

XR Interaction Test3 – Questionnaire

Participant Information

Participant ID: _____

Age: _____

Gender: Helicopter

VR Experience Level:

☐ Beginner ☐ Intermediate ☐ Advanced

Task 1: Toolbox Location and Tool Switching

Were you able to **clearly find the location of the toolbox** in the scene?

☒ Yes ☐ No

Were you able to **successfully switch between different tools** (for example, different brush sizes or the eraser)?

☒ Yes ☐ No

Please rate how **convenient** the tool switching was (1 = Very Inconvenient, 5 = Very Convenient):

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒

Open-ended Question:

In many other VR painting applications, tools are switched using a virtual menu on the user's non-dominant hand.

In this prototype, the switching is done through **physical grabbing and changing**.

Which method feels more natural or easier to use for you, and why?

I think both method have their drawback and advantages. For the traditional way, user can perform drawing and switching at the same time if they are proficient enough, also the selection list can contain more tools and options for user to choose. But for novice user, overwhelming selection would confuse them and increase their memory load to remember how each tool will work.

For physical way, it's intuitive and immersive for user to experience the switching process, and allows the user to recognize each tool with visual feedback. However, once the number of tools is much more than 5-8, it could be really messy for user

to choose between tools, and put tools back. It might be very struggle to experience this issue during the creation process.

Task 2: Pigment Picking and Placement

Were you able to **successfully pick and take a pigment** from the pigment box?

[Y] Yes [] No

Were you able to **place the pigment onto the palette** smoothly?

[Y] Yes [] No

Please rate how **intuitive** the color-picking process felt (1 = Very Unintuitive, 5 = Very Intuitive):

1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐

Open-ended Question:

In previous versions, users needed to keep a specific distance between the brush tip and the palette to pick a color.

This time, the pigment-ball system was used instead.

Did this change make the interaction feel more natural?

If you still had difficulties, please describe them or give suggestions for improvement.

Yes, dip the brush deep into the color is intuitive, and I really enjoy the color combining process by using the joystick. Besides those annoying bug, the color selection process is entertaining.

Task 3: Joystick Mixing System

Were you able to understand and complete the **color-mixing operation using the left joystick rotation**?

[Y] Yes [] No

Please rate how **easy** the joystick mixing was to use (1 = Very Difficult, 5 = Very Easy):

1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐

Please rate how **natural and realistic** the mixing effect felt (1 = Very Unnatural, 5 = Very Natural):

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒

Open-ended Question:

Did using the joystick to mix colors feel intuitive to you?

Would you prefer a future version that allows **real physical stirring** with the brush instead?

Please explain your preference and reasons.

Yes, I like the mixing process, and yes, I am anticipating the stirring process for the future. It let me to enjoy the process, and I like the physical effect and the simulation of the real world.

Overall Experience

Please rate how **intuitive** the overall interaction experience was (1 = Not Intuitive, 5 = Very Intuitive):

1 ☐ 2 ☐ 3 ☐ 4 ☒ 5 ☐

Please rate how **enjoyable** the overall experience was (1 = Not Enjoyable, 5 = Very Enjoyable):

1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐

Open-ended Question:

Please describe which part of this experience you liked the most and what could be improved.

Color mixing, would be better if the bug can be minimized.