Evaluation 1

Objective and Validation metrics:

Key objectives from the testing plans

1. Do Users can move and adjust their viewpoint easily.
2. To test users can pick up, drop, and rotate objects.
3. To test users can successfully shortlist materials.

Based on these objectives, I made few metrics to test them which are as follows

Objective 1: Viewpoint Adjustments
Metric:

1. Users using their viewpoint and successfully moving around the interface without any external help

Objective 2: Object Manipulations
Metric:

1. Participants were able to pick up the cube by pointing with the mouse, holding the right click to rotate it, and left clicking to drop it.

Objective 3: Intuitive Interface and Shortlisting
Metrics: (Metrics are subjective or objectives?)

1. Participants understand that shortlisting occurs by approaching an item and activating a proximity-based button icon.
2. Participants correctly interpret whether colour changes on materials signify shortlisting or merely selection.
3. Participants recognize the presence and function of buttons that appear when near an object, versus static buttons displayed on screen.
4. Participants comprehend whether the on-screen lighting button controls the lighting of an individual material based on proximity or affects all materials globally.
5. Evaluation of whether users understand from clearer feedback mechanism, to enhance understanding of actions within the interface.

Results:

During the usability testing, I used the think-aloud method to gain insights by observing users' interactions with objects. The testing sessions included five participants. Additionally, I conducted A/B testing to evaluate two assumptions

1. Whether users expect lighting controls to operate individually per material based on proximity
2. Whether users understand the role of a global lighting toggle in relation to individual lighting controls

The key findings are as follows:

1. Four out of five participants successfully moved and adjusted their viewpoint independently after initial guidance.
2. Three out of five participants easily picked up, rotated, and dropped objects using the mouse controls.
3. Two participants clearly understood the concept of shortlisting based on proximity cues and button activation.
4. Three participants were unclear about the meaning of "shortlist," confusing it with selection or assuming that materials were duplicated due to similar UI elements.
5. Three participants expected lighting controls to operate individually per material based on proximity.
6. Two participants recognized the global lighting toggle but were surprised or confused when it applied to a single item.

Analysis/Insights

1. Once users understood key controls, such as pressing ESC to regain the pointer, navigation became intuitive. Introducing early onboarding could improve the initial experience for all users.
2. While object interaction was generally intuitive, some users struggled with rotation controls, indicating a need for clearer instructions or consideration of alternative input methods to accommodate varied preferences.
3. The shortlisting feature requires clearer terminology, distinct visual feedback, and better onboarding to ensure user understanding and avoid confusion.
4. User expectations about lighting control differed from current UI behaviour—many users expected individual material controls based on proximity, contrasting with the global toggle functionality. This suggests a need to separate or better communicate the scope of these controls.

A/B Testing In-depth Insights

5. Two participants identified that moving close to an object revealed a button to shortlist it.
6. Three participants expected lighting controls to operate only on objects within their immediate proximity.
7. Some users applied mental models from real-world experiences when interacting with the system, reinforcing proximity-based control behaviour.

Evaluation of Aims

Objective 1: Viewpoint Adjustments

1. Validated: Most participants (4 out of 5) successfully moved and adjusted their viewpoint without external help after minimal onboarding. This indicates the navigation design effectively supports this task.
2. Uncertain: One participant initially struggled, suggesting that onboarding could be improved to fully ensure all users quickly adapt.

Objective 2: Object Manipulations

1. Partially Validated: Most users could pick up, rotate, and drop objects, validating the basic interaction model. However, difficulties with rotation for some participants indicate that this aspect is not yet fully intuitive for all users.
2. Requires improvement: Clearer instructions or alternative controls may be needed to address this partial gap.

Objective 3: Intuitive Interface and Shortlisting

1. Partially Invalidated: Several participants misunderstood or were unclear about the shortlisting concept and its UI representation. Only a minority fully grasped it, showing that this objective was not completely met.
2. Uncertain: The effectiveness of UI feedback and terminology remains ambiguous and requires further refinement and testing to confirm improvement.

Concept Iteration

Based on the evaluation insights, here are specific design changes and affirmations for the next iteration of the prototype, showing clear responses to the identified issues:

1. Replace the term “shortlist” with more intuitive language such as “favourites” or “saved items” to reduce confusion.
2. Implement colour gradients or varied patterns to represent different proximity levels, improving spatial awareness and user interpretation.
3. Differentiate shortlist UI elements with clearer labels, distinct colours, or other visual variations to prevent users from assuming materials with similar UI are identical.
4. Separate global lighting controls from individual item controls in the UI or introduce toggles to switch between modes.

5. Label lighting controls clearly to communicate their scope and function, reducing user confusion about effects.

Reflection

What Worked Well

1. The focused objectives effectively guided the testing toward relevant user interactions such as viewpoint adjustment, object manipulation, and shortlisting, providing clear evaluation targets.
2. Employing qualitative methods and think-aloud protocols offered rich insights into user thought processes, behaviours, and confusions beyond mere task completion data.
3. The use of A/B testing for proximity highlighting yielded valuable understanding of user perception of spatial cues and UI responsiveness in VR.

What Did Not Work as Well

4. The incomplete onboarding and initial user guidance created early confusion for some participants, affecting their initial interactions and possibly influencing overall feedback.
5. Certain metrics lacked precise quantification and success criteria, making some evaluation outcomes partially ambiguous, especially around complex features like shortlisting and lighting controls.
6. Terminology such as “shortlist” was not sufficiently clear, contributing to misunderstandings that complicated interpretation of some results.

Lessons Learned and Next Steps

1. Incorporate more explicit onboarding in future tests to reduce early user confusion and normalize baseline skill levels.
2. Define measurable success criteria for all objectives to enhance evaluation clarity and improve the actionability of testing results.
3. Prioritize iterative design and usability testing cycles, especially focused on UI language, feedback mechanisms, and control schemes to better align with varied user mental models.

References

In-text reference (citation)	When prompted with “Improve grammar and spellings for the draft and give me relevant feedback on structure?” the perplexity-generated text (OpenAI, 2025).
Reference list	OpenAI. (2025). Perplexity [Large language model].