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A PRACTICAL GUIDE TO | GAME ACCESSIBILITY

Written By:
Mark C. Barlet
Steve D. Spohn

Editors:
Alicia Drumgoole
Jay Taylor Mason

WELCOME

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Those of us who have been lucky enough to interact with the gaming community know that the time we spend on video games can have a tangible effect in our everyday lives. From the friendships we make to the adventures we have, these experiences are cherished long after the pixels on the screen fade away. These journeys are important. More so to those who may never experience some of the things that video games give us a glimpse into... things as simple as running, jumping and just hanging with friends.

There should be no barriers to fun.

ABLEGAMERS 2013

The AbleGamers Foundation is a 501(c)(3) nonprofit organization that advocates for gamers with disabilities. Our mission is to broaden the range of video games that are accessible to people with a wide range of disabilities. With over 3.5 million views per month, AbleGamers has grown over the last eight years to be the largest online community and database of videogame reviews based on accessibility for disabled gamers.

We advocate for the disabled gaming community by reviewing products, consulting with disabled gamers, and reaching out to developers to explain the importance of accessibility and how to reach the more than 33 million gamers in the United States alone.

At the request of many game development studios, we have compiled an easy to read guide to accessibility. In this road map, we will finally answer the question that has been stated many times before: How do we add accessibility for disabled gamers?

This document does not explain the technical ways to design a video game. Instead, it explains the most important accessibility options that can be included into a video game and what each one of them means to the end-user. In a three-tier style, we will explain the options that need to be included to assist those with mobility, hearing, visual and cognitive disabilities.

[PRESIDENT'S WORD]

Dear Developers,

Over 8 years ago I started AbleGamers as a way to serve an audience that was largely being overlooked. Gamers with disabilities needed a resource to hold information on how to play games more easily, which games are more accessible, and what technologies exist to enable gamers of all disabilities.

Today, AbleGamers stands as the largest accessibility nonprofit advocate group for gamers with disabilities run by people who have disabilities themselves. You see, we don't just talk the talk, we walk the walk. Video games are important to us. We have firsthand knowledge how vital they can be. All of our staff and members bring different perspectives to the table of what is and isn't accessible.

Through this, we have had the honor of collecting vital information that not only helps other disabled gamers, but also helps us do our jobs and reach out to developers and publishers to help them understand why these things are so important.

In fact, we have spent years talking to developers and publishers explaining why accessibility is important. Many of you have answered that call. Accessibility is increasing as word spreads of simple, and cost effective options that can be included in most every title to allow gamers of all disabilities to fully enjoy the fruits of your labor.

Many of you have said to us "Okay. Accessibility is important. Now HOW do we implement accessibility?"
And that's what this document is -- simple yet thorough accessibility guidelines written and approved by disabled gamers.

This document is far overdue and it is my sincere hope that you will consider these guidelines as you develop your games. AbleGamers needs your help to enable the more than 33 million disabled gamers. I hope that by starting early with a clear and crisp understanding from people who live with these issues every day you will see just how simple most of these requests really are, and how they can have such a huge impact on the lives of those in the disabled community.

Thank you for your time and consideration,

President, The AbleGamers Foundation

06 START WITH A CHECKLIST

To determine if your game is accessible, check out the lists below that we follow in our review process. Each section covers the most important areas of accessibility. Scores are determined by the severity of the infraction. For example, if a game uses red and green for important elements of the UI, they will lose more points than a game that uses red and green with other visual indicators. Each subcategory is compared in the same way. This makes reviewing games for accessibility thorough, but fair.

CONSOLE ACCESSIBILITY CHECKLIST

Mobility
-- Remappable keys
-- No button mashing
-- Camera/joystick sensitivity
-- No precision needed
-- No mandatory quick time events
-- Timing of movement/button pressing not important
-- Difficulty levels
-- Game Assists

Visual
-- No key elements of the game are identified by red and green
-- Colorblind options are present
-- Game presented in high contrast
-- Subtitles are easy to read
-- Subtitles are letterboxed
-- Game menus are easy to see/read/use

Hearing
-- Subtitles are present
-- Ambient noise is included
-- Identifies speaker
-- All audio cues are accompanied by visual cues
-- Game can be successfully completed and hearing presents no disadvantage

PC ACCESSIBILITY CHECKLIST

Mobility
-- Remappable keys
-- Camera/mouse sensitivity
-- On-screen keyboard functions properly
-- No button mashing
-- No precision needed
-- Can play with only the mouse
-- Can play with only the keyboard
-- Can move User Interface elements
-- No mandatory quick time events
-- Timing of movement/button pressing not important
-- Difficulty levels
-- Game Assists

Visual
-- No key elements of the game are identified by red and green
-- Colorblind options are present or not needed
-- Font color can be changed
-- Font size/type can be changed
-- Game presented in high contrast
-- Subtitles are easy to read
-- Subtitles are letterboxed
-- Game menus are easy to see/read/use

Hearing
-- Subtitles are present
-- Ambient noise is included
-- Identifies speaker
-- All audio cues are accompanied by visual cues
-- Game can be successfully completed without sound

LET'S GET A FEW THINGS OUT OF THE WAY

DON'T THESE FEATURES BREAK ACHIEVEMENTS? NO

Achievements, rewards and goals can all still be accomplished just as they always have. For the disabled gamer, it's about being given the ability to play the game. If adding features that make the game easier is a concern for your title, simply disable achievements and rewards if those options are turned on. For more information, please see our section on reward balance.

DON'T THESE FEATURES ALLOW BOTS? NO

Botting software emulates keyboard and mouse movement in a third-party program. Allowing features such as click-to-move, remappable keys, colorblind options, etc. will not increase the ability of bots.

AREN'T ACCESSIBILITY FEATURES EXPENSIVE TO IMPLEMENT? SOME

Most accessibility features are cheap and easy. Tier 3 (The 'Best' tier) can be considered expensive. However, adding the first 2 tiers will take minimal time, effort and funding to implement, especially if done in the beginning of the development cycle.

HOW DO I JUSTIFY THE COST OF DEVELOPING FEATURES FOR A FRACTION OF MY POTENTIAL AUDIENCE?

There are over 33 million disabled gamers in the United States alone. There are more than 60 million disabled individuals in the United States alone. It is estimated over 1 billion people have some form of a disability worldwide. The potential upside from implementing tier one alone is well worth the cost for most games.

WILL THESE FEATURES INTERFERE WITH PLATFORM TCR REQUIREMENTS? NO

Our suggestions do not break any TCR requirements.

HOW TO USE THIS DOC

At the request of many game development studios, we have compiled an easy to read guide to accessibility. In this road map, we will finally answer the question that has been stated many times before: How do we add accessibility for disabled gamers?

This document does not explain the technical ways to design a video game. instead; it explains the most important accessibility options that can be included into a video game and what each one of them mean to the end-user. In a three-tier style, we will explain the options that need to be included to assist those with mobility, hearing, visual and cognitive disabilities.

The document is laid out in a "good, better, best" format:

Level One describes the bare minimum level of accessibility that you should have in your game--you will find that many of these things already being included as standard-practice.

Level Two outlines the best compromise between the need for greater accessibility and the ease of implementation.

Level Three demonstrates what accessibility would be like in an ideal world where the barriers in the gaming space are almost all but gone.

An Alternative to

Universal Design

DRAGON AGE

Universal Design is a wonderful practice for most areas of digital media. The best practices for compliant digital content are well known, and in most cases, now baked into most development frameworks. As the Web continues to evolve, designers are challenged to remember that blind and low-vision users need additional accessibility. Thankfully, adding this technology is relatively easy; almost every coder knows how to include font size changeability in the CSS and the necessary tags to allow screen readers access to the content.

When it comes to websites, the battle is not can it be done, but why is it not being done. For the most part, a standard content-driven website has little excuse for remaining outside the reach of people with disabilities. Due to the fine work of groups and individuals like those mentioned above, a developer can only feign ignorance or laziness in most cases when challenged on the missing accessibility features in his or her content.

With one area of digital space largely conquered by tools and know how (the Web), let's take a look at one of the largest growth sectors in technology: video games, which have also been one of the biggest drivers in consumer computing for the past 20 years.

To understand the challenges, we need to first break down what makes this industry thrive. Modern video games are built on a mix of gameplay and story-line, all wrapped up in as stunning a visual layer of eye candy that technology can provide and mon-

ey can buy. From the first line of code to the packaging the game comes in, the visual layer is what defines the video game industry. given the visual nature of video games (video game process/video games sales strategy), the application of best practices on this industry, especially when addressing the needs of the blind, is an incredibly daunting task, if not outright impossible.

Adding to this already complicated issue is the addition of real-time gaming in massively multiplayer environments. More and more video games are no longer standalone experiences like those in days past, but include a rich online component. This online portion can exclude gamers with disabilities who are challenged by processing and reacting in real time. The mainstream gaming public has little tolerance for less than peak performance.

For the mainstream gaming markets, the best practices of universal design cannot be applied. At the moment, the technology is not there, not only from the tools perspective, but from the adaptive technology prospective as well. Frankly, the technology may never exist to make every video game compliant in the same way Section 508 guarantees accessibility on the Web.

Lastly, given the massive complexity of today's games, the cost-benefit analysis for true total inclusion will never translate to profitable proposition for the backers of a project, therefore it is a nonstarter.

New Approach to Game Accessibility

Instead of looking at things from the perspective of universal design, we need to consider an alternative approach to including people with disabilities in the gaming space that acknowledges that 100% inclusion is not feasible, but access to entertainment is.

Our goal is to make gaming as accessible as technology will allow to the widest group of people with disabilities on a game-by-game basis, and to further increase the alternatives available for people who may not be able to play a particular title. In short, we need to work to get every title to have the broadest audience possible and make sure that, for those left out of a particular title, there are other titles waiting for them to play.

Achieving the Broadest Audience

Using technology and best practices that exist today, such as captioning, changeable font sizes, and mouse sensitivity settings, every mainstream game can accommodate well over half of gamers with disabilities. While most games use some of these best practices, sadly only about 15% of the main- stream titles released in 2011 took ad- vantage of all of these technologically available improvements. We hope that this document becomes the blueprint you can use to reach out to that audience.

An Example of Doing it Right

Dragon Age: Origins is an extremely well-thought-out and very profitable title that included accessibility early in the development process, when it was the cheapest and most feasible to include. Dragon Age for the PC features full subtitles, multiple alternative controls, diverse color schemes, a "click-to-move" interface, the ability to pause the game at any time, and auto-save features. the latter features accommodate the cognitively disabled, such as gamers with autism, learning disabilities, and difficulty focusing. The ability to pause the game and to continue interacting, issuing commands at your own pace, and observing the game's environment gives those who have trouble with the fast-paced nature of most video games the chance to play at their own speed.

But even when a game like Dragon Age sets the bar extremely high, some gamers will still be left out. That is where the second goal of this alternative to universal design comes in: making sure that there are games for every person who wants to play.

Luckily, most of the major gaming platforms have created avenues that allow for independent game developers to create content. Great titles, such as In the Pit (a game that uses only audio), or Star trigon (a game that can be played with a single switch), are able to enter a market space that was out of reach a few years ago. While these games are almost never a commercial break-away hit, the low cost of development and publishing allows for specialty developers to work on including these smaller audiences with very special needs without the pressure of making huge profit margins. This is the second part of the alternative to universal design—making sure that the entire spectrum of players has games that they can play.

Game accessibility will not always be a profitable endeavor. However, there are 100 million gamers with disabilities worldwide, many of whom have disposable cash for things like entertainment

and who shy away from video games because of the possibility of being literally unable to play the game they just bought.

Thankfully, there are websites dedicated to helping mitigate these problems by testing games for their accessibility and reporting the findings to the dis-abled community. Pressing content developers to include the easy to implement accessible features outlined above will bring more people into the market, and this will encourage greater research and development (R&D) into some of the more technologically challenging areas, benefiting even more disabled gamers as gaming continues to advance.

While it is currently impossible to apply universal design practices to the entire video game space, industry leaders are working to make mainstream titles accessible to as many as possible, and they are also fostering the growth of the independent market to fill the gaps the mainstream gaming community cannot. Developers simply need to be aware that adding accessibility is the right thing to do, even though it won't always bring a large profit boost.

There are some who would have you believe that there are silver bullets in accessibility that, if included, will solve all accessibility problems for all disabled gamers; this is simply just not true. Rather, every accessibility option you add will help more gamers. While total universal accessibility is realistically unachievable, if you added every one of these features to your game, you would be close. The more options you add, the greater the range of disabilities you include and the greater your potential market increases.

MOBILITY - HOW WE MOVE

When most of us think of the word 'mobility,' we think about mobile devices like iPhones, Tablets, Androids and portable gaming devices. In accessibility terms, mobility means how we move: our arms, our legs, and even our eyes. Mobility is the broadest and farthest reaching category of disabilities, and even when the cause of the disability is because of a neurological disorder, it may manifest itself into a mobility issue. For those with mobility impairments, the barriers to the gaming world can be anything from the need to play with only one hand because of a car accident or war injury, up to a totally custom controller for someone with severe forms of muscular dystrophy.

You can see how the mobility guidelines outlined in the sections below have the biggest impact in video games by sheer numbers alone:

• The Entertainment Software Association 2011 Gamers Essential Survey suggested that 72% of the population are gamers.
• There are around 60 million people with disabilities in the United States, 11 million in the United Kingdom. This represents roughly 20% of the population of both countries.
• Moderate to severe mobility impairments make up three quarters of the total disabled community.

In addition, many of the issues that affect disabled gamers with mobility impairments also impact the general gaming community at large. The larger gaming population has made demands for features that improve playability for able-bodied and disabled gamers alike, such as remappable keys, customizable configurations, movable UIs and various ways to save your game.

But for the purposes of this section, let's assume that the person you are designing a game for is someone who has a disability like Muscular Dystrophy, Cerebral Palsy, or the loss of a limb--a diagnosis faced by many disabled veterans.

As we move through the guide, our focus shifts to gam-ers with more severe disabilities like spinal cord injuries, quadriplegics and advanced Multiple Sclerosis that require the most advanced eye tracking and voice recognition software available today.

MOBILITY LEVEL 1 - GOOD
Remappable keys

One of the most widely requested accessibility features across the entire gaming universe, for both PC and console, is the ability to reconfigure keys. This easy-to-implement and cost-effective feature can make a difference for both disabled and non-disabled gamers alike. While adding multiple configurations on the PC and console is a step in the right direction, the ability to truly remap the keys to whatever configuration best suits the play style of the gamer, or to put the most important features in an area that fits the gamer's 'mobility sweetspot.'

Those who have muscular dystrophy, cerebral palsy, multiple sclerosis, war trauma, serious injury and a range of debilitating diseases that affect the ability to use one's hands "normally" benefit greatly from the ability to define their own personal ways to play because each disability is different in the way it manifests itself.

Examples of games with remappable keys done well include: World of Warcraft from Blizzard and Star Wars: The Old Republic from BioWare on PC. Resistance: Fall of Man from Insomniac, Skyrim and Fallout 3 from Bethesda on the console.

There are numerous examples of games that received serious push back from the community for NOT allowing remappable keys.

However, remappable keys are not a silver bullet that solves inaccessibility and allows anyone to play, as suggested by some in the disabled community. Remappable keys are one of the three must have (along with close captioning and colorblind) options for minimal accessibility; because this simple feature enables play for players with any of a large number of disabilities, it gets the most requests.
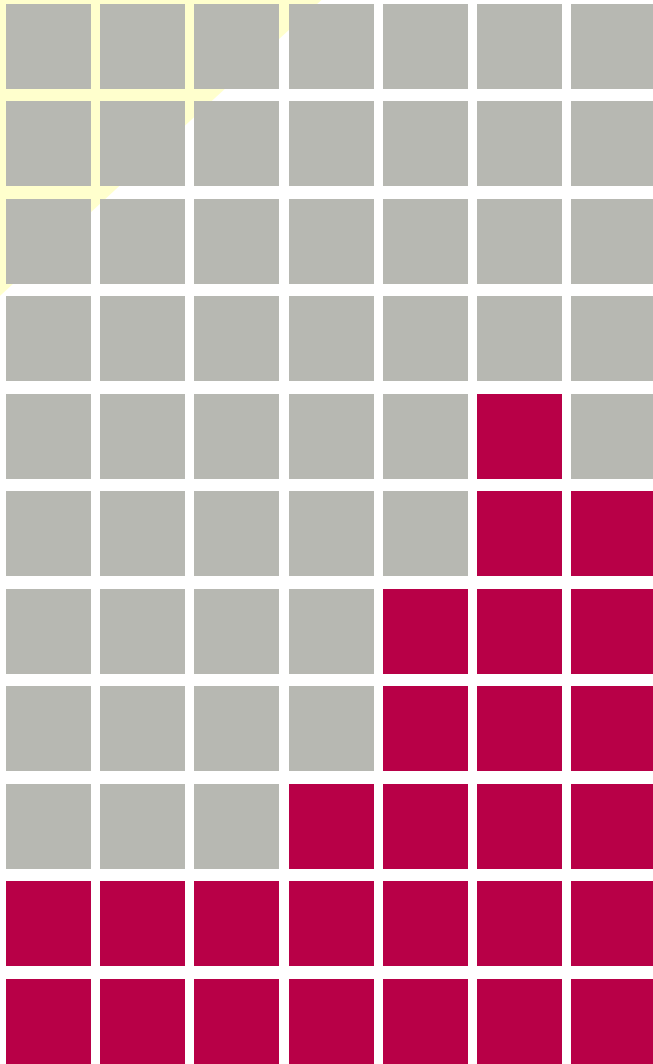
WORLD OF WARCRAFT

Example of a game that does very well in remappable keys

DEVELOPER EXERCISE
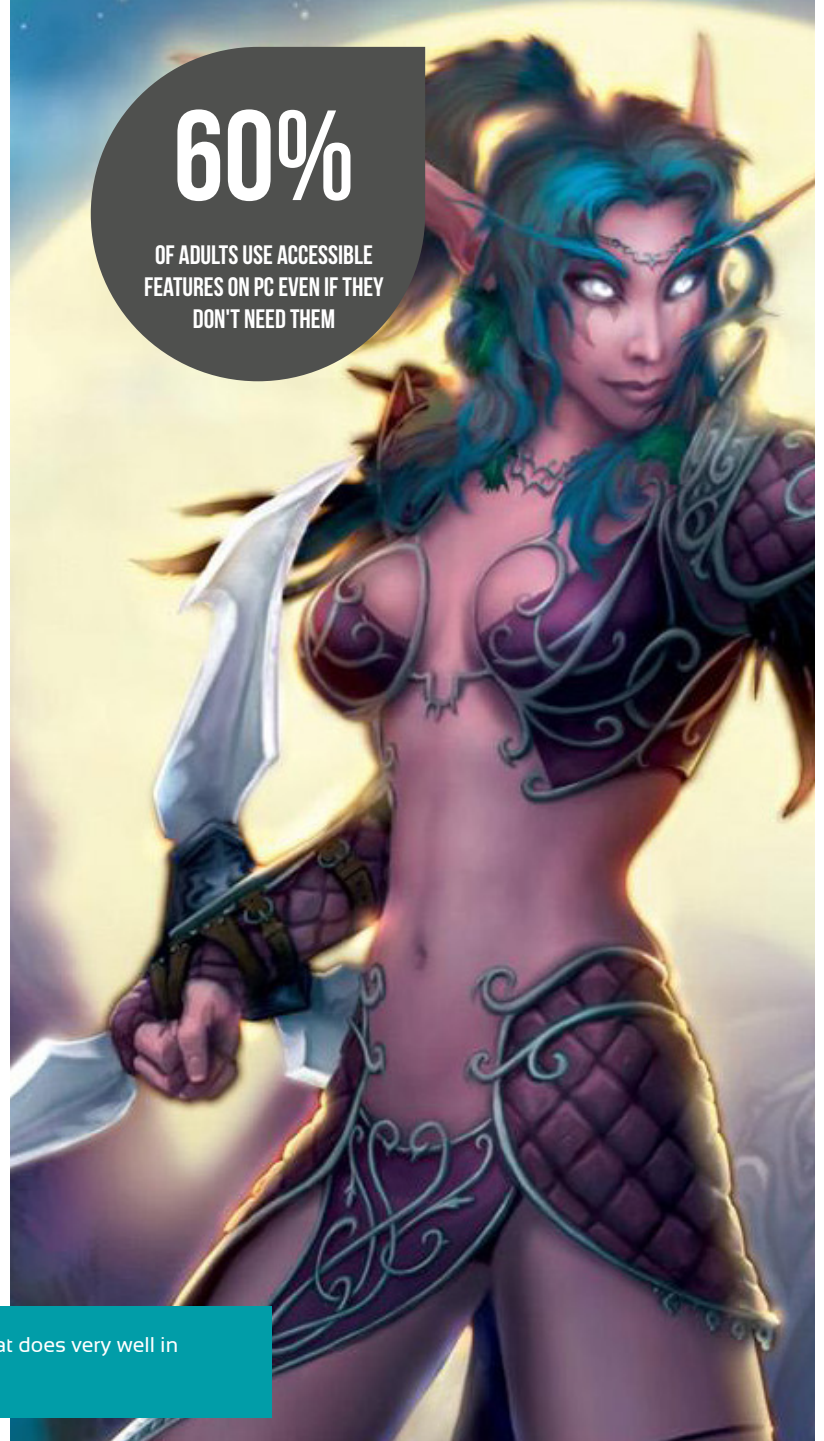
For Consoles

Without remapping, what abilities would you lose if you could push the shoulder buttons/triggers? What if you had a hard time reaching the buttons farthest away from the D-pad? Would you be able to play?

For PC's

Without remapping, what abilities would you lose if you only had the use of one hand? Could you reach all the keys easily? Could you play if using the keyboard wasn't an option?

For Both

Imagine you have a difficult time reaching certain keys. Are there any keys your game absolutely needs? What if it was tiring pushing the same button repeatedly the awkward position? What if you had to use your face, mouth, chin or feet to push the buttons...

These are real concerns for a variety of disabilities every day in gaming.

When the options to remap keys to those that are the most convenient for your disability are taken away, it becomes a matter of physics. If you physically can't reach the keys designated by the developer there's literally nothing you can do to play the game. That's how important remappable keys are to a large segment of the gaming community.

HALO REACH
BUNGIE

Alternative Configurations

The fallback position, if pro-graming remappable keys is just not an option in your title, is alternative configuration setups. The idea is simple: develop predefined controller configurations that allow a gamer to select one that best matches their play style, and their disability.

DEV EXERCISE

Take a look at the controller, and see if you can play your game with one hand. Place the controller on your knee, your desk, or your thigh and give it a go. If your game is not at least semi-playable with one hand and you are not pleased with the results, alternative configurations can be a rea-sonable fix if fully remappable keys are not an option.

Conventional console developing logic requires including both normal con-figuration, southpaw, reverse and a few random layouts as a catchall. In order to be truly accessible the con-figurations must include right-handed, left-handed, button combinations near each other and one-handed.

An example of multiple configurations being done properly is in Halo Reach by Bungie. They have six out-of-the-box configurations, such as BOXER, GREEN THUMB, and BUMPER JUMP-ER. They also thought about those gamers who are left handed by includ-ing a SOUTHPAW configuration. While this may seem to be a luxury, when a disability determines what buttons are easy to press and which ones cause

fatigue, it is imperative that the dis-abled gamer be allowed to choose the path of least resistance and maximum enjoyment.

Camera Controls

In first-person shooters and MMORPGs, the ability to control the speed, angle and distance of the character in relation to the field of view is important. In these games, the gamer's ability to move the camera often defines their movement direction, making camera movement one of most important aspects in the game. Cam-era controls need to allow comfortable movement for both users that are only able to make larger, less precise move-ments, and also users that can only make small, precise movements.

Many disabilities, such as Cerebral Palsy, limit the ability to manage range of motion, making it very difficult to move the mouse back and forth small distances. This makes precision a massive challenge. You can give these gamers the ability to translate large mouse moves into slower camera mo-tion, preventing wild nauseating swings of the camera and allowing total control of the character.

At the other end of the spectrum, some gamers with Muscular Dystrophy have range of motion issues that let them move the mouse only 1/16th of an inch in any direction. For these gamers, pre-cision is easy, but macro movement

Number of Veterans	**21.9** MILLION	
With a Disability	**5.5** MILLION	
Sevice Related Disability	**3.3** MILLION	

precision is easy, but macro movement is impossible. Even with this limited range of motion, you still can give these gamers the ability to move their character like everyone else by letting them set the camera further out from the character, and manipulate with extremely sensitive camera movement--one full 360 degree camera rotation should be able to be accomplished by moving the mouse 1/8th of an inch or less.

A gamer with muscular dystrophy uses a mouse that allows 3500 DPI. He logs into a brand-new title fresh off the shelf. The game uses it's own mouse driver emulation code slowing the mouse cursor movement speed and thus making the movements needed to control the direction of the character much bigger. There are no camera or mouse sensitivity settings in the game, which forces the gamer to return the game or consider the purchase a waste of money as the game is unplayable to him.

If the game either used Window's mouse sensitivity or allowed the cap on emulated mouse drivers to be set extremely high, the gamer would be able to adapt the sensitivity to an acceptable level.

Star Wars: The Old Republic and Rift are good examples of games that allow players at both ends of the spectrum to tailor camera movement to their needs. The sensitivity of both games has sliders with a cap that allows for full camera rotation at 1/100th of an inch, or conversely, an area larger than a mouse pad depending on the user's need.

Guild Wars 2 is an example of the game that only allows larger, imprecise movements (very low sensitivity), but not does not support extremely small movements. The sensitivity by default is set low and can only be increased slightly. The cap is set near a full 1 inch turning radius.

Providing the option to find a comfortable way to use the camera and allow the gamer to move their character can mean the difference between buying a game after a playing a demo, or walking away from an unplayable experience.

MOBILITY LEVEL 2 - BETTER

Third party access (no Game Guard)

We understand that you do not want people to cheat in your game; you want the gamer to enjoy the game as you in-

tended. However, the common strategy of blocking any non-standard input devices besides the mouse and keyboard, will also make it impossible for many gamers with mobility disabilities to play your game. The ability to use third-party devices and assistive technology, like the default on-screen keyboard installed on all Windows PC's, and gaming peripherals is critical.

Guild Wars 2

29%

OF GAMERS ARE OVER THE AGE OF 50 YEARS OLD. BELOW, UNDER 18

18%

DEVELOPER EXERCISE

Take the current setup of your default UI. If you were someone who fatigues easily, would you be forced to move the cursor to opposite sides of the screen repeatedly to access commonly used game features? What if you could not use the shortcuts and you could only use the mouse or thumbstick? If you're forced to move the cursor all over the UI, it's highly possible those with disabilities that suffer from fatigue will be unable to play your game for any length of time. Consider allowing key elements of the screen to be positioned wherever the easiest for the disabled gamer. Many prefer all elements to be centralized in the middle of the screen for ease of use.

11.7% **12.4%**
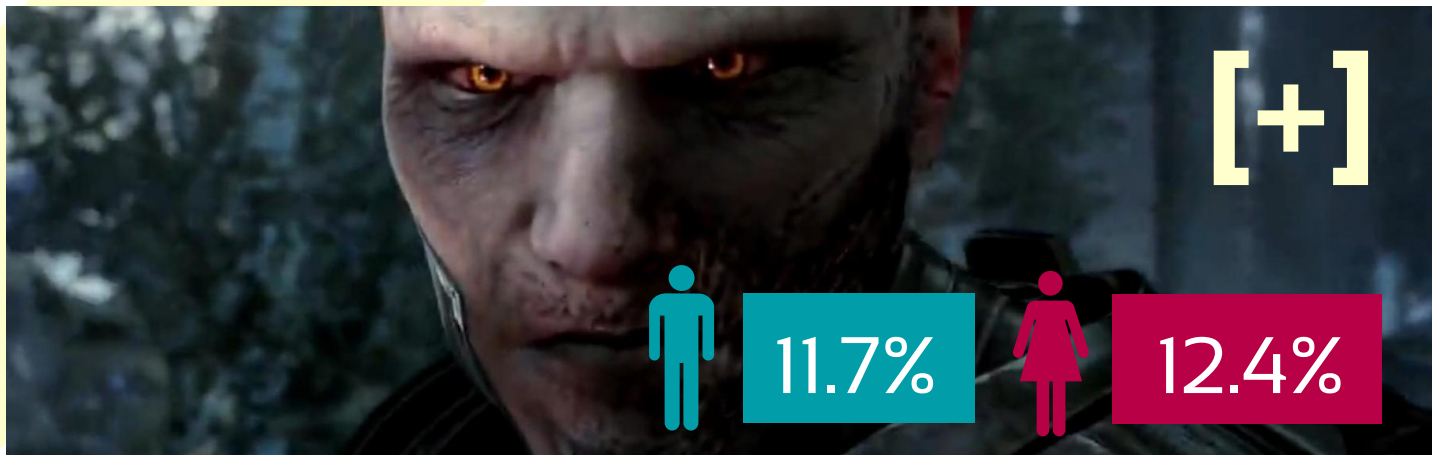
In situations where technologies, such as Game Guard, block any third-party application or hardware from accessing the game it is designed to protect, it prevents people from being able to use the very technology they have become dependent upon in order to use their computer and play games.

A gamer who was in an car accident and now has no use of her limbs. She uses head-tracking software and an on-screen keyboard with dwell technology--software that allows the mouse cursor to hover over a graphical display of the keyboard, which presses the key the mouse is hovering over after a predetermined amount of time. This allows for her to point the mouse with her head onto a software representation of the keyboard. By hesitating the pointer over the corresponding key for long enough, the key is pressed. It is a slow way to type, but from her perspective, it is the only way she has. She is very proficient at this, and this combination of technology means she is able to play certain games to her heart's content.

When developers use Game Guard to 'protect' their game, the software prevents the use of on-screen keyboards and head-mice and everything else, virtually locking out anyone who could not use a standard keyboard and mouse. Aion from NCSoft is an example of a game that is problematic for this reason.

There are viable alternatives to protecting your game, such as Battlefield 3's "Punk Buster" and Blizzard's "Sentinel" program, that search out cheating in the game without interfering with assistive technology.

It is important for developers and publishers to be careful when choosing the proper scheme to watch over their games and/or DRM. If every guideline in this paper is followed, but the wrong protection software is included, then your work implementing other parts of this document will be for naught.

Movable/Resizable UI

The ability to move and/or resize each individual element on the HUD interface is great for both disabled and able-bodied gamers alike. For those gamers with low stamina, strength, or dexterity, the ability to place the most essential elements where the gamer feels most comfortable is critical. Many disabled gamers position certain key elements such as hot bars in their 'sweet spots' to conserve energy and allow an enjoyable experience as opposed to a workout.

A woman with strength and stamina deficiency due to Multiple Sclerosis loves to play a strategy game, but its buttons are locked in the lower right-hand corner of the screen. This causes her to move the mouse repeatedly and quickly around the screen, between the UI and other game elements. This action is difficult for her, and often cuts her game time short. If the buttons were placed in a movable element, she could determine the easiest place for her to control the flow of the game. She'd be less tired, able to play longer, and have a more rewarding experience.

UI customization requires a lot of development work and is often not tackled, but many games support total customization of the UI. An interesting case is World of Warcraft, where Blizzard exposed the XML underpinnings of its interface, to allow modification of the UI with minimal developer support. Perhaps unsurprisingly, there are specific WoW mods developed just for gamers with disabilities such as color-blind and interface altering modifications. These enable critical buttons

Just a Note: Star Wars: The Old Republic did not launch with this feature, but added it in their first major game update.

For gamers with disabilities, customization can make it easier to manage situations that need quick reaction time. The less frustrated the gamer is, the more likely they are to continue enjoying the game.

Macroability: Let me Make My Own Stuff

Gamers who find it difficult to use the keyboard, perform actions quickly, or press multiple buttons simultaneously will look to macros to help level the playing field against those with better dexterity and speed. The ability to create macros used to be common in many PC games, but the ability to macro anything in some games led to the rise of "bots," which in turn led to many companies scaling back or even eliminating macros, to the detriment of the disabled player.

Why are macros so important? Players with issues like Muscular Dystrophy or the loss of a limb use in-game macros to simultaneously press multiple buttons or button sequences with a single button. This is even more important for those with low strength and stamina; the ability to macro often-used commands lessens the burden of pressing multiple buttons, and therefore extends game playability.

A child with Cerebral Palsy who loves playing her favorite wizard MMO with her brother and father. She uses an on-screen keyboard to play, which makes using the hotbar buttons a repetitive task. The ability to combine a common key sequence – TAB to target the nearest enemy, and A to start attacking -- into one button would decrease the stress in her shoulder, leading to less fatigue. Even the ability to queue abilities one after the other would lead to a better gaming experience for the young lady, more bonding time with her family, and an enhanced feeling of normalcy.

Another use for macros is to provide the ability to store saved text to be used as conversation. For some with slow motor skills, taking in guild chat, looking for a group, or even responding to simple 'tells' can become a painful nightmare. People think they are rude when the only reason they do not engage is the time it takes for the gamer to type out a command. Macros allow that gamer to create a library of text so that he can communicate and enjoy the social aspects of gaming.

As noted above, some companies regard macroing as cheating regardless if it is in game. Star Wars: The Old Republic is an example of a game that disabled macros after the community complained about people being able to use them in player versus player combat. Disabling macros has not dampened the ability of elite PVPers, but it has definitely limited the ability of those who need to press multiple buttons in quick succession in order to compete at a higher level.

The now defunct Star Wars Galaxies allowed for abilities to be queued one after the other in a macro, which reduced 4-6 button presses down to only one. Dark Age of Camelot from Mythic Entertainment has the ability to macro text, which can enable someone who uses an on-screen keyboard to hold entire conversation with single button presses.

Difficulty Settings and Fail Safes : Not Just A Mobility Issue

For years in the videogame industry, difficulty settings were almost standard in game design. Although seen less frequently in current games, difficulty settings are a feature that are enjoyed by disabled and non-disabled gamers alike. Note: The needs described here span both mobility and cognitive disabilities.

Imagine a teen with ADHD and learning difficulties - one with cognitive disabilities that do not affect motor function. He is having trouble completing the steps necessary to advance in his favorite action game. In the game's ONE difficulty setting, the player must manage: ducking behind cover, jumping over obstacles in a timed manner, and aiming and shooting successful headshots. This complexity is just too hard, so he gives up and turns to another game.

If the title he was playing had difficulty settings, he would be able to complete these actions in a more forgiving manner and enjoy the game in his own way. An even better approach would have the game recognize when he failed in this task a few times, and display a dialog asking if he would like to skip this; he chooses "yes," there is small cut scene showing his character making the shot, and he keeps progressing.

Another example: A woman with Multiple Sclerosis loves playing her favorite RPG, but it's difficult for her to use the mouse for extended periods of time. If the game has multiple difficulty levels, she can enjoy the storyline without

fear of being slaughtered because she has times she can't move the mouse another inch.

As an example of a game that did this well, Mass Effect 3 from BioWare allowed the user to become nearly invincible and simply enjoy the story. In this mode you can one-shot most mobs and run through without using anything to regain hit points. This only aided in making Mass Effect 3 a success to a wide range of gamers. Some games also provide 'hardcore' difficulty levels that provide challenges that would alienate all but the most driven of players; in both the casual and hardcore cases, difficulty levels are tools to provide a tailored experience to all potential members of your audience.
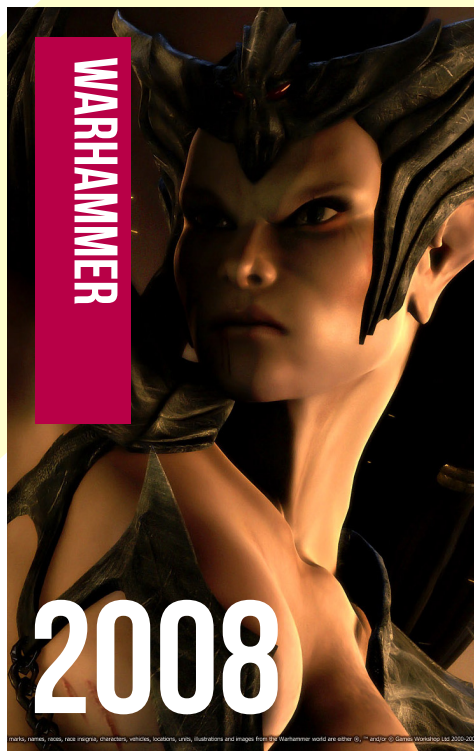
In most situations, the goal of publishing and developing a game is to make an emotional connection with the player, and tell a good story. Giving the end user multiple ways to enjoy the experience means all your hard work gets enjoyed. Difficulty settings support the needs of everyone from the most casual gamers, and the most hard-core gamers, letting both enjoy the same title regardless of ability.

Save Points

Save points are incredibly important for those who have stamina issues such as Muscular Dystrophy, Multiple Sclerosis, and other neurological disorders. It can be difficult for some gamers to sit down and game for long lengths of time. Save Points allows for the gamer to participate in the game for as long as they are able to without being penalized for not being able to have epic gaming sessions. Many games implement save points at certain intervals throughout the game, but the longer the gaps are between save points, the more difficult (in an un-fun way) the game becomes for these players.

Ideally, each game should be able to be saved at any given moment.

WARHAMMER

2008

marks, names, races, races insignia, characters, vehicles, locations, units, illustrations and images from the Warhammer world are either ®, ™ and/or © Games Workshop Ltd 2000-2008

2009

DRAGON AGE

FORZA 3

2010

We select one title annually to receive the "AbleGamers Accessible Mainstream Game of the Year" based on unique and/or overwhelming accessibility features. The recipients of each award must demonstrate excellence in game design and include options that enable a large percentage or overlooked segment of the disabled gamer community.

We take the names of the most popular mainstream games each year as chosen by our community and staff then analyze each one for features that enable gamers with disabilities far beyond its predecessors in the same genre.

Our award winners, have all achieved something unique in their niche. Warhammer was built from the ground up with colorblind users in mind. Dragon Age: Origins features pauseable gameplay that enables those with mobility and cognitive difficulties. Forza 3 implemented first of its kind features that allowed driving assists, which enable gamers who can only push 2 buttons. SW:TOR included a plethora of accessibility options.

Will your game be next? Ask yourself, what does your game do for the disabled community to set itself apart from the rest?
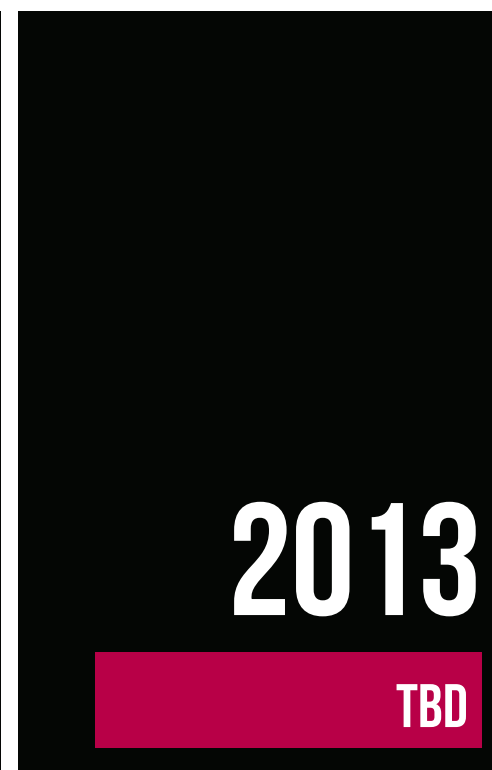
2011

SWTOR
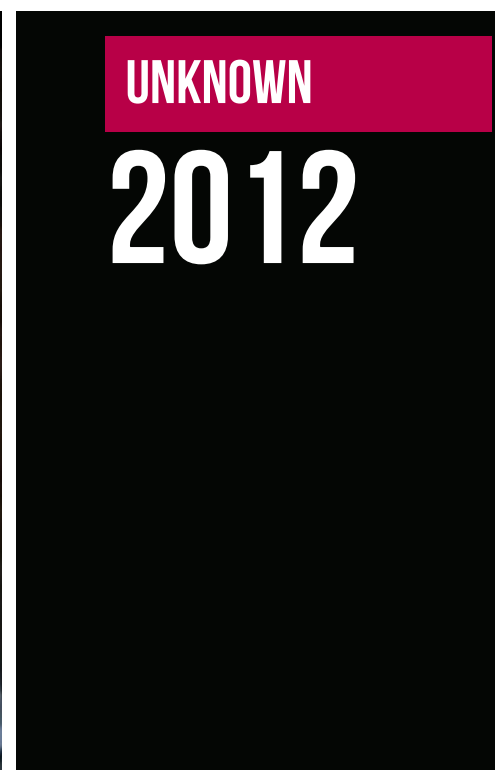
UNKNOWN

2012

2013
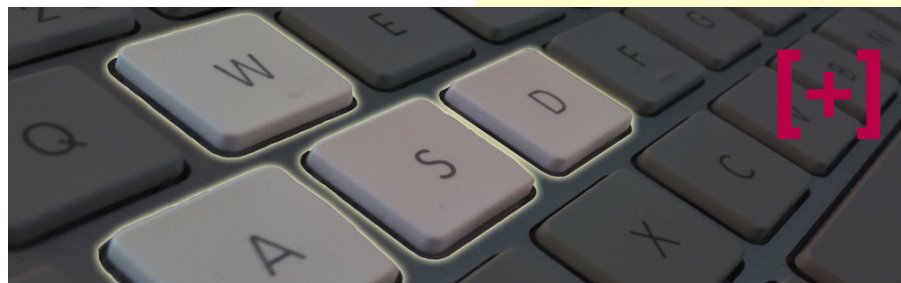
TBD

Sensitivity Sliders

Note: this is closely related to the previously discussed issue of camera controls.

Simply stated, a critical component of accessibility giving players with strength or dexterity issues the ability to master movement of input devices like the mouse or joystick. For those

who have low strength or dexterity, the ability to set the sensitivity level to an incredibly high level lets players transfer small movements of the controller into large movements on the screen. This allows for reduced effort on the part of the gamer and allows for increased time playing. On the other side of this is giving gamers with reduced control of their movements, like those cerebral palsy and other neuromuscular disorders, the ability to reduce controls sensitivity, so their broader movements will result in more precise game actions and a better overall gaming experience.

Another example: a gamer with Muscu-

lar Dystrophy wants to play your brand-new game that just launched today. Because of his disability, he is only able to move his mouse about one inch in every direction. He fires up the game on his PC, but as soon as the splash screens are over the sensitivity levels are set to such a low level that moving the cursor around the menu screen is impossible. If the game developers have added in sensitivity settings in the game, he will be able to raise the sensitivity to a very high level, allowing that one inch of mouse movement to mean a full trip across the screen.

The other side of this, an elderly woman with tremors in her arms and hands was a gamer long before her current condition. For Mother's Day, her grandson just got her a new casual game to enjoy. Like any gamer, she hurries home and loads the game only to have her arm start acting up as soon as she sits down. She can't click on the puzzle pieces because the mouse moves too wildly and no sensitivity sliders were included in the game. If sensitivity sliders had been included, she would have been able to lower the sensitivity and make moving the mouse more manageable.

Rift is a wonderful example that allows both the mouse sensitivity and camera controls to be set to levels that are extremely slow or ultrafast, which incorporates users anywhere on the spectrum.

DEV EXERCISE

Go into your Windows Control Panel and change your mouse settings to the highest settings. Spend the next hour trying to get things done. This is what gaming is like for something who needs to use sensitivity sliders.

DEV EXERCISE

Try playing your game using only a mouse? Is it possible? What about using just a keyboard? Could it be made more fun or less frustrating?

Linage is an example of a game that does not allow sensitivity to be moved in either direction and therefore makes it difficult for anyone that does not fall in with the 'default' to move the mouse accordingly.

The problem with both sensitivity sliders and camera controls occurs when assumptions are made as to what the appropriate level of speed should be. Consider supporting a broader range of sensitivities than might seem intuitive to prevent disabled gamers from being locked out of the game entirely.

Click-to-Move / Mouse-to-Move

Extremely popular in European and Asian games, and used by disabled and non-disabled alike, Click-to-Move is when the developer allows for a gamer to click the terrain and have the character move to that position in the world. Meanwhile, Mouse-to-Move is when the designer allows for the movement of the character by pressing both the left and right mouse at the same time, using the mouse movement to steer the characters.

These two features serve different purposes. Click-to-Move allows a gamer with a strength issue to click the ground and get his character where he needs it, instead of having to press and hold the mouse buttons or WASD keys. On the other hand, Mouse-to-Move is key to gamers who do not have the arm movement to continually alternate between mouse and keyboard. Both features let players move their character where they need it, and never have to take their hands off the mouse.

A disabled vet spent a lot of time playing PvP in an MMO with his buddies when he was deployed overseas. He was injured and is now stateside. He can no longer use his arms without pain. Instead, he now uses a head mouse, which allows him to play the game without moving his arms at all. He still wants to play with his buddies. In the old days he would have to use the WASD key or hold down both mouse buttons to move his character around, but the makers of the game considered these issues during development and included Click-to-Move in the title. This means he can play the game without moving his arms, and stay connected with his old Army buddies.

An example of excellent Click-to-Move incorporation is the original Dragon Age: Origins. Depending on how you wish to control your character, you can use both mouse buttons, traditional keyboard control or Click-to-Move. This allows for gamers of any ability to control the game as they see fit.

An example of inaccessible game design is a game, which purposefully disables Click-to-Move because the community believes it allows bots. However, any program that could be used to build a bot predominantly operates by automating keyboard commands, not using click-to-move. in this situation, the game loses a useful accessibility feature for little-to-no benefit.

Developer Exercise: Try playing your using only a mouse? Is it possible? Could it be made more fun or less frustrating?

Keyboard Movement

The ability to use the keyboard as the only main input device is another crossover feature that is used by both the disabled and able-bodied communities, and is part of a debate that is as old as the PC itself--some gamers swear by being 'mousers,' while others are just as convinced the only way to play is by using keyboard shortcuts.

For those that have repetitive stress injuries, carpal tunnel syndrome, and muscle or nerve injuries that cause pain when moving joints, the ability to use the keyboard to control the game may be the difference between gaming or not being able to game at all. Going back and forth from the mouse to the keyboard is a nonstarter for these players.
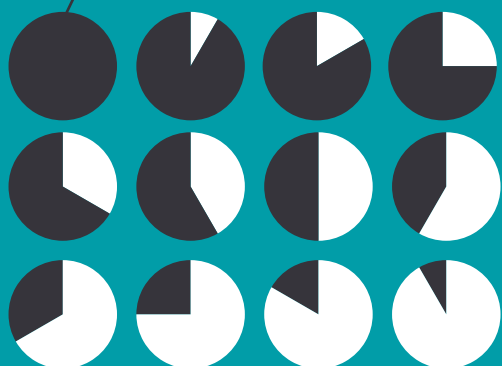

Diablo 3

WE CAN MAKE THIS THE YEAR :)

2013

Kindness is the language which the deaf can hear and the blind can see.

~Mark Twain

The stats are on your side. If you think you need to make a sales pitch to your management.

GENDER

AGE

Men | Women | 65+ | 18-64 | 5-17

11.7 % | 12.4 % | 38.1 % | 10.4 % | 5.1 %

A woman wants to play a brand-new hack and slash game where the point of the game is little more than to run around, kill monsters, and loot new gear. However, the only way to control the character is by clicking on the ground with the mouse. Her repetitive stress injuries make it painful to move the mouse that much. If the game allowed her to rest her hand on the keyboard and use WASD, she would be able to play without pain.

Assists

There are many different types of assists spread out in the gaming sphere. Each has a varied level of interaction with different parts of the game, but each can handle functions that cause problems for certain groups of gamers, while also providing useful tools for non-disabled gamers to enjoy games as they prefer.

Here are just a few examples of different assists that you may be familiar with.

Aim-assist is one of the most highly recommended options for first-person shooters, because it can help the end-user without interfering with gameplay. Aim-assists range between automatically targeting enemies to locking onto specific parts of the target (VAT in Fallout 3).

Driving assists allow inexperienced drivers to concentrate on steering a complex course while the computer handles issues like gas and brakes. The assists can be disabled depending on the difficulty level the gamer chooses. Drive assists are important for cognitively disabled gamers who may have trouble concentrating on more than one task. It also helps mobility impaired gamers who do not have the ability to press enough buttons at one time to control multiple tasks, or those that cannot keep a button like the one controlling the gas pedal press down continuously (Forza).

Puzzle assists, often referred to as hints, give gamers progressively direct instructions on what to accomplish next in a puzzle or hidden object game. Those types of assists are crucial for those with cognitive impairments and attention deficits, as well as non-disabled casual gamers.

A man logs into his favorite FPS, which he loves because he gets to play with the various types of weapons in the game. One of the features included in the game is an aim assist that allows him to lock onto a target when firing; it automatically finds a target nearest in range and slows down the action while he takes his shot. This is important to him because his disability makes targeting with any level of precision an extremely difficult activity. The assists allow him to play comfortably in a solo environment.

Who doesn't enjoy playing racing games with the family? Dreams of the fast cars and the cheering of the fans is a great addition to family game night. The young lady in this family has a form of muscular dystrophy that prevents her from being able to use the Xbox controller easily, so the game was quickly taken out of rotation on game night.

She will be unable to play with her older brother, but if the game allowed the AI to control the brake for her, she could handle steering left and right, and the race would be on again.

An example of excellent an aim assist is the VATS system in Fallout 3 from Bethesda. Users can stop time completely while aiming at a select part of the target's body. This allows the user to take as much time as they need to complete intense combat situations.

A top-rate driving assist model is in the Forza series by Turn10 and Microsoft. In order to make the game accessible to those new to the racing game genre, application of the brakes can be controlled by the AI automatically. This allows the user to hold down the gas during the entire race and concentrate on steering left and right while the computer controls the speed of the vehicle through the turns.

FORZA 3

Forza 3 was the AbleGamers 2010 Accessible Mainstream Game of the year

These types of assists can range from 'nice to have' to 'can't play without.' Now some developers have made comments about how these features turn off hard-core gamers from a title, an understandable concern as high-lighted earlier. However, if the fear of the publisher is push back from the community over the decreased level of difficulty, allow achievements that cannot be earned while certain assists are enabled or certain game modes are played. it is imperative to remember that at the end of the day those who need these kind of assists to play the game at all do not care about achievements, they care about the ability to play. Allowing those who need the assists the option to turn them on to play the game, but keeping achievements and even certain rewards available only to those who do not use the assists is a great way to compromise in adding accessibility.

MOBILITY LEVEL 3 - BEST

Input devices

One of the most critical elements to designing video games for disabled gamers is to include the ability for all peripherals to work adequately with each game. Most gamers in the disabled community need to use third-party software and hardware in order to mitigate some of the difficulties of playing complex games. It is important to make sure that these types of software and hardware are not disabled.

Although the list of assistive technology is long and extensive, the basic categories of assistive technology range from on-screen keyboards, voice recognition software and switch-based hardware input devices.

These types of software and hardware devices shift gaming from an impossibility to an important activity for many disabled gamers. Included in Windows by default, on-screen keyboards can be tested easily and other hardware can be white listed as programs that help the disabled community.

A gamer with Duchenne muscular dystrophy uses an on-screen keyboard and a voice control software program to play his favorite RTS. The game has a 'full-screen windowed' mode that allows the gamer to place the on-screen keyboard over top of the game and allows voice control to work properly.

An Example of a well-designed title is Civilization V, which allows for the on-screen keyboard, voice control software and TrackIR to work with the game by not blocking out input from other applications.

Speed settings

As a top tier option for those with mobility issues, consider having the ability to slow down the game clock entirely. This allows those with dexterity, precision and strength issues to interface with the game at an easier rate of speed. It also enables those with cognitive disabilities like processing and comprehension disorders to slow the game down so they can understand the game and what is happening on screen at a pace that meets their needs.

My Football Game by VTree allows the game to be slowed down to 20% of the default speed allowing those with difficulty moving the mouse easily or reacting quickly to complete the game at a comfortable rate.

It is important to think of the situation like this: although many of us have the ability to function in a game by a specific, universally accepted minimum of difficulty and rate of speed, some people simply can't keep up with 'normal speed.' For these individuals, if the game was slowed down to considerably, they would be able to have as much fun as everyone else.

[+]

VISUAL

HOW WE SEE

VISION LEVEL 1 - GOOD

Changeable Text Colors

The name of this says it all. For those that have difficulty distinguishing between colors, often referred to as color deficiency, the ability to change the color of text associated with a particular function improves overall gameplay. Note that color deficiency differs from color blindness. Color-deficient people can still see a certain color, but they cannot distinguish shades of the color, red vs maroon, or lime green vs dark green.

Often found in MMORPGs, various colors are used to indicate what type of input is being received. Green is often used for guild conversations, white is often used for local communications, light colors of pink or purple are used to indicate private message, whereas red is often used to indicate combat or enemies. This range of color usage can be challenging to players with color deficiency or color blindness.

A woman with a strong color deficiency has trouble interpreting chats in her favorite MMORPG because the color of her guild chat is green, her group chat is a very light purple and her instant message (whispers) are pink. If the game incorporated the ability to change the colors of any text to something she could see more easily it would improve the quality of her gaming experience.

World of Warcraft does not allow the user to change the color of any text input, but through the use of modifications, gamers can make the colors more distinguishable from one another.

In SWTOR, text colors can be defined by the individual gamer, and this enables those with any color blindness or color deficiency to interpret the data the game is telling them more easily.

It may seem like something that is relatively simple, but for those that need the option, it's important to have. After years of development, many colors have become standardized as meaning certain things (i.e. green is almost always used for the guild chat), which is exactly why allowing colorblind or color deficient users to change colors to what is more comfortable for them is so important. As an industry, games have realized the importance of separating information based on color for easy dissemination. Therefore, it is important for those who need to alter colors to the spectrum they can see is also important. Remember this: 1 out of every 7 men are color deficient.

Changeable Font Sizes

Since the invention of text and graphical displays, one of the most basic options has been the ability to change the size of text. However, video games do not often provide the option. Gamers with visual difficulties including those that are legally or almost totally blind can still participate in many games, but reading text in the subtitles, directions/instructions and chats can be frustrating if the size of the text is just barely too small to read.

A man loves playing an online adventure game, but his eyesight is slowly fading as he ages and his macular degeneration continues. He squints at the screen with the most powerful glasses money can buy, but the text continues to be harder to read. If the game allowed him to increase the size of the text in his chat window and on quests, he would be able to continue playing the game without interference.

One example of a game that does this well is EverQuest II, which allows users to change text size.

Text size matters to more of your audience than you might think. Up to 50% of the aging gaming population has or will have vision problems in their lifetime.

CIVILIZATION 5

Color-blind Options

Color-blind options are the most popular and in-demand feature for those with visual issues. Ideally all games should have colorblind options that can be enabled to compensate for a variety of color deficiency issues. The most prevalent of these disorders is the inability to tell the difference between the colors green and red. This is most often avoided by providing a way to change the color green to blue when indicating friendly information such as group mates or health bars.

There are a wide variety of color deficiency disorders in the color-blind spectrum. Few people are monochromatic, and far less common forms of color-blindness besides red-green blindness include the inability to tell the difference between blue and yellow, and the ability to discern everything except blue.

Using color is not a bad thing at all, but to support color-blind players, a secondary indicator needs to be added when color is used to indicate an important status. For example, consider a game with a map that shows players which team has control of territory. The standard implementation of this would be to add a RED and GREEN overlay on the map to indicate status; this would be useless to most color-blind gamers.

A much better way to handle the situation would be to include symbols on the map to indicate who owns each area with the normal color scheme. Perhaps a 'Check Mark' for those things your team has control of and an 'X' on those you don't or fog of war mechanics. Any theme will do, just as long as it is visually distinctive. This can also be an option that can be turned on or off depending on gamer preference.

A woman purchases the sequel to her favorite casual puzzle game. When she gets the game home, she finds she can't tell the difference between the red and green puzzle pieces defined by the color scheme of the game. If the options were available to change red or green to an alternate color, or set user-defined colors for both, then she would be able to enjoy the game.

Popcap is largely considered the frontrunner in color blind accessibility. It is becoming increasingly more commonplace to see colorblind options in casual games, but Popcap was using color-blind friendly options in titles such as Peggles long before it was nearly considered mandatory.

An example of a problem most can relate to is in Star Wars: The Old Republic. There, "Portals" that you can go in are GREEN, but those you cannot are RED. To the red/green colorblind gamer, these both look the same, and navigation is a mystery.

High-contrast Target Reticle

For First Person Shooters, it is extremely important that the target reticle uses colors that are easy to distinguish from the other environmental elements in the game. In situations where both the enemy and reticle are red, the user is unable to identify between the target and the sight, leaving no way to tell where the actual target is aiming.

A man loads a new shooter game that just came out on the market. While the company did a good job by not making the enemies highlighted red and allies as green, the target crosshairs are still green making the environment of an open field a nightmare for him to see the difference between where the target begins and grass ends.

In Max Payne 3, Rockstar enabled an option that allows the end user to choose from coloring the target reticle red, white or blue. The color differential is important to the user with color deficiency. This is particularly true when the point of the game is to test accuracy and reflex actions.

The easiest solution is to change the target reticle to blue or white.

Enemy Marking

The ability to tell friend from foe is one of the most fundamental differentiators in all video games. Some games use naming, visual bars, symbols or color markers. For those who have trouble differentiating between similar colors, small markings can help gamers tell the difference between friend, enemy, or really difficult enemy.

A teen has trouble seeing enemies on certain backgrounds of a game with a variety of maps. Without the ability to change the colors of the enemies or mark them in some way, he will be caught unaware when an enemy walks on-screen.

In Guild Wars 2, enemies are marked by red bars with numbers representing mob level and accompanying symbols to declare the level of the faculty in either a gold or silver star.

in Battlefield 3, an option can be enabled to place small blue 'Doritos' over the heads of allies. This allows gamers to quickly recognize that those without the marking are enemies.

10%

VISUAL LEVEL 2 - BETTER

Customizable Fonts

Font customization is not a new trend in game development, but the use of very stylized fonts has a negative effect on low-vision gamers. While we understand that most game developers want to run with a theme throughout the project, many of these more stylized fonts are difficult to read by most gamers with good vision; and for the vision impaired gamer, it's an utter roadblock.

The ability to swap out more elaborate fonts with something more simplistic, like Arial or Times New Roman, will allow the low-vision gamer to make text easier to see. Combine this with the font-size changes in level one, and you are on the cutting edge of text support for the low-vision gamer.

DEVELOPER EXERCISE

Take a look at the game you are working on now. Would you be able to play your game if it were played on a black and white display? Take come screenshots and see how a person who has a color deficiency sees your game. http://tinyurl.com/d95wp6
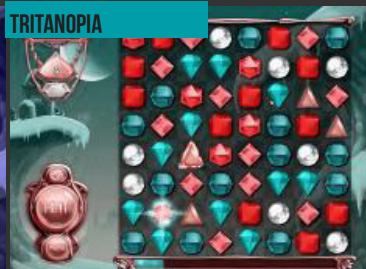
PROTANOPIA

TRITANOPIA

ACHROMATOPSIA

PROTANOMALY

BEJEWELED 3

17,580

5

HINT

MENU
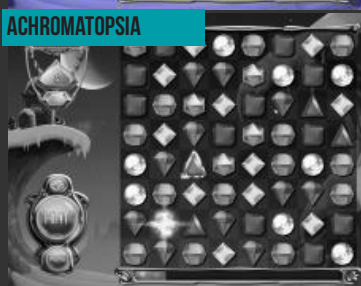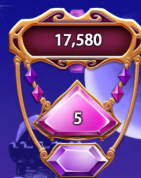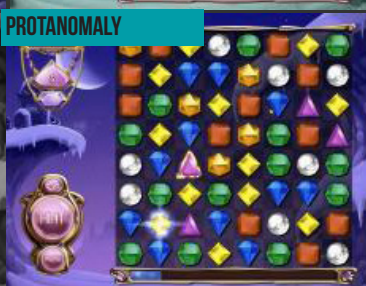
53
MILLION

AMERICANS WITH
DISABILITIES. THAT'S A LOT OF
YOUR CUSTOMERS

Customized HUDS

For those with vision impairments such as color deficiencies, low vision, tunnel vision and difficulty seeing rapidly moving information, the ability to organize the UI to the end users' preference helps to mitigate problems with seeing important information at a glance.

A woman with macular degeneration has difficulty adjusting her sight quickly to various points on the screen. If she is able to redesign the UI so that the elements of most importance are within her visual range, the time spent in that game will be dramatically less frustrating.

Additionally, the ability to change the colors, size and position of various elements on the UI help those who cannot differentiate between certain colors. While those with other eyesight issues can independently arrange elements to benefit their style of gameplay without needing to petition the developers for a set up that would work for them individually.

Giving multiple alternatives helps alleviate the need to add multiple schemes further down the road in the development cycle.

The most preferred method for dealing with customizing the graphical user interface is to allow the user to individually define how they would like the elements to be arranged.

Understandably, this is an expensive endeavor. However, it may be an additional argument for iterative interfaces that can lead to smoother development processes and better overall design. Currently, consoles rarely allow the user to change the position of UI elements. It is far more common in PC. But in those circumstances, gamers that have a difficult time seeing certain positions on screen benefit greatly from those games that do allow custom interfaces.

Map Recoloring Options / Alternative Views

The next logical progression from the colorblind options laid out in level one, is giving users the option to recolor the 'mini map' or other 'situational awareness' screens and tactical maps away from the traditional red and green to alternative colors such as blue and orange. This allows those with color deficiencies to make better use of the interface.

A man who has monochromatic color deficiency can't see the difference between red and green. His favorite MMO has a mini-map that displays both enemy and allied movement. Unfortunately, the mini map can only be displayed in green and red, so everything looks the same to this man, and the battle lines are a mess of misinformation.

Demigod from Stardock uses a mini-map that is imperative for gameplay, yet cannot be altered. For users with red/green color deficiency the game is extremely difficult to play without such vital information at a glance.

While not an ideal implementation, World of Warcraft allows mini-map modifications to be done via scripting that enables variations on the shape, color and size of the mini-map.

Allowing the gamer to find a color scheme that best suits their visual needs is the best possible solution in this scenario.

VISUAL LEVEL 3 - BEST

Speed Settings - Yep it is a Repeat from above

This is a top-tier option for those with mobility, low vision and cognitive disorders, having the ability to slow down the game clock allows those that just need more time to process what is going on, and how they need to react to it.

A disability that is in the news a lot right now, a veteran is coping with a traumatic brain injury and has difficulty processing information. He has no issue understanding what is going on in the game, he just does not do it as fast as most others. By slowing down the game up to 80% he can successfully play his favorite sports game that he and his friends played while over in the sands.

My Football Game by VTree LLC allows the game clock to be slowed down to 20% for those with difficulty moving the mouse easily or reacting quickly. This enables gamers to complete the game at a comfortable rate further particular abilities.

Text-to-Speech Input

Another top rated accessibility option would be to include the ability of the game to read the text on the screen and repeat it in audio form. Many programs now do this for users on the web, but it has not yet made its way into the game universe.The successful implementation of this feature would be to offer text-to-speech on user created text, like guild chat, or other chats created by end users.

A gamer with difficulty reading information because of brain injury or eyesight issues has a very hard time interpreting text information at a comfortable rate. The ability to have the game audibly announce the information displayed on the screen would enable the gamer to participate in the game more effectively.

Hearing Things

You may be wondering why the section for the hearing impaired accessibility is so short compared to the other sections. Truthfully, thanks to mainstreaming efforts from the deaf community, standards and practices insist upon subtitles and visual cues being in place to assist those with hearing impairments.

However, there is still room to improve, and some accessibility options are important enough to cover even though they are already part of good game design.

HEARING LEVEL 1 - GOOD

Closed Captioning

Closed captioning for the hearing impaired has become the de facto accessibility option. It is and always will be one of the most important options to be included in games. However, many do not understand the difference between closed captioning and subtitles. Subtitles are when the speech coming from characters is written underneath as dialogue, and has become a standard feature in most of the newer games. Closed captioning on the other hand is subtitles enhanced the addition of valuable audio cues are displayed in text format.

If a gamer with a hearing impairment is participating in a game, it's important for the ambient noise to be captured in text on the screen, especially for horror games, spy games, and other sneaking-based games, where monsters/NPCs are making noise that is designed to be an early warning system..

Including closed captioning increases the overall experience for those with hearing impairments.

HEARING LEVEL 2 - BETTER

Changeable Fonts - Seen this before? Yep
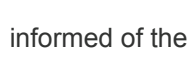
Just like the feature laid out in the vision section, the need to change fonts is important for hearing impaired gamers to help with readability, reduce eye strain, and help keep the gamer informed of the environment

Changeable Text Colors - Yes, you have seen this before too.
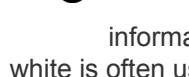
Text colors enable gamers to set visual cues for where information is coming from. As noted before, text colors are a standard feature in MMORPGs, where colored text is used to help sort information in a chat box: green is often used for guild conversations, white is often used for local communications, light colors of pink or purple are used to indicate private message, whereas red is often used to indicate combat or enemies.

BABY FRIENDLY TESTS

'Baby-friendly settings' reflect the idea that those with who are parents trying to play video games should be able to do so at 3 in the morning with the sound disabled and the baby sleeping right beside them. Games should be designed in a way such that the game can be completed whether the sound is enabled or not. This is another example of a feature for disabled gamers having value for non-disabled gamers.

the **ablegamers** foundation

CLOSED CAPTIONED

SELECT View notebook

[In a Raised Voice]
Detective Smith: I know you have the information we are looking for Scott, so tell me the truth
[Scott is breathing heavily]

GOOD

GREAT

SUBTITLES

SELECT View notebook

Detective Smith: I know you have the information we are looking for Scott, so tell me the truth

In an immersive environment, text becomes even more of an important feature for those that cannot use voice chats or hear voice overs and game sounds, and the ability to color those messages becomes paramount to identify spoken material from other game text.

Both World of Warcraft and SWTOR allow gamers to set the color of incoming messages as they see fit. This enables a more enjoyable experience for visually disabled gamers, hearing-impaired disabled gamers, and non-disabled gamers.

HEARING LEVEL 3 - BEST

Options to Include Ambient Noise as Text Output

Capturing ambient noise improves the quality of experience for those with hearing impairments. The environment is often key to the overall feel of the gaming experience, when that element is left out, the Deaf gamer may be missing the mood you are looking to set. Extending the closed captioning system above to let players turn on and off text cues for certain levels of ambient noise allows the gamer to customize the level of immersion they want.

A deaf man tries out the newest zombie game, but is unable to successfully play because the developers have designed the noise the zombie makes to be an early warning system of an attack coming out of a blind spot is about to happen. If the ambient noise was captured in the subtitles -- for example, [you hear a groan coming from the right] -- the gamer would be able to continue playing with full situational awareness.

Alternative Reactionary Input

Often referred to as subliminal cues, these are the use of other tools available to the game developer to replicate the role of audio in indicating something important is happening. This could mean things like the screen turning red as the character is increasingly wounded, flashing when the character is low on health, or using the vibration offered by a standard console controller to have a meaning that Deaf gamers can interpret. Alternative reactionary inputs allow for the user to be more in tune with what is currently happening in the game without needing to hear the environment, or read that something is happening.

In World of Warcraft, the edges of the visual area flashes red at an increasing rate once the character reaches less than 20% health.

In Call of Duty blood appears around the screen and the clearness of the screen blurs as the character takes additional damage. As regeneration occurs, the bloodied screen clears up. Both of these are accompanied with an audio cue as well.

These are non-audio cues that allow the gamer to interpret important game information, in this case character health, without having to hear anything. To the non-disabled gaming crowd, these types of alternate warnings are becoming more commonplace as an additional means of providing immersion and understanding of the environment. To a hearing impaired gamer, these types of warning systems are an essential feature to level the playing field.

STAR WARS | THE OLD REPUBLIC

TBI

TRAUMATIC BRAIN INJURY
IS A COGNITIVE DISABILITY
OUR VETS FIGHT DAILY

COGNITIVE - HOW WE PROCESS THE WORLD

COGNITIVE LEVEL 1 - GOOD

Tutorial

Tutorial experiences are important for those with cognitive disorders. Many gamers with cognitive disorders experience more positive results from being shown precisely how to play a game as opposed to being left to interpret cryptic instruction pamphlets or employ trial and error. It is also not good for to expect disabled gamers to understand the "standard inputs for the genre," because many of these gamers may not remember what those were.

A woman with difficulty understanding linear steps wants to play a new game. She has no friends, caretakers or family that have the time to explain the game. There are no tutorials and as she attempts to play the game she continually does things wrong and receives ridicule from the in-game community for doing things perceived as 'simple.'

If the game offered in-game tutorials in a closed phase where she could learn the game without fear of ridicule, she would be more likely to enjoy the game and continue playing.

Most MMORPGs have so-called 'starter areas' where the basics of the game are taught through linear quests that must be completed in order and successfully in order to advance. Many times these are accompanied by special interface components that point out parts of the HUD, or lay out how combat works. The theory is that basic skills are learned best by doing.

It is important to include thorough tutorials for the cognitively disabled, as well as to be considered for inclusion in good game design. Some people with severe cognitive disorders simply need extra time or encouragement to continue learning. It is important to realize that no game elements can be considered trivial if they are difficult for someone to learn. Many of these same features can also be used to welcome more casual, non-disabled players to your game, broadening your overall audience.

Sandbox Modes

A major accessibility feature, with inherent value to all players, is the ability to play in a mode that has no rules other than the ones defined by the gamer themselves. A sandbox mode gives players the tools to play the game and allows them to make what they want of the game. This also allows those that may need a little more time to learn the game mechanics to play without negative consequences.

An excellent example of games that have sandboxes are tycoon games, and builders; these usually have modes that do not have limits on spending, or allow the user to control scenarios. Minecraft is another excellent game that allows you to turn off all of the hostile features and makes a safe haven for gamers of all types to play without any threat of losing.

Difficulty Levels

Particularly pertinent to first-person shooters, strategy games, and casual timed or puzzle games, difficulty settings can mean the difference between an enjoyable experience and not being able to play the game at all.

A teenager who sits down to play a brand-new strategy game for the first time gets utterly destroyed. He continues to try new games, but continually fails because there are no difficulty levels. The nature of his disability prevents them from being able to perform specific tasks at the levels demanded, and therefore he has no chance of playing the game.

In games such as Mass Effect 3, difficulty levels allow the user to become near invincible while experiencing the story line, traversing the game, and

not worrying about dying or failing the game. Deus Ex: Human Revolution from Eidos asked gamers at the top what level they wanted to play the game at. Causal, Normal, or Deus Ex (Crazy hard). It is worth noting that the more recent Madden introduced a mini game that based on the outcome took over certain actions. This allowed less able gamers to play with expert gamers and still have a good competition. This is an excellent implementation of setting difficulty level.

Starcraft II from Blizzard Entertainment and Sins of a Solar Empire from Ironclad Games allow gamers to set the level difficulty for computer opponents and thus allows the gamer to decide what difficulty of competition they can handle.

COGNITIVE LEVEL 2 - BETTER

Training Levels

Training levels allow the user to practice playing in a multiplayer environment versus computer artificial intelligence at various levels of difficulty. This allows those who may become frustrated by online gameplay to be better prepared for the coming experience of playing with other gamers.

A man with very little hand-eye coordination desperately wants to play his buddy's favorite first-person shooter, but every time he goes into the online environment he gets destroyed and laughed at by the competition. If the game had training levels that offered varied or increasingly difficult computer AI to fight against, the man would be better prepared at the end of training to face real competitors.

StarSiege: Tribes by Dynamix enables people to practice its first-person shooter maneuvers with NPCs at various levels, ranges and numbers. This helps ensure gamers who have difficulty learning how to play that particular game have a chance to practice on their own without fear of ridicule, thus making the game more accessible.

Intuitive Menus

Intuitive menus are not only good game design, but for those with cognitive disorders they provide the ability to quickly assess where certain options are without being frustrated or confused. Just as with web design, good game design includes placing menu items where they are most often found and that all options are no more than 2 levels deep.

[+]

COGNITIVE LEVEL 3 - BEST

Enemy Marking

The ability to tell friend from foe is one of the most fundamental differentiators in all video games. Some games use naming, visual bars, symbols or color markers. For those who have trouble differentiating between similar colors, small markings can help gamers tell the difference between friend, enemy, or really difficult enemy.

Speed settings

As a top tier option for those with mobility issues, as well as cognitive consider having the ability to slow down the game clock entirely. This allows those with dexterity, precision and strength issues to interface with the game at an easier rate of speed. It also enables those with cognitive disabilities like processing and comprehension disorders to slow the game down so they can understand the game and what is happening on screen at a pace that meets their needs.

YOU MAY ALSO WANT TO THINK ABOUT...

Auto-pass

One of the more common features in video games today is the inclusion of 'quick time events.' These events are often timed obstacles that the gamer must use sequences or combinations of buttons to pass in order to advance.

The Auto-pass feature is a failsafe against frustrating gamers to the point of abandoning the game. A built-in system can recognize when a gamer fails to do a specific event certain number of times in a row, and offers a simple dialog the player to skip the event. This can be as simple as asking, "Would you like to skip this?"

There are also lighter versions of the same idea for various types of games. In a puzzle game, if someone fails to make a move, or makes the move incorrectly three times the game can offer a clue, and if they fail three more times it can offer to show the solution.

In a mandatory fight in a story-driven game, if the user fails multiple times in a row, the enemy could be weakened after each subsequent fail until the person is able to defeat the obstacle.

These types of features are failsafes that are triggered automatically by the AI when the computer notices a gamer is having difficulty. This is commonly called 'rubber band AI,' where the game will automatically increase or decrease the level of difficulty based on the gamers performance.

Perspective

For those that have issues of vertigo, Ménière's disease or other forms of sight-based balance issues, the difference between first and third perspective can be quite daunting. Some people can simply not look down through the eyes of the character without feeling a sense of imbalance and sickness.

Whenever possible, perspective options should be offered to let players change the camera view from first person to third. In third person view, people with these types of illnesses are able to see their character and their brain can handle the environment based on a steady reference point of a character being present.

Reward System Balance

Most accessibility issues can be solved with simple accessibility options. However, there is some concern amongst the community that lowering the challenge of the game hurts the gameplay of other users by default.

This fear can be mitigated by implementing reward-based systems. If an option or set of options removes much of the challenge that the game developer intended, you can present the gamer with a dialog stating that certain achievements will not be available. This allows for gamers in the disabled community to enjoy the game without enabling those who do not actually need the options to take advantage of the system. Another way to implement a balanced reward system is to look at how this was handled in the Rock Band Games from Harmonix. They have achievements at all levels, like "Hometown Throwdown," that just means you finished a set but does not care if you did it on easy or expert.

At the AbleGamers Foundation, we talk to developers all the time. We have often heard that "no one would want to play the game with X" where X is either one button, infinite life, infinite abilities, infinite power, infinite money etc. The truth of the matter is for most disabled gamers, they simply want to be able to play the game the best that they can. They don't particularly care about achievements, they don't care about leaderboards or being able to run around and say they're the best of the best. They simply want to play the game.

MOBILE GAMING ACCESSIBILITY

Mobile gaming is a tough area for accessibility. As things become more accessible in terms of playing the game anywhere, they also become less accessible in terms of ability to be played by some disabled gamers. The following is a guide for accessibility in an ever-changing mobile technology landscape.

Touch

The entire idea behind mobile gaming is having the ability to touch the screen and have the game react accordingly. But when you can't touch the screen with precision, it's important to have a buffer against accidentally touching the same spot more than once and a large area that can be considered the 'hitbox' for touching the screen.

For those with Cerebral Palsy and other neuromuscular disorders that cause shaking, tremors or low precision hitting a specific spot on the screen can be difficult. Allowing the largest area possible to be pressed as the trigger helps alleviate some of the difficulty.

Multi-touch

Many games require you to touch more than one place on the screen at a given time. This can be problematic for those with use of only one hand. If your game requires pressing multiple places at the same time, consider grouping them together to make pressing buttons simultaneously in rapid succession and easier task.
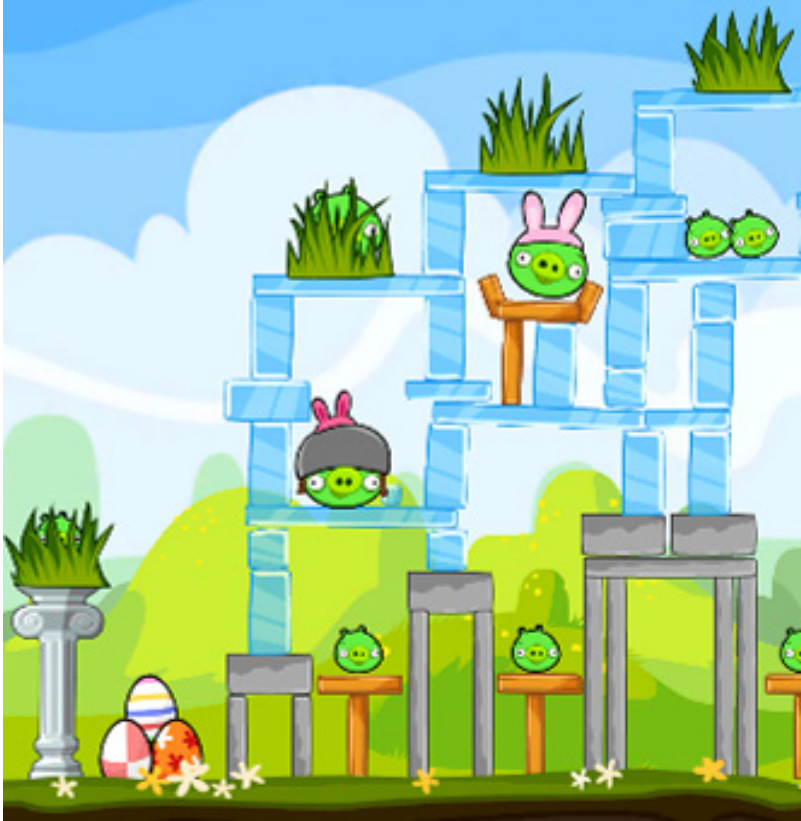
FOOD FOR THOUGHT

As games become increasingly more accessible to gamers on the go, they become increasingly inaccessible for disabled gamers. Many of the options and assistive technologies that disabled gamers can use on the PC or console to overcome barriers, cannot be used on mobile devices. Tablets and other mobile devices are critical for some disabilities such as Autism, but make gaming almost impossible for other gamers such as those with Muscular Dystrophy.

By adding as many of these accessibility options as possible, you limit the number of disabled gamers locked out from the lack of peripherals and expand your potential market.

Alternative Buttons
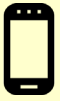
When designing games to be played on mobile game devices it is important to consider what features are needed. Some gaming systems include the ability to steer by rotating the device in free space using the gyroscope to control the game. Others require pressing on the back of the device or applying pressure to the front of the glass.

In both situations, alternative control methods such as adding buttons to the interface allow for those that cannot pick up their device to be able to enjoy the game. Often times the tablet or gaming device is placed on a flat surface because the individual does not have the strength or dexterity to hold the device.

If a game requires a special feature such as tapping on the back of the machine, rotating the device, etc. allow for alternative means to be used to accomplish the same goal.

High contrast

Similar to the visual area for PC and console, high contrast is important for those with visual impairments to see important areas of the game and navigation menus. See the section on high contrast under Visual for more details.

Colorblind options

Just the same as in the visual section, it is important that your mobile game have options for those with color deficiency or who are colorblind. One in seven men suffers from some form of color deficiency. See the section on colorblind options for more details.

Speed settings

Also the same Tier 3 guideline as for PC and console, but slightly easier to achieve. During play testing of most mobile games developers use slower gameplay to observe the entire process. Consider leaving the ability to slow down your title in regular game play, just as you would during testing. For those with autism, learning difficulties and or slow reaction time, the ability to slow the game down allows the gamer to play at a rate comfortable for their needs.

DEVELOPER EXERCISE

Multi-touch : Place your mobile device on a flat surface. Can you play the game with one hand behind your back? If not, consider altering your interface.

DEVELOPER EXERCISE

Alternative Buttons: Place your device on a flat surface. Can you operate the game without lifting it? Can you complete the game without quickly tapping on the device, pressing buttons on the back of the machine or rotating the screen? If not, consider alternate methods of controlling the game that can be enabled in the options menu.

MICROSOFT SMART GLASS

A NEW WAY TO INCLUDE

Mark Barlet

Xbox SmartGlass is a new technology from Microsoft that allows you to utilize your mobile device as a technological companion to enrich your entertainment experience. Your gaming experience is taken to the next level by allowing direct input to the game such as making a play in Madden or running your character through a dungeon.

But what if you made the device an accessibility option for those who can't play your title--due to complexity or their disability—and instead, invoke the power of co-op.

Here's how:

Two brothers John and Bob - now in their 30s - have been playing games together for decades. Every Sunday for as long as they can remember, they have gotten together to play their favorite war game. The gaming tradition was something both brothers look forward to every weekend as a way to get away from it all and spend some family time.

But it came to a tragic end the day John had a stroke that left him paralyzed on the left side, partially on the right side and unable to operate a standard Xbox controller. Bob looks into assistive technology, but nothing quite suits the purposes of getting them back together in the art of war.

One day Bob sees an advertisement for Xbox SmartGlass, runs out to buy a tablet and excitedly gives it to his brother. Although the stroke left John severely disabled, his cognitive abilities are as sharp as ever and he still has some use of his right arm.

He loads up the war game with the controller in his hand and the tablet on a table in front of his brother. John's tablet lights up with an aerial view of the battlefield with enemy positions, tank deployment statistics and infantry lines are displayed in real-time. John hits the screen, which pings a location on the map of an enemy tank that is being refueled and only lightly guarded.

Bob runs to the location. He ambushes the guards in a quick victorious firefight. "Enemy behind you," calls John. Bob jumps into the tank for cover. Meanwhile John's tablet just flipped to a weapons screen complete with ammo levels, fuel gauges, damage readouts and gun controls. Bob starts the tank and points the turret toward the enemy location. A screaming rocket flies over the tank, missing by inches. Bob sees the infantry running at them to recover the now stolen tank. John hits a button on the tablet that loads the tank's primary cannon. "Fire," Bob yells as he aims at the enemy. John slams the blinking red button.

The camera shakes and a huge plume of dust erupts from the spot the enemy soldiers were standing. "Direct hit," shouts Bob as he and John laugh maniacally. "One is still up." John hits another button switching the screen to the machine gun and a first-person view from the gun. Bob hits the gas. The tank roars, lurching forward. John drags a finger across the screen causing the machine gun to spray suppressive fire in the direction of the remaining soldier who quickly falls to the ground. They continue giggling as Bob drives off looking for the next adventure.

In the real world, John only had to hit a limited number of buttons while Bob did most of the controller work. But the few buttons John did hit operated crucial components of the gaming experience for both brothers. Bob can control the quick and complex movements that John is unable to do while John can watch the bigger picture and interact with the map, navigation and weapons.

Imagine the numerous scenarios you could come up with where a gamer with disabilities can take over responsibilities or assist other gamers with more abilities.

For example, a spy game where one gamer controls a spy infiltrating enemy compound while the disabled gamer hacks into the security systems turning off alarms, operating security cameras and controlling the premises. Or a sports game where the tablet controls which play will be run by the gamer on the control. Or a flight simulator where the disabled gamer takes on the role of the navigator while the gamer on the joystick does the flight controls.

Your imagination is the only thing limiting the possibilities. With the relatively low cost of SmartGlass implementation you can enable some money more gamers by including them in the game in a way they can play without frustration.

This is a wonderful opportunity to further accessibility using brand-new technology to a level many of us never thought possible. The relatively low cost of including extra content that can enable players with disabilities is the exact methodology we use with assistive technology. The possibilities are endless. Now is the time to take advantage of such cutting-edge technology for the purposes of inclusion.

I Would

Man, what a short statement. Sure, "I would" doesn't sound like very much on paper, but it was one of the most powerful things I've ever said in any meeting the AbleGamers Foundation has had in all the years I've been with the organization.

The very first time our crew went to Boston for the Penny Arcade Expo, we took a rainy morning side trip to a studio that supported us from the very beginning. Harmonix, creators of Rock Band, Dance Central and the original Guitar Hero, invited us in to talk about what we had accomplished so far, what we were doing in Boston, and what we hoped would be the future of accessible gaming.

It was to be a relatively short conversation with Alex Rigopulos. He is a busy guy. After all, it's not easy creating games that go on to become pop-culture phenomena. His handler led us to his office tucked back deep inside the labyrinth of offices plastered with random pictures of music icons, gaming legends and artwork from around the world.

The atmosphere in that place is simple, straightforward and creative; exactly as you might think a game studio based around music might be. Once the introductions and formalities were out of the way, our meeting started off rather smoothly. Mark, the president of the foundation, opened up the conversation by telling Alex about our PAX experience and Ben, vice-president, discussed our appreciation for the support we have received.

But I was interested in the game. I'm a gamer at heart and when I go to these business meetings, I don't think of myself as the Editor-in-Chief of an international nonprofit. No, I'm a gamer and I'm representing other disabled gamers who can't be in those meetings. My priority was inquiring about adding accessibility options to the infamous titles.

The conversation was very lively with everyone talking back and forth in rapid succession. We talked about remap ability, alternative control schemes and colorblind options. Alex was excited. He really believes in accessibility and I truly believe he would make his games accessible to everyone if money and development allowed.

Knowing this, I asked, "What about difficulty levels?" "Well, we made the game so that you could adapt the difficulty based on how good you are at using musical instruments," answered Alex. "You can set Rock Band from maximum all the way down to three buttons."

"Okay, but why did you stop at three?" I asked.

"Well, we pretty much thought no one would want to play Rock Band with only one button," he responded off-the-cuff.

"I would," I said as matter of factly as humanly possible. The room went silent. Alex looked at me with what I suspect is the same expression as someone who just saw a ghost tap-dancing on a grave. He was shocked at my answer, the honesty in the answer and at the same time caught up in the realization that someone actually might get fun out of simply pushing one button in rhythm with some music. The same joy someone gets out of pushing three buttons.

The conversation changed to how this might come to be. I'm still hopeful that one day we will see an AbleGamers mode that only requires one button.

To this day that conversation is still talked about in our organization. We still refer to it on speaking occasions and the occasional interview. Mark and Alex still reference it from time to time, which means that it made a lasting impression on both of them. Such a small phrase had such a big impact.

But the truth is it wasn't the words I said, how I said them or when I said them, it was the meaning behind the words that had such impact.

You see, we run up against questions like these now and again. Even during the editing process of the very white paper you are reading now the gaming editor asked, "well, how would you xxx?" And the answer is always a sort of complex simplicity.

Gamers with disabilities, such as myself, don't care about getting achievements, winning pro tournaments, being the best ever created or being an elitist. Well, okay, we do care about those things, but they are by far secondary to the main concern: Let Me Play.

We just want to be able to play the game at all. Right now, Rock Band stands as one of the games I would like to play the most out of any game created so far. It is also the one game I have never been able to and still can't play because of the limits built into the game.

When you are building your game, it's important that you realize disabled gamers have their own ways of playing and it often different than you intended. Assistive technology is great, but its limitation is that the more buttons you program, the more complicated they are to use.

The FPS you built - I don't use strafe, don't walk backwards, don't use half of the extra buttons or features; I figure out exactly what's needed and use those. Which usually consists of walking forward with right-click, firing with the left and as few extra buttons as I can get away with.

The MMO you built - I don't use all the abilities on the hot bar, I use the ones that are the most important and easiest to reach. I still don't strafe nor walk backwards.
And the list goes on.

If I could only impart one thing to you it is this: never say someone wouldn't want to play your game a certain way. If you think people can't play without moving in all directions or that someone wouldn't enjoy playing your game with only one button, chances are there are people who would enjoy your game just as much if you give them the chance to play their own way.

Thanks for listening and I hope this document serves you well,

Steve Spöhn

Dear Industry

What if the greatest book ever written was not available to everyone? What if we neglected to translate the text into multiple languages, never made large print versions, never made an audio book, or didn't take the time to make a braille edition? Quite simply, millions of people would never be able to read "The Greatest Book in the Universe, EVER!"

Accessibility isn't about changing the content of the book; it's about changing the delivery. While there is no way to make the book available to absolutely everyone, we can make as many versions available as possible to make sure that ALMOST everyone can enjoy it. And did making these different versions of the book take anything away from the original? Did we lose something in the translation? Absolutely not.

Now apply the same logic to video games.   As an industry, we take immense pride in the games we make. We treat them as works of art, take passionate stances on forums, and are excited at the opportunity to share them with the world. We spend hours talking about games with our friends, and gain new friends (and enemies) while delving into fantastical worlds. Why should we limit ourselves by not including as many gamers as possible? Why don't we listen to the needs of millions of underrepresented gamers? Shouldn't we as an industry increase the overall number of gamers who can play our games? Put simply, why don't we account for accessibility? To the over 54 million people with disabilities in the United States alone, to their loved ones, and to their friends, these are very important questions. So what can we as an industry do?

Accessibility in games isn't about changing the content of the book; it's about expanding the delivery of its content. With a digital product we don't need to make multiple versions; we should simply ensure that we build in options correctly. Let's add subtitles, account for the color blind when we construct our puzzles, include remappable controls, custom text display options, and expanded difficulty settings. Let's add the ability to chat online using a keyboard, or zoom in when we are in our inventory. Let's expand the options menu.   With a few simple additions we can easily expand the accessibility of our games to the widest audience possible, without detracting from the crux of the game in the slightest.

As an industry full of grownups, we still sometimes act like children. Gaming isn't just for nerdy 18 year old men with nothing going on Friday night. Today, gaming is for my Grandmother, who is gaming to maintain her hand eye coordination and keep her mind sharp. Gaming is for my sister who goes on WOW raids with her out-of-state boyfriend to spend time with him between studying for the bar exam. Gaming is for my mother who uses Exergaming to slim down. Gaming was a way my friend Christian and I could play and compete with one another after his muscular dystrophy made it harder for us to play sports together. Gaming is so much more than it used to be. Gaming is a way to increase social interactions, maintain a healthy lifestyle, get fit, or get active, or get relaxed. Gaming has evolved beyond its Atari 2600, pinball, and arcade years. Video games are now in nearly every home, built into every phone, and integrated into education and health care. Gaming is everywhere. Let us as an industry ensure gamers are everywhere too.

I support the AbleGamers Foundation. I support diversity in play. I am a gamer.

Chris Taylor, Director of Industry Enrichment (EEDAR)

EEDAR
CONTEXT IS EVERYTHING

FROM A (BLIND) FAN

Dost mine useless eyes deceive me? Addressing accessibility in the Gamerverse is officially a thing? My heart flutters, and no it's not due to age. (I checked.)

You can imagine how excited I am to be sitting here at this moment, my racing mind trying to organize all the ideas and issues surrounding Gamer Accessibility I have stored in my brain's file cabinet, just waiting for someone, anyone to say, "Tell me what you think…"!

OH BOY, WILL I.

I first played D&D in 19███ From that moment on I was hooked. I was one of a group of Ur-Gamers who started our high school's first gaming club back in 19██. I played everything from D&D (First Edition = BEST EDITION) to Gamma World to Boot Hill to some of the old Avalon Hill games (1776 was my personal favorite). Regrettably, I stopped tabletop gaming in 1995 or so. This was a process of elimination that happened over time.

The thing is, my eyes were failing me something fierce though I didn't know why at the time. It was just something I lived with. I still drove a car, though I shouldn't have. I watched TV, though I sat absurdly close. I used a computer, even though my face burned from my proximity to the monitor. Games that required character sheets such as D&D, GURPS and the like, I perforce abandoned long before 1995.

I still own many enjoyable table top games, from full on board games ("Pirates of the Caribbean" LIFE, anyone?) to the card games that have become so prevalent and popular since "Magic: The Gathering" started its amazing run. I have 3 Fluxx sets, a copy of Lunch Money, Chrononauts, myriad others. I don't play them, though, save for a Braille-embossed edition of Phase 10 (A modified rummy game). This adapted card game was the one that got me thinking about the old classics I used to play frequently and the new hits I did not think I would ever enjoy.

SIDE NOTE: I have never, ever played a game of Munchkin. I know, right?? Tragic.
Can these games be adapted? How could technology fit with the limited space on those cards in order to tell the gamer what's written on the card? Barcodes? QR Codes? Smartcards, like the Clipper Card I use to access public transit? The mind boggles; the possibilities are endless and quite possibly not costly.

I fervently believe that, with time, testing, brainstorming and participation these games, and so many more, can be made accessible to the blind and other disabled gamers. I stress blindness because it just happens to be the gift the Universe has seen fit to bless me with during this lifetime. And I do see it as a blessing. Before my diagnosis I was a burned-out, listlessly drifting cubicle-slave chasing and failing to catch the Almighty Dollartm. My disability has given me purpose, hope, drive and passion to help others in my situation. I really hope I can become part of this initiative, in any small way I can.

"Be the change you wish to see in the world"? You got it, robe-wearing dude. How about we start right here, with the games we all like to play?

My thanks to you for creating this initiative, and for reading my story.

Karl Mundstock

Karl W Mundstock
El Cerrito, CA

TOUCHSCREENS ARE NOT THE ANSWER

Dear mobile touch-screen developers, Dear Apple, Google, Microsoft, Samsung and beyond,

Touch screen devices… Not everyone can touch them; many more struggle to use them with accuracy or comfort. Some people are born unable to use touch screens with their fingers. Some people lose that ability later in life, sometimes fleetingly, sometimes permanently.

Hand Injury or Tremors, RSI, Cerebral Palsy, Muscular Dystrophy, Quadriplegia. This YouTube video from Chris Hills explains a lot: http://tiny.cc/chris-hills.

The rush and revolution of touch-screen mobile devices has left people such as Chris Hills side-lined. This is all the more frustrating as workable solutions have long been available for older technology.

Imagine that you have no use of your hands, but can freely move your head. To interact with a PC or Mac you can use "head-mouse" technology which converts head-movement seamlessly into on-screen pointer control. Pause for long enough over a certain area and you can trigger a choice of traditional mouse functions, such as dragging, double-clicking and so on. A huge range of applications, games and internet content can be accessed in this way. It's effective and well established technology.

If you wanted to do this on an iPad or Galaxy Tab for instance, your only possible option is to wear a head-wand. In essence a pointy stick on the end of a hat, the likes of which people were using before the dawn of home computers. They are clunky, uncomfortable and highly-limited in functionality. Pinch zoom? Forget it.

Imagine how a person such as Stephen Hawkins might interact with a modern-day tablet device. Traditionally such a person uses a single switch or sensor to trigger an on/off response. This would be styled and positioned in a way that best suits them, connected via an appropriate interface. An exceptional switch user is Mike Philips, and you simply must see his "One Thumb to Rule the World" video: http://tiny.cc/mike-phillips. Much is open and possible on PC and Mac platforms, and most software and games can be inter-acted with to some extent.

If you'd like accessibility switch access on an iOS device (the most accessible tablet device so far), you'll have a bewildering choice of compromised solutions. And out of those half-a-million-plus Apps, how many are accessible? Less than 50 for most switch interfaces.

Things are better using Komodo OpenLab's Tecla Shield device, as it can give access to voice over compatible Apps. This is still very far from ideal, especially when it comes to giving access to games, 99% of which are inaccessible using a non-touch screen controller.

So what is the solution?

A touch input simulator utility: something that enables alternative input devices, such as a mouse, keyboard or switches, to simulate touch and gestural control. This could kick the doors wide open to global App stores for those who find them firmly shut. Even if this utility was as simple as allowing a standard mouse to emulate one-finger touch-screen access, many barriers would be removed.

The iOS walled-garden and embryonic state of Android accessibility prevents third parties from creating this kind of solutions it seems to me. I believe that the solution needs to come from big players in this field, from the grass-roots.

Apple, Google, Microsoft, Samsung and beyond: Please talk to the accessible gaming and disabled community at large on this. You could make a huge and lasting difference and push towards fairer access to your exciting technology.

Barrie Ellis, Director OneSwitch.org.uk

HOLDING

59%
THE NUMBER OF TABLETS
ARE APPLE IPADS

DRAGGING

TILTING
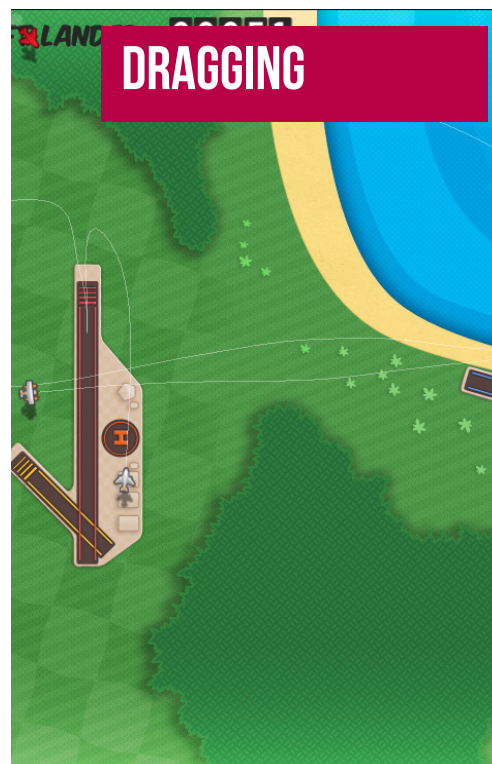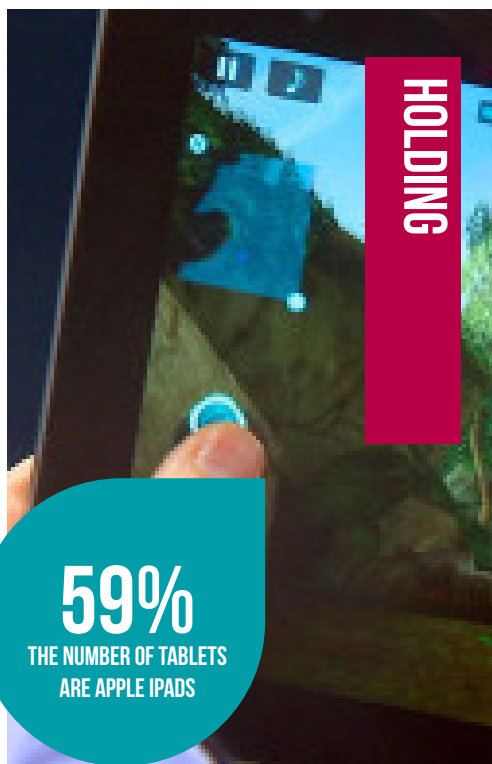
When I was three years old, my father brought a ZX Spectrum 48k into the house. This was a source of wonder to both myself and my brother and we spent many happy hours with dad, playing Jet Set Willy and Booty. Over the years, we added more gaming machines to our collection – a Commodore 64, an Amiga, a Megadrive and a CD32. As the games got more complex, something became abundantly clear: my brother pretty much sucked at videogames.

This revelation had two effects. The first was that at the age of eight I was pretty much a goddess at repairing broken joysticks; my prowess with a soldering iron was second to none. The second was that my brother became slightly less keen on gaming than his younger sister. When he hit thirteen, the school nurse delivered an explanation for his gaming ineptitude: he was one of the estimated 10% of males that suffers from colour blindness. I deliberately use the term 'suffers' – I'm afraid to admit that I quite cruelly used this against him. After three weeks of savagely trouncing him in Super Puzzle Fighter on a near daily basis, I finally admitted that there were four colours, not three.

Even now it impacts on his gaming choices. One of the Modern Warfare games went out of the window as he couldn't tell the difference between his teammates and the enemy. Gears of War, on the other hand, has been a big hit as it uses orange and blue instead of red and green. When he plays snooker, either virtually or in the real world, he has to ask what colour each ball is, as the green, red, blue, pink and brown all look too similar.

So my first introduction to accessibility was through my brother's colour blindness, which I admit I treated with a fair amount of humour, and perhaps a little cruelty. I did wait a while before telling him his Xbox Live Avatar was blessed with lovely pink lipstick.

My second personal experience of accessibility in gaming was more profound.

My dad, the man who had introduced us to gaming, who every Christmas ended up staying up until the early hours with us playing our new games – Alien Breed, Lemmings, Wipeout – was diagnosed with a brain tumour. He was fine for a good ten years, but then it started playing up. After he had surgery, he struggled to talk. He couldn't read. He had balance and coordination issues.

We were told to keep him active and to play word games with him. It was hard for him; he had always been a big reader and had always kicked our arses at Scrabble, and here we were, holding an apple in front of him and he couldn't say its name. We persevered with the word games and after a few months his cognitive skills were back to his usual high standard, and he was once again landing the triple word scores with the Zs and Qs. His mobility would never recover, so his favourite hobbies of golf and gardening were abandoned. Whilst in hospital though, he rediscovered his love of gaming, which he hadn't really explored since us kids had left home. I gave him my PSP and Wipeout. Left, right, and accelerate – sure, there were other options, but that was all he needed to get around. It wasn't about winning, it was about getting over the line without trashing the craft.

I realised then that gaming could be more than a fun diversion. It can keep the mind and muscles sharp, and it provides an escape into fantasy. It allowed the man who introduced me to gaming to speed around a futuristic arena when he hadn't been able to drive a car for years.

I'm always slightly bemused by gamer hostility to measures that make gaming more accessible, such as Mario's Super Guide or Bayonetta's Very Easy Automatic and One-handed modes. Just because the options are there doesn't mean you have to use them, and the options being there doesn't detract from the harder difficulties. Do these people have a screaming rant every time they pass a wheelchair ramp? Do they always take the stairs, dismissing lifts and escalators as being for casuals? Do they throw their phones into the canal in disgust at the vibration and predictive spelling features?

This further highlights the value of accessibility measures: in addition to making something useable by people with particular disabilities, they also provide more choice for everybody else. Is that really a bad thing?

As a developer though, I understand the pressure on game teams to get stuff out on time and on budget, and without publisher support for accessibility, accessibility features (and the testing they require) can fall by the wayside. But I'd say this to publishers: there are a lot of gamers out there who are going out of their way to make your products playable. They have communities making mods and custom controllers. Isn't it about time we at least met them halfway?

Lynsey Graham

Games Designer
Blitz Games Studios

RIGHT THING TO DO

Ian
Hamilton

Over the years my attitudes towards accessibility has changed greatly. It's now something that is very important to me, but this wasn't always the case. Far from it in fact, so I'd like to pass on some of the experiences that shaped my attitudes and understanding over the years, in the hope that you might be inspired in the same way that I have been.

I'll start in 2006. By this point I had built up some background in gaming. I had some minor experience with accessibility through web work, but suffered from all of the usual misconceptions and assumptions that people start out with. I thought that accessibility was horrendously complex (not helped by trying to read WCAG), expensive, only benefited a tiny percentage of people--who wouldn't want to play games anyway, and that catering to them would mean watering down the experience for everyone else.

While working for the BBC on games for their TV brands, I was shown some play-testing footage of games that colleagues there had adapted for play by profoundly disabled pre-schoolers, via single button controls, so they could be mapped to assistive technology devices such as buttons, blink detectors and sip-puff tubes--the same tech that Stephen Hawking uses.

These same children not much more than ten years previously, would not have been able to do much if anything by themselves, but now they were interacting independently, entertaining themselves, smiling, playing and taking part in the same activities as their classmates. The lives they would experience would be so completely different to the generation before. The advances in technology in such a short time had quite literally transformed their lives.

That moment when you realise that your craft isn't just about entertainment, that you have the opportunity to make a real difference to people, to help change things for the better - it makes a difference to why you get out of bed in the morning.

I started negotiating whatever time I could to work on projects to help profoundly disabled groups from a switch accessible news app to games for autistic pre-schoolers. Through doing this I kept seeing the incredible potential.

I'll never forget the look on the face of an 11 year old girl with Cerebral Palsy when she managed to use a computer for the first time and saw an entire new world of possibility open up before her.

Eventually though it became apparent that there was far more to it than that. I was regularly swapping between web UX and game design work, so I started to see a difference. Web accessibility is relatively well established and is not just about profound impairments; it's about universal design, opening up access to as wide an audience as possible.

I realised how important this is through the social model of disability. Disabilities aren't medical conditions; they're when a medical condition poses a problem for you going about your day to day life. These problems arise when you come up against a barrier. These barriers are almost always man-made. A step, a traffic light, red/green teams in online multiplayer. A designer decided that they should be the way they are.

Through working on guidelines and advising internal teams and third party studios on how to avoid these barriers, I discovered that when thinking about disabilities instead of medical conditions, accessibility was no longer so complex, there were only a few main groups. It wasn't expensive either, and thinking about it early enough meant some things could even be free. The numbers of people who benefited were huge, not just the significant stats on disability, but on color blindness and low reading age too. And those people often had more desire to play than others--for some, gaming was literally a life saver.

Lastly, the same features that were so important for certain groups often simply made the game better for everyone else. It was just about providing options and reinforcement, not watering things down.

I saw so many issues that caused problems for large numbers of players, resulting in developers inadvertently losing money or enjoyment by the bucket load, obviously the opposite of what they were aiming for. It was frustrating to see when the solutions were often so easy.

It's not a dark art. You already have the necessary tools. You already know how to make good games. Problem solving around barriers to fun is what you already do, you just need to know what the problem is that needs solving. For that there are good guidelines available and for the things that genuinely do need expert advice, there's plenty of that around as well.

The following are all real stories, some I saw with my own eyes, and they're common too. And all have very simple solutions.

1. The fanatic gamer who is also highly dyslexic locked out due to design choices of typeface and color.

2. The young man who was in an accident which left him quadriplegic and thought his life was over, who was eventually brought back from deep depression by discovering he could still game.

3. The man who is excited about an upcoming AAA release, and pleading to be allowed to play it. He has no use of his fingers, but he'll be able to play just fine if only he is permitted to remap 'fire' from a trigger to a face button.

4. The woman who isn't allowed a storyline because she's deaf and no one thought to caption the cut scenes.

It's an exciting time, with the field advancing exponentially and studios starting to do some really great and innovative things. Momentum has been accelerating and we're on the cusp of some really wide-ranging developments across the industry
.
I hope that what I've shared is useful, and has helped to show how valuable game accessibility is. Games are culture, art, entertainment, and socialising; the very things that are the difference between existing and living.

INCLUDIFICATION

http://www.includification.com

WHO WE ARE

Since 2004, the AbleGamers Foundation has served more than 56 million members of the disabled community by advocating greater access to digital media. Today, the AbleGamers Foundation is a leader in the development of equipment, programs and services to those living with disabilities, hardships, and quality-of-life issues that are a result of chronic illness or trauma. It is our goal that all people, regardless of their disability, can use gaming as a tool for an enriched social experiences with friends, family, and the world at large. The AbleGamers Foundation serves all people with disabilities and their caregivers, regardless of race, age, gender, sexual-orientation, nationality or religion.

Our Mission

The AbleGamers Foundation serves anyone in need through direct person-to-person services, assistive technology grants, community support, and access to data. We help people afford expensive technology, which allows them the ability to participate in gaming experiences that improve their overall quality of life. Additionally, we provide the largest database of mainstream videogame titles, complete with reviews focused exclusively on the accessibility of a given title. Finally, we raise awareness by showing disabled veterans returning from war that video gaming can allow then reconnect with friends, and participate in an activity that they enjoyed before their injury.

Who we Serve

The AbleGamers Foundation serves more than 100,000 people through our database each year, tens of thousands through our awareness programs and as many individual grants as our funding permits. We serve as the voice of more than 33 million people with disabilities that use gaming for rehabilitation, quality-of-life improvement and recreational distraction from terminal illnesses or trauma. Our staff lives with a range of disabilities; this allows us a unique connection with our members because we provide them with personal experience and knowledge of the challenges of living with a disability.

To find out more visit: http://www.ablegamers.org