**Discord XR: Galaxy Social Hub**

**Testing plan for interactive prototype 3**

**Research Background**

This iteration builds on recent XR research about social immersion, avatar communication, and user presence in shared virtual spaces. Cannavò et al. (2025) studied the MetaLibrary project and found that realistic avatars and natural gestures improve users’ sense of connection and social engagement. Their findings support the design of the Galaxy Social Hub, which focuses on simple and natural hand gestures to make communication easier and more comfortable for users.  
Kyrlitsias et al. (2020) explored social conformity and non-verbal behaviour in immersive environments. They showed that gaze and gesture cues strongly influence how people experience social presence. This supports the use of poke interaction for the NPC mute/unmute button, helping users feel genuine social feedback.  
As a broader foundation, Yee and Bailenson (2007) described how avatar self-representation can shape behaviour in virtual environments, known as the Proteus Effect, showing that body-based interaction and appearance can influence engagement and social outcomes.   
These studies guide the focus of this iteration on gesture-based social interaction. By using hand tracking instead of controllers, the prototype aims to make communication in the Galaxy Social Hub more human-centred and intuitive.

**Testing Objective**

The prototype focuses on a short social communication loop that simulates how users join and talk inside a Discord voice channel. It includes three main gestures:  
• Task 1: Remotely grab a planet representing a voice channel to enter it.  
• Task 2: Pick up and place down the microphone on the table.  
• Task 3: Poke another NPC’s mute or unmute button.  
The objective is to test whether participants can understand and perform these gestures easily and complete them without confusion. The test measures how long each task takes, how many errors or assists are needed, and how participants react during the process. It also records short verbal feedback to capture user impressions and satisfaction.

**Testing Methodologies**

My testing plan uses both quantitative and qualitative methods.  
• User ID keeps results anonymous but allows comparison.  
• Task ID links each record to a specific step.  
• Success (Y/N) shows whether the action was completed as expected.  
• Errors / Assists show where users had difficulty or needed help.  
• Time (mm:ss) captures efficiency.  
• Observation Notes provide insight into hesitation or tracking problems.  
• Short verbal feedback is collected to capture user impressions and satisfaction.  
This method provides both measurable and descriptive data. The table offers structured evidence of performance, while the short verbal feedback explains how participants felt about each gesture. Recording data electronically keeps it safe and easy to analyse later.

**Prototype description/requirements**

The prototype is built in Unity and runs on the Meta Quest 2 headset with hand tracking enabled. It presents a galaxy environment where planets represent voice channels. The user pinches a planet from a distance to join that channel. Inside the channel, the user can pick up and place down a microphone and poke an NPC’s mute or unmute button with visible feedback.  
The prototype does not attempt to simulate the full Discord system. Instead, it focuses on testing the core social interaction loop of joining a voice channel, preparing to talk, and communicating with others. This allows the study to evaluate how users perform natural and meaningful social actions within XR.

**Data collection method**

All structured data including User ID, Task ID, Success, Errors, Time, Notes, and Feedback will be recorded directly into an electronic spreadsheet. During each session, short observation notes will be written to describe behaviour such as hesitation, motion errors, or tracking loss.  
After completing the three tasks, participants will answer three short questions:

1. How satisfied were you with the overall interaction experience
2. If you could add one new feature, what would it be
3. What would you like to improve or change  
   All data will be stored in a single dataset for later analysis. This ensures that both performance data and personal opinions are collected clearly and consistently.

**Testing Setup**

• Meta Quest 2 headset.  
• Prototype build installed and checked before each session.  
• Data sheet opened on a laptop or phone.  
• Timer ready for task timing.  
• Quiet area with enough room for hand movement.  
The prototype should be reset to the same starting scene before each participant begins to keep results consistent and comparable.

Testing process: (also considering the schedule/time)

1. Welcome and consent (20s): Explain purpose, ask participant to think aloud, confirm agreement.
2. Start position (5s): Place participant at the galaxy view and begin timing.
3. Task 1: Remotely grab a planet (≤30s): Pinch a planet to enter the voice channel. Record success, time, and errors.
4. Task 2: Pick up and place down the microphone (≤30s): Grab and release the microphone at the table. Record data.
5. Task 3: Poke the NPC mute/unmute button (≤30s): Tap another NPC’s icon to observe state change. Record time and success.
6. Short feedback (1 min): Ask the three questions and note responses.
7. Closing and reset (15s): Save data, reset the prototype, and thank the participant.  
   The session is designed to last about three minutes. Each task is short so that multiple participants can be tested efficiently while collecting enough data for meaningful analysis.

**References**

Cannavò, A., Arrigo, G., Visconti, A., De Lorenzis, F., & Lamberti, F. (2025). Designing social immersive virtual environments for the Metaverse: The case study of MetaLibrary. Virtual Reality & Intelligent Hardware, 7(3), 279–298. <https://doi.org/10.1016/j.vrih.2025.04.002>  
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