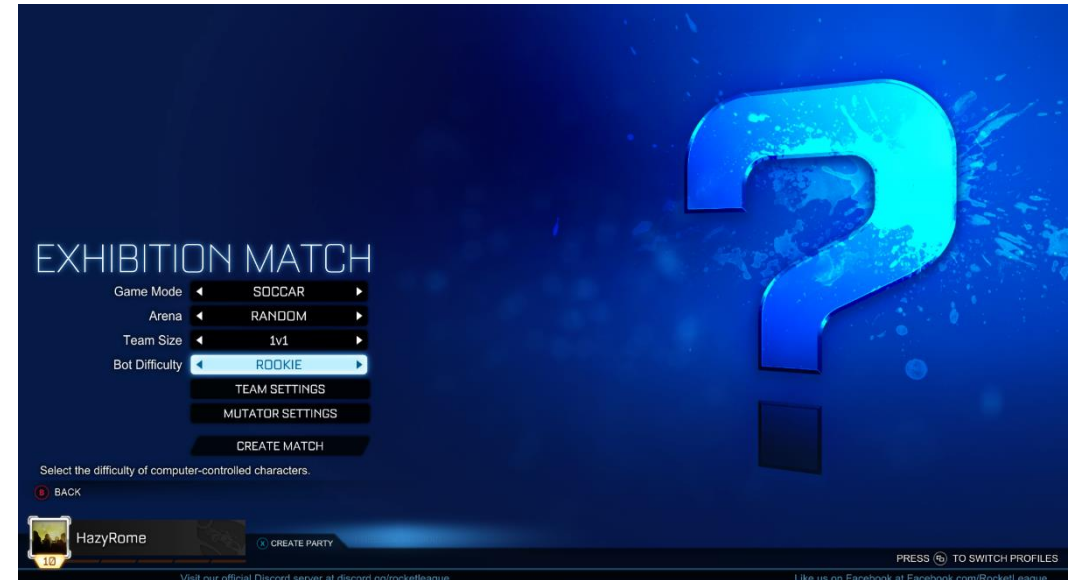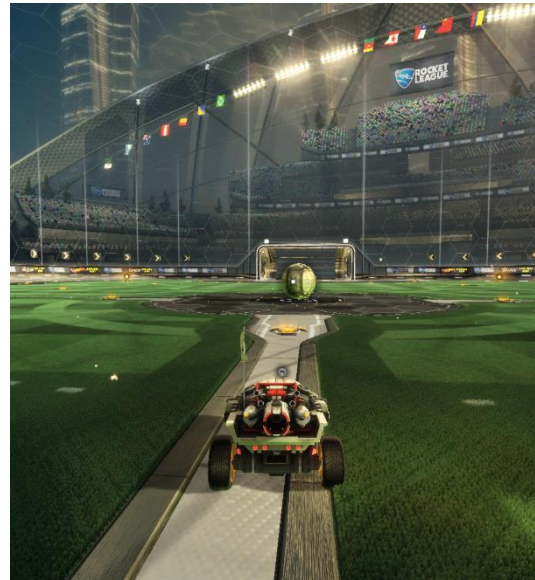
Training Ground

Tutorial Levels in Deus Ex: Mankind Divided

While the first mission in Deus Ex largely serves as a tutorial in and of itself, it also contains 3 tutorials that teach you the basic mechanics of the game: the cover tutorial, stealth tutorial, and combat tutorial. Players are prompted with an available tutorial when they approach a situation in which the skills in each tutorial would be useful. Players may choose to enter into these tutorials or skip them altogether. If players choose to enter a tutorial, the game allows for players to experiment in an area that has no consequences on their progress in the game. These tutorials allow players to reset at any point in order to retry. Tutorials can be repeated or reset as many times as a given player desires. Players may also leave the tutorials at any point. Each of the tutorials includes multiple opportunities for the player to practice the skills that each tutorial focuses on.
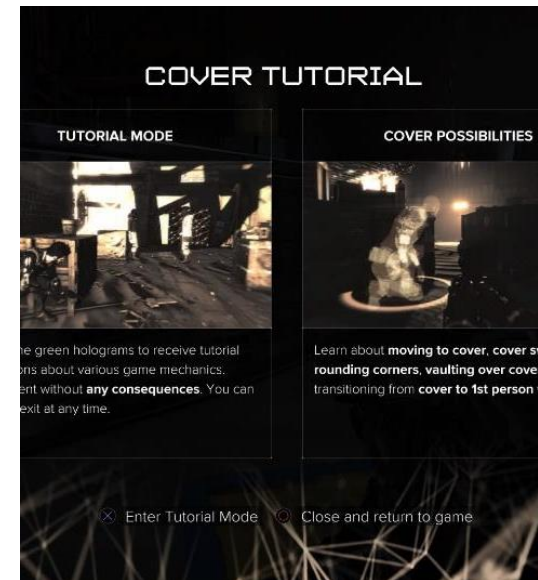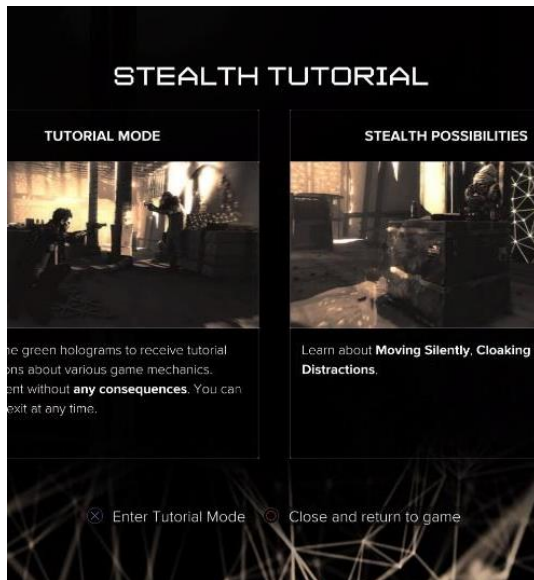
Training Ground

Using APX Patterns

Use early in design to generate new ideas

Holistic approach to accessibility that does not make you choose between players

Examples on accessible.games to inspire you with good examples

Can sit alongside your existing design approach

FREE STUFF!!!!

APX Cards available today for you and on ablegamers.org for purchase

Certified APX Practitioner

- How to spot accessibility issues during design

- How to find solution to the issues as they arise

- And how to win an argument with
  management when they say it's not
  important.

Thank you

Questions?