Star River Notes 2.0 – Evaluation Report

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# 1. Objectives and Validation Metrics

The second round of evaluation aimed to verify improvements made in Star River Notes 2.0 after the first usability test. The updated objectives were:  
- O1 Usability/Learnability: Can participants complete “locate and link nodes” efficiently without ESC-based mode switching?  
- O2 Navigation & Understanding: Can participants identify a target node and describe its neighbors accurately?  
- O3 Structural Understanding/Load: Does the updated spatial layout reduce cognitive burden and enhance comprehension?  
- O4 Interaction Clarity: Are the revised single/double/right-click interactions and direct editing more intuitive?  
- O5 Functional Completeness: Can participants store, retrieve, and manage content using newly implemented features?

# 2. Prototype Iteration Summary

Completed improvements:  
- Simplified editing: removed ESC dependency, enabled direct edit-on-click.  
- Unified click logic to avoid confusion.  
- Added drag-and-drop support and customizable number of nodes.  
  
Not yet implemented:  
- Visual highlight for selected nodes.  
- Undo/delete functions.  
- Hover-based preview of node content.

# 3. Results

From five participants:  
- Task completion: All participants successfully located and linked nodes within the expected timeframe.  
- Navigation: Nodes could be located and neighbors described, though issues arose when nodes generated below ground level, making them inaccessible.  
- Interaction: Direct editing and unified click logic were praised, but absence of in-app guidance/tutorials caused initial confusion (participants did not know which keys triggered which functions).  
- Functionality: Dragging and node customization worked well. Missing highlight/undo/preview features were noticed but did not block core tasks.

# 4. SUS Questionnaire Results

Raw scores (5 participants, 10 items each):  
1. P1: 4 4 5 4 5 4 4 4 4 4  
2. P2: 3 2 3 3 2 4 2 4 2 3  
3. P3: 4 2 3 2 3 4 3 3 2 2  
4. P4: 4 3 4 3 2 3 2 3 3 3  
5. P5: 3 2 2 3 3 4 2 4 3 2  
  
Converted SUS Scores (0–100 scale):  
- P1: 82.5  
- P2: 40.0  
- P3: 47.5  
- P4: 57.5  
- P5: 47.5  
  
Average SUS Score: 55.0  
  
Interpretation: The score reflects 'OK but needs improvement' usability, showing notable gains compared to Iteration 1 but still below the industry benchmark of 68.

# 5. Analysis / Insights

Strengths:  
- Removal of ESC switching significantly reduced frustration.  
- Unified click logic increased intuitiveness.  
- Drag-and-drop and node customization supported exploratory use.  
  
Weaknesses:  
- Onboarding/Guidance Gap: Without built-in instructions, new users struggled with knowing how to interact.  
- Ground-level Bug: Nodes spawning below the floor could not be interacted with, disrupting navigation.  
- Lack of visual highlights and undo/preview features limited clarity and control.  
  
User Perception:  
- Some participants praised the immersive nature and felt progress compared to 2D.  
- Others still found the 3D layout inefficient for quick retrieval.

# 6. Evaluation of Aims

- O1 Usability: Achieved – tasks completed efficiently without ESC reliance.  
- O2 Navigation: Partially achieved – ground-level bug caused accessibility issues.  
- O3 Structure/Load: Partially achieved – cognitive load reduced, but missing guidance increased effort.  
- O4 Interaction Clarity: Mostly achieved – new click logic praised, but absence of highlights caused errors.  
- O5 Functionality: Partially achieved – storage and customization worked, but undo/preview still missing.

# 7. Concept Iteration – Next Steps

- Implement in-app tutorial or guidance overlay.  
- Add highlight feedback for selected nodes.  
- Introduce undo/delete and hover-preview features.  
- Fix node generation bug (prevent below-ground placement).  
- Re-test with a larger and more diverse participant group.

# 8. Reflection

The second evaluation confirmed that iteration improved usability, but also revealed the importance of onboarding and error-prevention mechanisms. Star River Notes 2.0 demonstrates progress toward an intuitive spatial note-taking tool, but further refinements in feedback and guidance are needed before it can achieve higher usability ratings.

# Appendix

*One of the test recordings*

Theres only a tiny bit, he has one online.

steam shop

Right, then you turn to face the other direction; besides the Steam shop, anywhere else in that direction is fine.

Then press the left handles attachment, press the left handles attachment.

Ah, do you see a character appearing on your game controller?

If the plugin doesnt work, just press the wrong key. Im not too sure, oh oh oh, I see it now. Then you can use the right controllers single click to touch and create a star or a planet.

OK

Okay, the difference lies with planets. Now, try creating and naming a nodes right handle. What about this right handle? The lower half is for dragging; in any case, just determine it however it is selected.

Excellent.

Can you hold him off now? Oh, I see that now.

Oh, right, you mean how to press that button now? The button is the class button, the class button is for going to work, so you should go to work.

Somebody.

OK

Oh, right. First, create a spacecraft, then create a planet, and then create a star. Try naming them, okay?

Click on the name above them; I remember this feature should be available.

Aim.

Click.

If you cant aim accurately, we can skip this part with the teacher. Lets skip this and Ill wear the closer one, its okay. We skip this and you just go ahead and use that connection feature. Start connecting, find a planet that is white, and then press and hold the right trigger, the upper right trigger, and then drag it to the star.

Didnt expect that?

Then.

Whatever, whatever, whatever.

Then, twitching and dragging.

The right sides work machine on the right sides work machine is useless.

If the six people are on the left side, because I dont have any myself.

They are all from the first half of the season.

Aim at him, right? You need to aim properly.

Oh.

Otherwise, you should try all the items; I should include a prompt inside so I can give it a try.

Oh, not this kind of dragging; its dragging directly with the hand, dragging directly with the hand.

Quick long press refers to a long press with five dots.

A little closer.

What is this for?

This ray does not exist.

Did not shoot it.

Oh, I see the white one, and also that one.

This is the left hand.

Yes, Sir, Target milk.

Thats enough, Ill take it up and give it a try.

But why cant the white ball come off?

Oh, it seems like you suddenly cant go below the floor level.

Right, it seems to be a problem with the floor. Try again.

Go ahead, you need to build up there first to be higher.

I tested it myself and found absolutely no problem. I mean, I just find it strange, why is it not allowed to say it?

A higher place.

OK

There is the connecting device now, OK, then you first connect the wires and then start stealing.

The line can only connect from the white line and white ball to the basketball.

First half, first half.

The part being dragged should be the lower half on the right side.

You.

Drag it to any position you like, then select one of the planets from the menu on the left, open the left menu key, and click.

Alright, you can now store some things in there as you like.

And now you.

SIMscreenshot

Okay, after clicking on SIM, go to the right and find that screenshot; click on the one at the top.

Screenshot.

You should turn right here, right at this spot. Do you see it?

On the single device, you can see the video start playing by clicking the white single device button above.

Oh, did you see the white one playing? Oh no, its not playing, now it is playing, then you can turn back and look at your notes.

screenshotscreen shot

Click it, click the screenshot key, first click the screenshot key, right, then turn your head to look at the notes and see if this screenshot has already been recorded in the notes.

I am the one who shuts off the keyboard.

Yeah.

The keyboard was seen in the bottom right corner.

Has Yizhong already displayed a screenshot?

textentry

Notes need to be in an open state to accept a few random text characters, then entry.

Oh.

Please.

Its gone again, take a look, its here.

Is the screenshot also the upper right half? It should correspond to the upper right half, right?

Then.

The menu button on the left, the menu button on the left.

Aim at the Safin to the left of that planet.

Wow, Im so tired, more than I imagined.

I didnt see this menu; I have just finished naming it now.

Right now, it is for that.

After naming the planet, you need to aim at the planet, then press the menu button on the left-hand side of the remote sensing menu, the menu button on the left controller here, aim at the planet, and press the menu button.

White.

Wow, why are there so many?

You didnt close it properly. You should place the planet on the left, over here, and your page on this side. You never actually closed it, so you cant see it.

Ah, let me try to close this page and see.

OK.

You can open it, but you cant select anything below your feet. Its still that floor, which is really dumb. I need to fix this later.

Yes, then if you have that, you can use this to move forward, backward, left, and right. You can find your position.

The screenshot above is correct.

Actually, its just to test whether the screenshot can be placed there.

First, open it, open a document page.

Then take a screenshot.

There is, right? Oh, I see it now. Then press the screenshot button. There is also a video. Has the page number in the video already been captured in that screenshot?

Then leave again.

Tomorrow's.