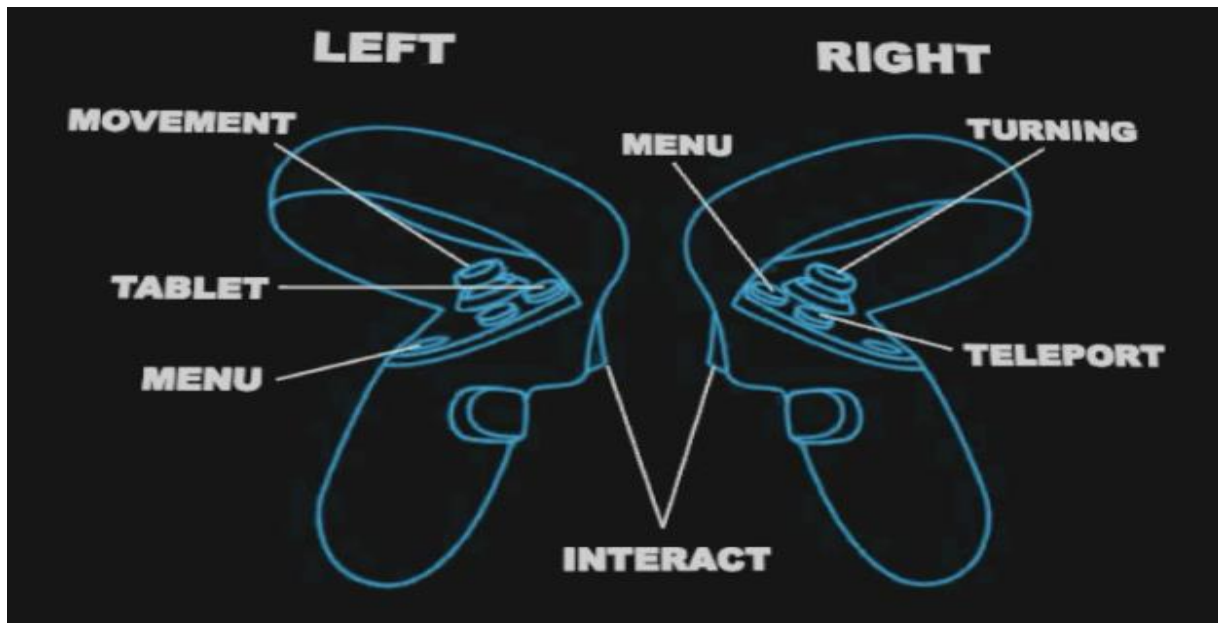


## Supplementary Material A: Paper Training Instructions

The following written instructions are for the trials using Meta Quest 2s:

### 1. Walking to a specific location:

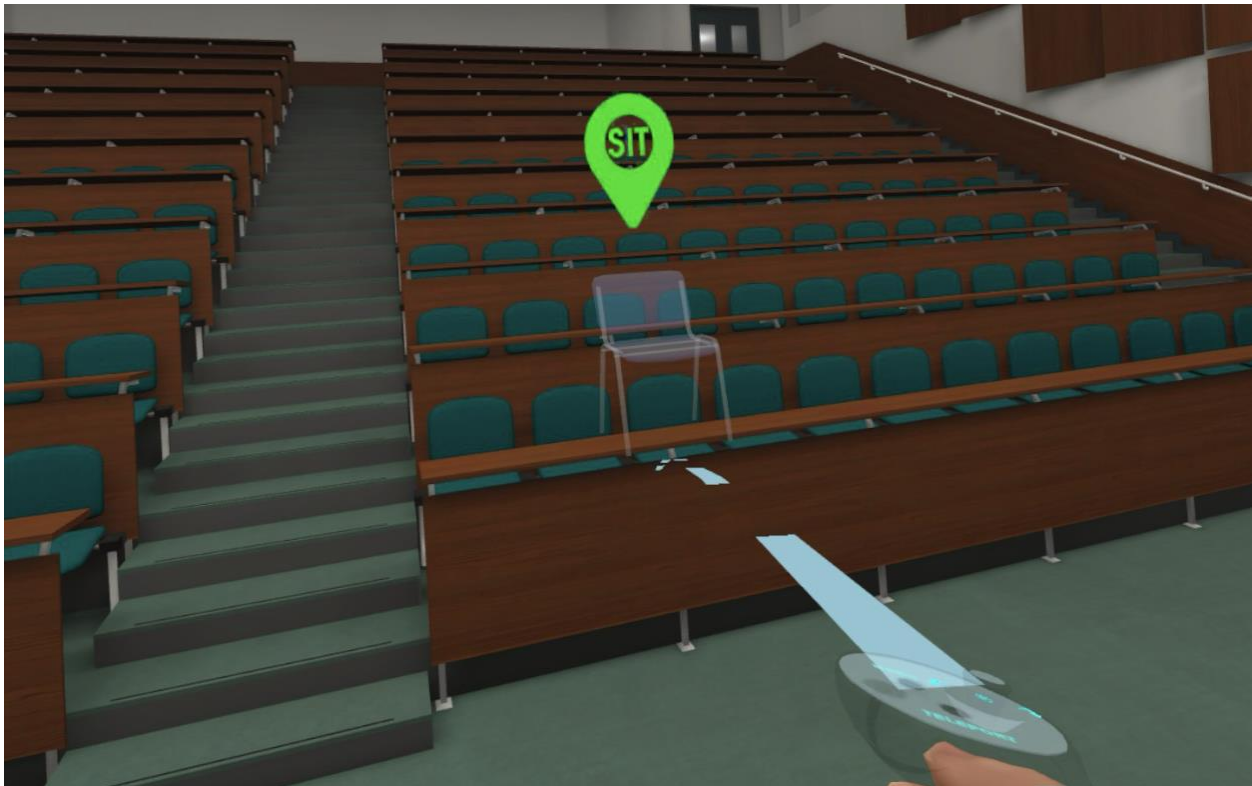
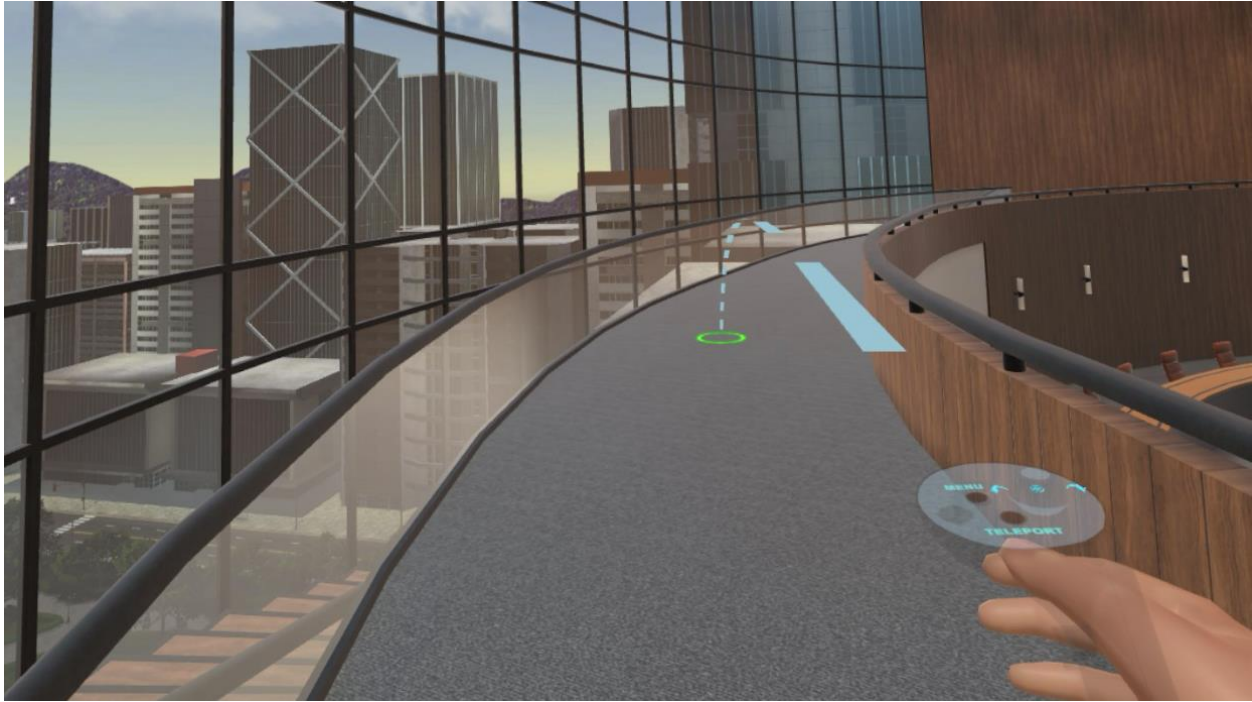
The first task you will be asked to complete during the study is simply walking around. To walk in the virtual world, simply use the joystick on your left controller. When you are walking, you can also use the joystick on your right controller to turn/rotate your avatar.



### 2. Teleporting & Sitting:

The second task you will be asked to complete is teleporting. To teleport in the virtual world, use the “A” button which is the bottom button on your right controller, point your controller in the location where you want to teleport, and release the “A” button. When teleporting, you will see a curved, dashed line and a green circle that indicates where you will be teleporting.

To sit in a chair or on a bench, all you need to do is press the “A” button like you are teleporting, and aim the green circle towards the chair/bench you want to sit in; when doing this, you will see a clear chair with a green arrow above the chair pop up above the seat you want to sit in. Once you see the chair and green arrow, release the “A” button.



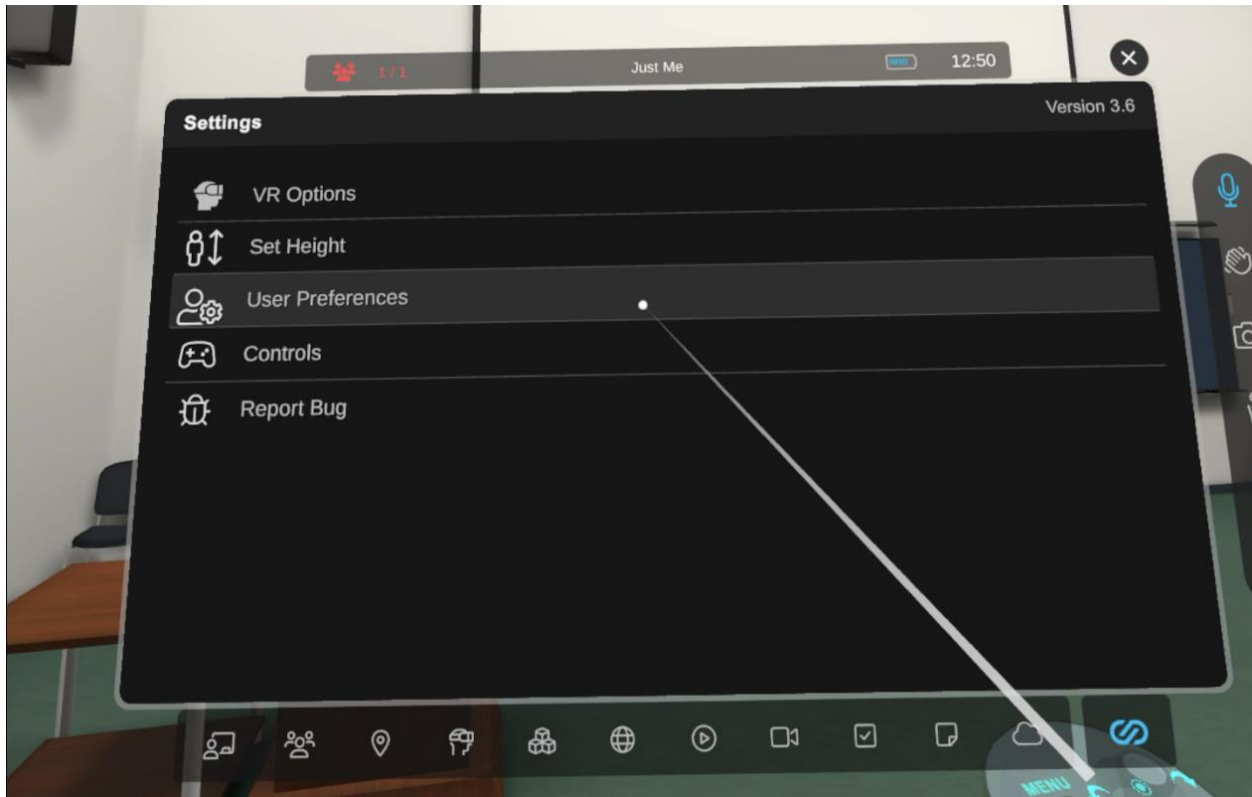
### 3. Opening & closing your tablet:

The next task you will be asked to complete is opening and closing your tablet. To open your tablet, simply press the “Y” button on your left controller. Your tablet will then appear in your left hand. To close your tablet, simply press the “Y” button on your left controller, again.



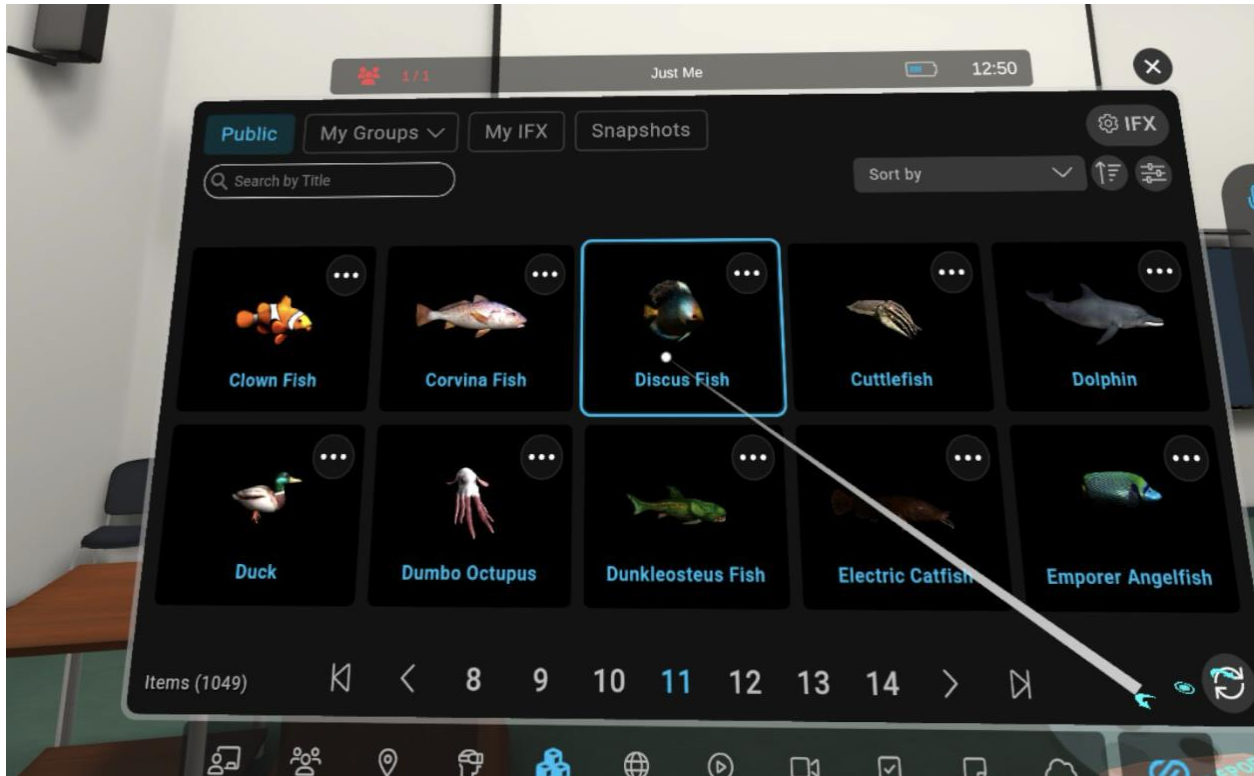
#### **4. Opening & closing your menu:**

The next task you will be asked to complete is opening and closing your menu, like opening and closing your tablet. To open your menu, simply press the “B” button on your right controller. Your menu will then appear in front of you. To close your menu, simply press the “B” button on your right controller, again.



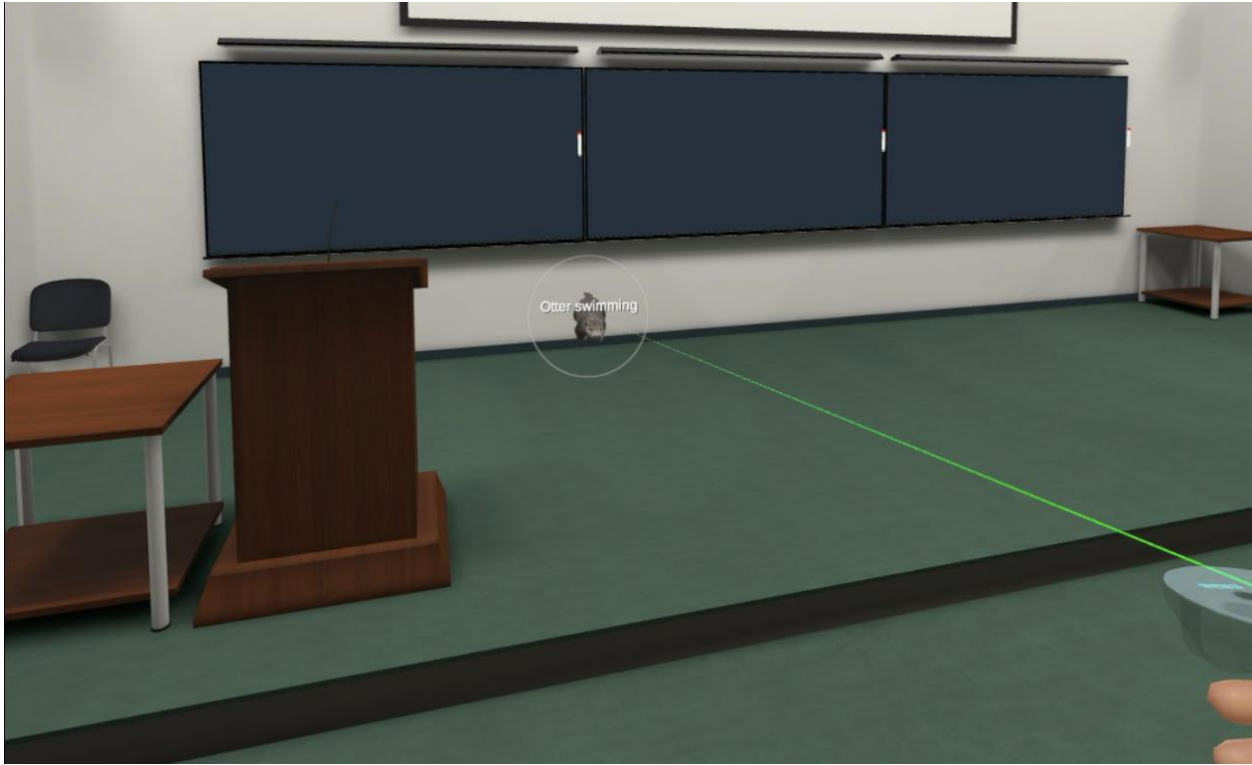
### 5. Opening & adding “My IFX” objects:

The next task you will be asked to complete is opening the “My IFX” menu and adding an IFX object. To open your “My IFX” menu, simply open your menu, again, by pressing the “B” button on your right controller. Once your menu is opened, you will see a navigation bar at the bottom of the menu, where “My IFX objects” will be displayed (look for three cubes together as one icon). By clicking on “My IFX objects,” you will be able to add an IFX object to the virtual world you are in by clicking on the object you want, aiming it at the location you want to place it, and pressing the trigger button on your right controller.



## 6. Picking up an IFX object:

The next task you will be asked to complete is picking up the IFX object you placed in the virtual world. To pick up the IFX object, simply aim your controller at the object, and pull your trigger button. You can then place the object in another location within the virtual world.



### **7. Deleting an IFX object from the virtual world:**

The next task you will be asked to complete is deleting the IFX object from the virtual world. To delete the IFX object, simply aim your right controller at the three dots to the right of the IFX object and press the trigger button. A small menu should appear, where you can then press “delete object”.





### 8. Taking a photo:

The next task you will be asked to complete is taking a photo of the virtual world you are in. To take a photo, simply open your tablet by pressing the “Y” button on your left controller; once your tablet is opened, you will see a navigation bar on the right side of the screen, where you can then press the camera button to snap a photo of your virtual world!





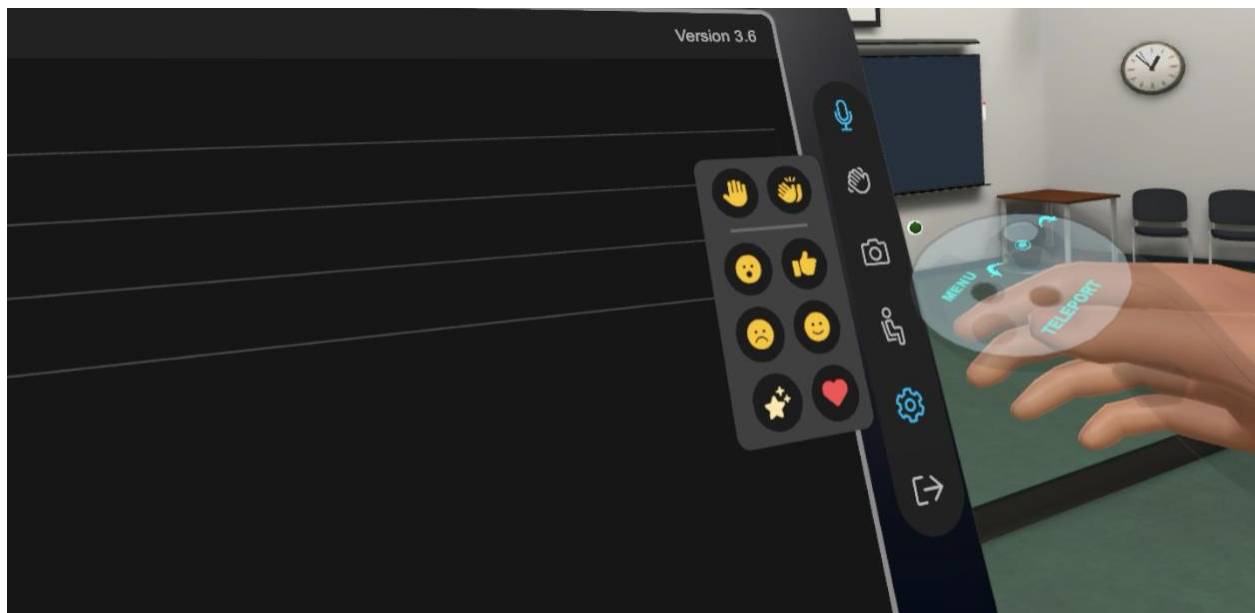
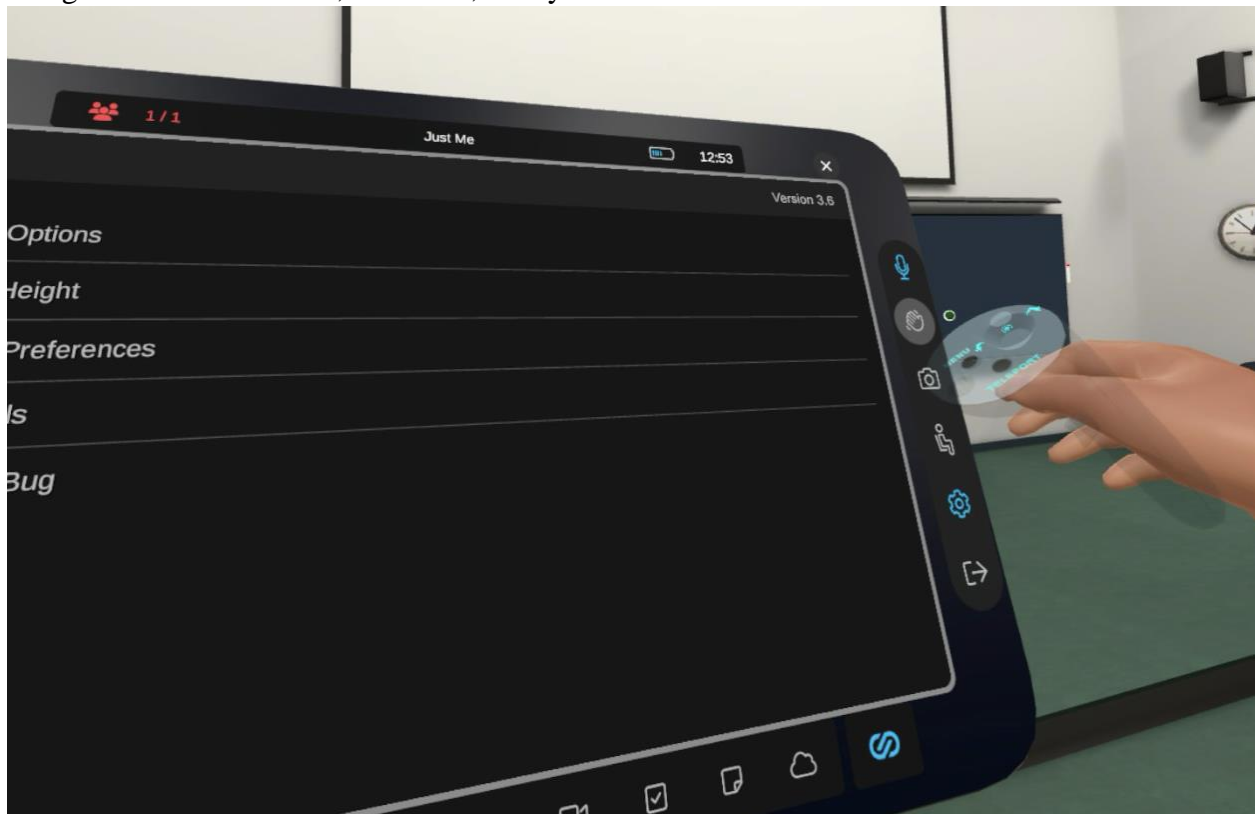
### **9. Using an emoji reaction:**

The final task you will be asked to complete is using an emoji reaction with your avatar. To use an emoji reaction, simply open your menu by pressing the “B” button on your right controller. Once the menu is opened, you will see an emoji in the navigation bar on the right side of the screen; click on the emoji and choose your reaction! The reaction will appear above your head in the virtual world.

Please remember: if you forget how to complete one of these tasks, you can simply open your menu by pressing the “B” button on your right controller, clicking the “settings” button in the right-side navigation bar, and opening “controls;” by doing this, you will be able to see an image that shows both controllers and their controls. You can also ask the RA training you to help you



navigate the virtual world, if needed, at any time.



## Supplementary Material B: VR Functions Questions

1. To teleport, Select which controller: (1) Left or (2) Right
2. To teleport, Press which button: (1) A button, (2) B button, (3) X button, (4) Y button, (5) trigger button
3. To teleport, Color of circle: (1) Red circle, (2) Green circle, (3) Not applicable/No color circle
4. To open the tablet, Select which controller: (1) Left or (2) Right
5. To open the tablet, Press which button: (1) A button, (2) B button, (3) X button, (4) Y button, (5) trigger button
6. To open the tablet, Color of circle: (1) Red circle, (2) Green circle, (3) Not applicable/No color circle
7. Open the menu, Select which controller: (1) Left or (2) Right
8. Open the menu, Press which button: (1) A button, (2) B button, (3) X button, (4) Y button, (5) trigger button
9. Open the menu, Color of circle: (1) Red circle, (2) Green circle, (3) Not applicable/No color circle
10. Take a picture, Select which controller: (1) Left or (2) Right
11. Take a picture, Press which button: (1) A button, (2) B button, (3) X button, (4) Y button, (5) trigger button
12. Take a picture, Color of circle: (1) Red circle, (2) Green circle, (3) Not applicable/No color circle
13. How do you sit in ENGAGE? (1) Using your left controller, press the “A” button, aim the green circle over the seat, and release the “A” button. (2) Using your right controller, press the “B” button, aim the green circle over the seat, and release the “B” button. (3) Using your left controller, press the “Y” button, aim the red circle over the seat, and release the “Y” button. (4) Using your right controller, press the “A” button, aim the green circle over the seat, and release the “A” button.
14. How do you open the “My IFX” tab in ENGAGE? (1) Using your right controller, press the “A” button, and go to “settings” to find “My IFX.” (2) Using your left controller, press the “Y” button, and open your camera to find “My IFX.” (3) Using your right controller, press the “B” button, and find the “My IFX.” icon in the bottom navigation bar. (4) Using your left controller, press the “A” button, and find the “My IFX.” icon in the right navigation bar.
15. How do you add an IFX object to the virtual world in ENGAGE? (1) Open the menu, locate the “My IFX” icon in the navigation bar on the right side of the menu, and click and place the object in the virtual world. (2) Open the menu, locate the “My IFX” icon in the navigation bar at the bottom of the menu, and click and place the object in the virtual world. (3) Open the tablet, locate the “My IFX” icon in the navigation bar at the top of the screen, and click and place the object in the virtual world. (4) Open the tablet, locate the “My IFX” icon in the navigation bar on the left side of the screen, and click and place the object in the virtual world.
16. How do you delete an IFX object from the virtual world in ENGAGE? (1) Aim the right controller at the IFX object, click on the three dots to the right of the object, and select “delete object.” (2) Open the menu, select “My IFX” icon, find the same object and double-click to delete. (3) Select the IFX object in the virtual world and double-click to delete. (4) Find the trash bin in the virtual world and carry object to the trash bin.

17. How do you take a picture in ENGAGE? (1) Using the right controller, press the “Y” button to open the menu, then find the camera button on the left side of the menu. (2) Using the left controller, press the “Y” button to open the tablet, then find the camera on the right side of the tablet, aim your tablet, and click the camera button in the center of the screen using your right hand. (3) Using the right controller, press the “A” button to open the tablet, then find the camera in the navigation bar at the bottom of the screen and press to capture a photo. (4) Using the left controller, press the “B” button to open the menu, then find and press the camera button in the navigation bar on the left side of the screen.
18. How do you use an emoji reaction in ENGAGE? (1) Open menu, locate the emoji icon on the bottom of the menu and select with controller. (2) Open menu, locate the emoji icon on the right of the menu and select with controller. (3) Open menu, locate the emoji icon on the top of the menu and select with controller. (4) Open menu, locate the emoji icon on the left of the menu and select with controller.

### Supplementary Material C: Engagement with 360° Video Content Questions

1. Which of these is located In the Tōdai-ji? (1) A place for monks to perform rituals. (2) The residence of Master Swordsmith. (3) Where sumo wrestling events are held. (4) The world's largest bronze Buddha statue.
2. How many people lived in Tokyo, one of the world's largest metropolitan areas? (1) 15 million, (2) 36 million, (3) 50 million, (4) 27 million.
3. What is the name of the popular Japanese music that makes bombastic noise? (1) J-Pop, (2) K-Pop, (3) Swing, (4) Geisha
4. The video describes Japan as a complication of \_\_\_\_\_ and \_\_\_\_\_. (1) Contemplative and tranquility, (2) Trends and traditions, (3) Order and chaos, (4) Contemplative and chaotic
5. The traditional Japanese sport featured in the video is \_\_\_\_\_. (1) Jūjutsu, (2) Wrestling, (3) Sumo wrestling, (4) Kendo.
6. Which weapon was being crafted by the fire in the video? (1) Spear, (2) Dagger, (3) Samurai, (4) Katana
7. What is Japan's largest metropolitan area, which the narrator states is the "city that never stops moving"? (1) Kyoto, (2) Osaka, (3) Tokyo, (4) Okinawa
8. Which is the weapon of choice for samurai warriors? (1) Spear, (2) Dagger, (3) Samurai, (4) Katana
9. What type of garden was shown when touring Japan? (1) Rice garden, (2) Hirosaki apple garden, (3) Soybean garden, (4) Wasabi garden

## Supplementary Material D: Linear mixed effects models output

### Results from Linear Mixed Effects Models

Mastery of VR Functions	Variable	Estimate (SE)
Fixed Effects	Intercept	11.8 (0.862)***
	Video Training Type	1.79 (0.611)**
	VR Training Type	1.49 (0.6101)*
	Computer Anxiety	-1.00906 (0.267)***
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	14.4 (3.80)
	Residuals	2.025 (1.42)
Model Fit	<i>-2LL</i>	1501.4
	<i>AIC</i>	1513.4
Engagement with 360° Video Content	Variable	Estimate (SE)
Fixed Effects	Intercept	6.71 (0.323)***
	Video Training Type	-0.318 (0.23)
	VR Training Type	0.174 (0.229)
	Computer Anxiety	-0.518 (0.10018)***
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	2.023 (1.42)

		Residuals	0.285 (0.533)
	Model Fit	<i>-2LL</i>	981.5
		<i>AIC</i>	993.5
Negative VR Experience		<b>Variable</b>	<b>Estimate (SE)</b>
	Fixed Effects	Intercept	1.66 (0.220)***
		Video Training Type	-0.00446 (0.155)
		VR Training Type	-0.421 (0.159)**
		Computer Anxiety	0.227 (0.06909)**
			<b>Estimate (SD)</b>
	Random Effects	Individual Variance Intercept	0.781 (0.884)
		Residuals	0.1098 (0.331)
	Model Fit	<i>-2LL</i>	592.4
		<i>AIC</i>	604.4
Perception of Training		<b>Variable</b>	<b>Estimate (SE)</b>
	Fixed Effects	Intercept	4.66 (0.141)***
		Video Training Type	0.0865 (0.10032)
		VR Training Type	0.322 (0.100065)**
		Computer Anxiety	-0.171 (0.0440)***
			<b>Estimate (SD)</b>



Random Effects	Individual Variance Intercept	0.385 (0.621)
	Residuals	0.0542 (0.233)
Model Fit	<i>-2LL</i>	546.00
	<i>AIC</i>	558.00

Ease of Tasks Self-rated	Variable	Estimate (SE)
Fixed Effects	Intercept	4.604 (0.112)***
	Video Training Type	-0.0539 (0.0779)
	VR Training Type	0.2102 (0.08031)**
	Computer Anxiety	-0.1019 (0.0346)**
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	0.200703 (0.448)
	Residuals	0.0282 (0.168)
Model Fit	<i>-2LL</i>	309.9
	<i>AIC</i>	321.9

Ease of Tasks Research Assistant-rated	Variable	Estimate (SE)
Fixed Effects	Intercept	4.53 (0.124)***
	Video Training Type	0.0918 (0.0881)
	VR Training Type	0.311 (0.0886)***
	Computer Anxiety	-0.1098 (0.04020)**

		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	0.195 (0.442)
	Residuals	0.0274 (0.166)
Model Fit	<i>-2LL</i>	237.2
	<i>AIC</i>	249.2

Enjoyment	<b>Variable</b>	<b>Estimate (SE)</b>
Fixed Effects	Intercept	4.19 (0.158)***
	Video Training Type	0.00218 (0.112)
	VR Training Type	-0.0615 (0.114)
	Computer Anxiety	-0.0322 (0.05076)
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	0.4095 (0.640)
	Residuals	0.0576 (0.234)
Model Fit	<i>-2LL</i>	460.3
	<i>AIC</i>	472.3

Usefulness	<b>Variable</b>	<b>Estimate (SE)</b>
Fixed Effects	Intercept	4.98 (0.264)***
	Video Training Type	0.0324 (0.187)
	VR Training Type	0.0993 (0.187)

	Computer Anxiety	-0.147 (0.0825)
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	1.33 (1.15)
	Residuals	0.187 (0.433)
Model Fit	<i>-2LL</i>	865.3
	<i>AIC</i>	877.3
Positive Valence	<b>Variable</b>	<b>Estimate (SE)</b>
Fixed Effects	Intercept	6.207 (0.172)***
	Video Training Type	0.00814 (0.121)
	VR Training Type	0.231 (0.126)
	Computer Anxiety	-0.2017 (0.0539)***
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	0.482 (0.694)
	Residuals	0.0677 (0.2603)
Model Fit	<i>-2LL</i>	495.0
	<i>AIC</i>	507.0
Spatial Presence	<b>Variable</b>	<b>Estimate (SE)</b>
Fixed Effects	Intercept	3.67 (0.2086)***
	Video Training Type	0.0557 (0.144)

	VR Training Type	0.00797 (0.147)
	Computer Anxiety	-0.0461 (0.0644)
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	0.685 (0.827)
	Residuals	0.0963 (0.3103)
Model Fit	<i>-2LL</i>	598.5
	<i>AIC</i>	610.5
Realism	<b>Variable</b>	<b>Estimate (SE)</b>
Fixed Effects	Intercept	2.45 (0.186)***
	Video Training Type	-0.156 (0.1305)
	VR Training Type	-0.0451 (0.131)
	Computer Anxiety	0.128 (0.0576)*
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	0.652 (0.8076)
	Residuals	0.0917 (0.3029)
Model Fit	<i>-2LL</i>	679.8
	<i>AIC</i>	691.8
Simulator Sickness	<b>Variable</b>	<b>Estimate (SE)</b>
Fixed Effects	Intercept	2.012 (0.239)***

	Video Training Type	-0.143 (0.170)
	VR Training Type	-0.03093 (0.169)
	Computer Anxiety	0.0892 (0.0742)
		<b>Estimate (SD)</b>
Random Effects	Individual Variance Intercept	1.103 (1.0504)
	Residuals	0.155 (0.394)
Model Fit	<i>-2LL</i>	822.7
	<i>AIC</i>	834.7

Note.  $n = 284$  for a total of 267 observations; \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ ; Training type = paper (=1), video (=2), VR (=3); Unstandardized estimates, standard errors (SE), and standard deviations (SD); AIC = Akaike Information Criterion;  $-2LL = -2$  Log Likelihood, relative model fit statistics.