HUMBER
Humber Institute of Technology
& Advanced Learning
ACCESSIBLE MEDIA DEPT.
205 Humber College Blvd.
Room MB104
Toronto, ON M9W 5L7
mediaarts.humber.ca/accessiblemedia
Faculty of Media and Creative Arts

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05-02 – Motor Accessibility

STEVE SAYLOR:

Hello! In this part one of this module for software accessibility, we're going to be taking a look at motor disabilities and the same for any part for this particular module is that we will be giving, essentially, guidelines of sort of just common accessibility guidelines that should be added in pretty much every game. And we're going to be using The Last of Us Part 2 as the example for that and kind of showing how these settings can actually work in tandem with the actual gameplay itself. Now, once again, you're going to probably find in these future modules that we're going to be talking about stuff that The Last of Us Part 2 does not do, and that is okay, because even though we have always said that The Last of Us Part 2 is the most accessible game that we have to date, doesn't mean that it hits every single accessibility guideline that we generally would prefer or ask for in games, but they do offer a wide variety of options that essentially cover a majority of the spectrum for each individual disability. So first off, we're going to talk about... like

I said, for motor, we're going to talk about allowing... Here's a guideline that you'll be able to use. Allow controls to be remapped/configured. Now, this has been a standard for PC games but actually kind of rare on consoles, even in games that are currently being released today. Unfortunately, consoles don't always have remappable controls. Remappable controls are one of the best value accessibility features. Many people with motor impairments, whether permanent, for example, if you have a stroke, or temporary, for example, if you have a broken arm, or situational, talking on a phone while playing, benefit greatly from being able to move essential controls into positions that they are able to reach more easily. For example, with either a single hand or resting on a table-top using only the top buttons. Pre-sets are useful, particularly for saving effort and configuring commonly used button layouts, but they cannot provide for all needs, so ideally offer both a set of profiles together with a custom option which allows for remapping. So I'm going to show you how The Last of Us Part 2 actually does this. So I'm currently in the options menu since we're in an encounter, so I'm going to show some things here with remap of controls. Unfortunately, I won't be able to show everything because I am using a controller and it's hard to be able to convey, "Here's what the controller can actually be able to do," unless you actually have the game and feeling it with the controller itself. So we take a look

at the Options for remapping controls, you can go to Controls or you can be able to go to the accessibility menu, but we're going to go through the controls, the main controls menu, and you can actually be able to see the View Controls button which is actually pretty cool. This is sort of a map of all of the buttons that are currently remapped on the controller itself and then if you want to be able to go to Customize Controls... So they do have different control schemes, so this is what I mentioned before that, essentially, that can help if you don't want to have to remap everything and try to be able to fully customize it. You'll be able to do that and then you can also keep it as the default which is what Naughty Dog kind of sets. It's like, "This is what we think the control should be set at, but you can be able to change that if you need to." So you can actually be able to... Control schemes that are in The Last of Us 2, if you can only play with a right hand, they have a control scheme for that. Same with left hand. And then they also have three free custom pre-sets that you can be able to set. So I actually just used the custom scheme one to show you how these actually are remappable... So say, for instance, the way that The Last of Us 2 does it is that if you want to be able to change it, all you have to do is hold the new input of what button you want to be able to press. So right now, I have it as Jump/Climb. So say I want to be able to remap that to triangle. All I have to do is push and hold triangle and now that's

remapped, but it also now changes the fact that I've now... Triangle, that was originally interact and grab, it now has to be remapped to something else. So initially, that was X, Jump/Climb was X, so if I wanted to be able to say, "Let's put X in that spot," and there we go. Now, what's really, really cool about this... and this is something that is not necessarily part of the guideline but something I do want to be able to point out because this also helps in regard to cognitive disability because what you want to be able to have... Okay, so you remap the controls. Like, okay, say you can't remember what you remapped a button to and the game gives you a button prompt like, "Okay, push this button to be able to do certain things." Sometimes, in games, that is probably pretty programmed in and it doesn't take into account what you may have remapped the control to. So if the game offers remappable controls, you want to still have that contextual button prompts to match the control scheme that you've already changed and remapped, and The Last of Us 2 actually does do that quite well, so we'll use this example of the fact that I've already remapped X to triangle. So Jump/Climb that was originally X is now triangle, and Interact/Grab is now X. Now, normally when you're grabbing someone, essentially, you're doing it in a stealth kind of situation. I'm going to use the stealth actually as a way to be able to showcase this particular movement. So if I'm in the game in here and I stealthily sneak up on this

enemy... Normally, this would say triangle when I want to be able to grab, but instead I push X to be able to grab him. Now, that is something that the game does automatically know, "Okay, you've already remapped that stealth button to X instead of triangle." This is really huge. This is, again, adds also not only to motor disability, but cognitive disability. Again, in The Last of Us Part 2, you're going to find that a lot of options definitely kind of overlapped into different disability spectrums which is really, really amazing. So that's just an example of how remappable controls can work. Another guideline, essentially, ensure all areas of the user interface can be accessed using the same input method as the gameplay. Seems obvious but is often overlooked resulting in a game that has a mechanic perfectly accessible to a certain group, but that group isn't actually able to get to the gameplay because the interface and menus use a different type of input. A common example of this problem is gameplay control by keyboard but menus are controlled by mouse. So, for example, we have designed gameplay controls for a choice of either keyboard or joypad. Ensure that all menus also work for both keyboard and joypad, or if you're a designed gameplay controls that work solely using motion controls, ensure your menus can also be controlled solely by using motion controls. Now, I know that's sort of a lot to be able to think, but I kind of give a concrete example of this. You've seen games that,

essentially, if you're using a mouse and keyboard playing a game, there are certain things that you have to be able to switch your hands to if you have alternate input methods. So if you've been using a keyboard for majority of the game but then you have to switch over to the mouse to be able to do something else, that sort of time of being able to switch between keyboard and mouse can be problematic and also can be difficult for those with motor disabilities. So you want to make sure that all the controls can be done on both keyboard and mouse. Now, when you're talking about a console sort of setting... Say, for instance, you would generally sort of see this in menus. So, for instance, you're having to be able to navigate menus and you want to be able to... and you generally... if you can't use... If you're navigating menus, you would normally use a left thumb stick to be able to navigate, and in this game it does allow you to do that, but what's really, really great as well is that also this game does allow you to be able to navigate with the D-pad as well, so even though it is sort of set to... the default is to use a left thumb stick, the fact that you can also still be able to use a D-pad means that that is another version of kind of making sure that alternate controls can still do the same thing. So if you feel more comfortable using a D-pad, you can do that, or you can be able to use a left thumb stick. Now, this is generally a problem mostly with games that have cursor-based navigation. You see this in

Destiny or in Assassin's Creed, the Assassin's Creed games, at least the most modern ones, but they also have the ability to be able to use the D-pad to be able to... at least in Assassin's Creed, especially in Valhalla, you can be able to use the D-pad to be able to navigate menus if you have trouble trying to be able to navigate with a cursor. So, again, kind of... That's how it works for consoles, but again, if you're using alternate controls, especially on a keyboard and mouse, if you're using a keyboard, make sure that the stuff that is normally mapped to a mouse can also be accessed via a keyboard as well. Now, the next motor disability guideline is to include an option to adjust the sensitivity of controls. There is no "one size fits all" sensitivity level as well as personal preference. Some gamers have a restricted range of movement so require very high sensitivity. Others have difficulty with precision so require very low sensitivity. More still use alternate input devices such as a head mouse that have different sensitivity requirements to regular controllers. That's if... Essentially, yeah, if you have a little device that can track, whether based on your head movement or even eye tracking, essentially, that kind of thing is an alternate input device that you would have to sort of adjust that sensitivity for. The option to reduce sensitivity can also reduce the impact of simulation sickness. Although PC or Mac operating systems offer sensitivity controls, these are within system settings which are only seen by

advanced users and consoles do not offer system-wide setting at all. Different games also require different levels of sensitivity to allow players to set a game level and offer a wide range of sensitivity. This applies to all types of input: Mouse, touch, tilt, analog stick, and ideally gesture too. So the way that I'll be able to showcase that using The Last of Us, essentially, is that there are sensitivity controls for multiple different actions within the game. There is stuff for being able to aim, there are sensitivity movements for aim, for movement, there's also sensitivity for auto locking on to aim or movement, but I'm going to kind of use the example of... Let's say, for instance, you want to be able to adjust the camera movement. You want to be able to either make it faster or slower depending on your range of motion using the controller. So the way that you'll be able to do that is you actually go to Options... Again, go to Controls, and if you scroll down to Camera Sensitivity, you can actually be able to adjust not only the horizontal range of sensitivity, but you can also adjust the vertical range of sensitivity. This is not only useful for the ability to be able to change the sensitivity for look but also for aiming as well. You can, again, adjust the horizontal or vertical sensitivity of that. You can also... aiming acceleration scale. So if you want to be able to make it a little bit, like... Right now, it's set to 10, which basically means it's going to be a high amount of stick deflection, but if you want to be able to adjust that, you can

be able to do that here as well. So we're going to kind of use an example. We're going to kind of use the... We're going to adjust the look sensitivity of X. So, for instance, right now it's set to five which is kind of the default right down the middle, but let's set the... Actually, I'll show you what the look sensitivity is first. So we'll go into that. So right now, we'll go back in. So right now, camera look movement, this is the speed that it's currently set at, but if I go into Options, go into Controls, and then Look Sensitivity X, if I just go all the way to one and then I go back, I'm now moving all the way to the edge of the controller, but as you can see, the speed is much slower, and that's just for horizontal. Now, let's go to the opposite end just to kind of see how fast it can be able to be moved. So let's go to 10. Now you can see that the horizontal camera movement is much faster. This is, again, great for those not only with motor disabilities, but also it actually can be utilized for cognitive or for visual disability. Essentially, being able to kind of adjust these control schemes and the sensitivity can be used in multiple different disability types, and that is really, really cool. So that's just one example of looks and sensitivity and being able to adjust that in The Last of Us Part 2. Now, also you want to be able to... Another disability guideline is you want to be able to include toggle/slider for any haptics. While it can be useful, accessibility aid haptics, controller rumble, etc., can cause discomfort, pain, and even injury. This

is primarily due to its impact on conditions like RSI and carpal tunnel, but it can also present barriers to people with sensory processing impairments. So at a minimum, always offer the ability to turn the vibration on or off. This applies even for platforms that have a system wide toggle as use of haptics varies from game to game and interacts with different people's needs in various ways. For the same reason, offering a slider to give fine grain game specific control over the strength of haptic feedback can also be useful. Now, here's the thing actually for The Last of Us. Again, I mentioned before at the beginning of this that The Last of Us Part 2 does cover a lot of accessibility options, but in this particular case for this particular guideline, it does not actually offer the ability to adjust the vibration in the controller itself because actually, a lot of accessibility is tied into the vibration of the controller, whether you have a visual disability or are deaf or hard of hearing. Essentially, there are certain feedback that is given to the controller to the player to allow them to be able to know what is happening in the game whether there's an enemy nearby or there's something that's attacking you or also for input. It actually will vibrate the controller as well. Now, normally actually being able to adjust the sensitivity of a controller would be great in this particular game, and I actually will say that it would have been great to be able to include that in, but I also understand that they weren't able to... it would have messed

with the controls for other options for other disability types. But again, even though they weren't able to add it in, it would have been great to add it in. So, in this particular case, what you can be able to do to get past that is if we go back into the actual PlayStation settings itself, much like I've showed you in the console of accessibility, if you go to Settings... this is for the PlayStation. If you go to Accessibility and you go to Controllers, you can be able to adjust the vibration intensity and this is generally also in Xbox as well as Nintendo. Having these options at the system level is great because then you can be able to adjust that all across the board not only in just a game. But, again, having it in game level is better suited for the player because then at least the developer in the studio has full control over that particular option within the game itself. So, again, even if The Last of Us doesn't even have it, it's still great to be able to have. Don't think that because The Last of Us doesn't have it doesn't mean that you shouldn't be able to develop for it. So that is just most common accessibility, the basic accessibility barriers, and guidelines for motor disability, and next we'll be moving into the... So that is it for the motor side of disability and for software accessibility. So that is it for the motor disability guidelines and suggestions for those with motor impairments who have been able to... So that is it for the motor disability side of accessibility on the software level, and there are some guidelines

for that. If you want to be able to follow along with any of these guidelines, these are part of the basic accessibility guidelines that are found at videogameaccessibilityguidelines.com. A link to that will be in the learning materials for this particular module. So next, we'll be moving into part two, which will be for deaf and hard of hearing disability. All right, see you in the next video.

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