Testing

🤔 Current Testing Status

Currently, we have conducted user tests and gathered feedback (found here). Still in the process of gathering more feedback.

🎯 Functionality Tests

User stories	Tests	Criteria	Pass/Fail
As the developers, we want our dot connecting functionality does not have any bug, such that test can be correctly carried out	• The game checker should return true if the student have the correct input. • The game checker will return false if the student have the false input. • The student should be able to perform the test on both touch screen and mouse dragging. • The student can pause the answer by stop touching the screen. • The student should only resume answering start from the dot where the student pause drawing. • The screen should prevent from scrolling when the student start drawing. • The pattern should be cleaned when the student hit "clear pattern" button. • The student should draw the pattern smoothly on any devices regardless of their screen size. • When the student click "revert" button, the last stroke the student drawn will should be removed.	Upon pressing the 'Start' button, the tester can do the test and our system would get the result.	**Pass**
As a user, I want the app to display well and fit on my device screen such that it looks nice and I can draw pattern comfortably.	• iPhone SE • iPhone XR • iPhone 12 Pro • Pixel 5 • Samsung Galaxy S8+ • Samsung Galaxy S20 Ultra • iPad Air • iPad Mini • Surface Pro 7 • Surface Duo • Galaxy Fold • Samsung Galaxy A51/71 • Nest Hub • Nest Hub Max • Facebook for Android v407 on Pixel 6	Use the 'Inspection' on the web page to see if the screen UI look compatible.	**Pass**
As the test providers, we want the submissions are correctly checked and score are accurately	• So far we haven't completed the whole game process, therefore the marking scheme hasn't been applied.	Log the score in console to check if they are correct.	**Pass**

calculated, such that the data we get is valuable for analysis.			
As the app users, we want to be able to switch mode in settings page, such that I have more choices.	• Voice instructions • Display results • Send results • Partial mode	Switching the mode to check if they give the correct logic.	**Pass** We found that some voices will error the page, and managed to fix that.
As the test taker, I want to scan a QR code to choose my account, such that I can easily log in	• Functionality under development	The tester first prepare a QR code with a given format and go to account page to press the 'Scan' button. The app will have a camera pop up and the tester would be able to scan the QR code. Upon scanning the code, the accounts would appear at the right side of the page. And then the tester can choose an account, the system would record down the selected kid.	**Pass**

👣 Traceability Matrix

Test Case ID	Requirement ID	Test Description	Expected Result	Test Status
TC-FUS-01	FUS-01	Verify that tapping buttons navigates to corresponding screens.	Screen navigation works as intended.	Pass
TC-FUS-02	FUS-02	Check for clear button descriptions and tooltips.	Descriptions are clear and informative.	Pass
TC-FUS-03	FUS-03	Test voice instruction clarity and audibility.	Voice instructions are clear and audible.	Pass
TC-FUS-04	FUS-04	Validate the functionality for the partial mode button to adjust the number of levels.	Turn on partial mode will make the test to have a single level.	Pass
TC-FUS-05	FUS-05	Confirm the retrieval of account and ID for game entry.	Account can be retrieved and selection are seamless.	Pass
TC-FUS-06	FUS-06	Ensure instructions are viewable before	Instructions gifs will pop up	Pass

		game start.	automatically.	
TC-FUS-07	FUS-07	Test the second chance function.	A prompt will pop up upon first time mistake.	Pass
TC-FUS-08	FUS-08	Assess usability of drawing patterns on the canvas.	Canvas pattern drawing is smooth.	Pass
TC-FUS-09	FUS-09	Check the confirmation button's functionality after completing a pattern.	Confirmation leads to the next level.	Pass
TC-FUS-10	FUS-10	Test the ability to rub and clear during a test.	Rubbing and clearing functionality works.	Pass
TC-FUS-11	FUS-11	Verify the option to redo a pattern for partial credit.	Redoing a pattern grants partial credit.	Pass
TC-FUS-12	FUS-12	Check the progression to the next level using a dedicated button.	Progression button works as expected.	Pass
TC-FUS-13	FUS-13	Test the completion page display after game finish.	Completion page displays correctly.	Pass
TC-FUS-14	FUS-14	Validate app availability and functionality on both iOS and Android platforms.	App is available and functional on both platforms.	Pass
TC-FUS-15	FUS-15	Ensure the app is accessible and usable on various devices.	App is accessible on multiple devices, including iPad, Mobile, PC.	Pass
TC-FUS-16	FUS-16	Confirm that the app usage is feasible under teacher supervision.	App usage under supervision will be enforced, as stated in user manual.	Pass
TC-FUS-17	FUS-17	Verify the correct implementation of every task within the app.	All tasks are implemented and function correctly.	Pass

TC-FUS-19	FUS-19	Check the data received is accurate.	Data sent and received is accurate.	Pass
TC-FUS-20	FUS-20	Allow data to be stored by the backend.	Data sent to backend will not be deleted.	Pass
TC-FUS-21	FUS-21	Assess the clarity and guidance of voice or gif instructions.	Instructions are clear and guide the user properly.	Pass
TC-FUS-22	FUS-22	Confirm the collection of additional data beyond test scores.	Additional data is collected as expected.	Pass
TC-FUS-23	FUS-23	Evaluate the engagement and understanding of users during before the formal test.	Playground is working.	Pass
TC-FUS-24	FUS-24	Validate the functionality for drawing patterns in separate segments.	Segment drawing works correctly.	Pass
TC-NFUS-01	NFUS-01	Evaluate the interface's engagement and ease of use for children.	Interface is engaging according to user feedback.	Pass
TC-NFUS-02	NFUS-02	Test the app's capability to support future extensions.	App supports adding new features seamlessly, code is easily changeable.	Pass
TC-NFUS-03	NFUS-03	Monitor page load times across different devices.	Page load times are quick and consistent on AWS.	Pass
TC-NFUS-04	NFUS-04	Verify correct display on various device screens.	App displays correctly on all tested screen sizes.	Pass
TC-NFUS-05	NFUS-05	Check the security of personal information and test scores.	Data is secure and privacy is maintained.	Pass

Usability Testing

📋 Usability Testing Feedback

📄 UX Report

Questions:

Pre-Testing

(Removing biases)

1. Your age (only enter number please, e.g. 21)
2. How well do you know Vis-CAT?
3. How would you rate your level of confidence in using a touchscreen?

Post-Testing

(UI, Functionality, Usability, Feedback)

1. How would you rate the interface? (e.g. style, icons, colour)
2. How easy to you think are the instructions?
3. How smooth do you think your process is? (e.g., buttons not working, pages getting stuck)
4. Choose one (or more) to answer:

    (1) How would you describe your overall experience with the app?

    (2) What did you like the most about using this product?

5. Choose one (or more) to answer:

    (1) What, if anything, caused you frustration?

    (2) What did you like the least with the app?

6. How likely are you to recommend this product to a friend?

Test	Results and Actions
Functionalities of the game	If they encounter technical issues unexpected during our design and test → report in Google Form
UI/UX design	inconvenience and something they don't understand → specify in Google Form

Self testing after each major update:

Screen	User Story	Test	Expected Result	Pass/Fail
Lobby	As a kid, I want to click buttons on the screen so that I can navigate to corresponding screens	Click on buttons	Change to corresponding pages if a button is clicked. Display message "Please Select An account" if user clicks "Start" button without account selected	Pass
	As a kid, I want to know what those buttons are used for so that I know which one to click	Move finger or mouse onto a button	Display voice instruction of corresponding button. If no voice is recorded for that button, then do not play anything	Pass

Setting	As a kid, I want to be able to turn on the voice instruction and change the voice selection so that I can follow instructions clearly	Click voice instructions button	The voice instruction will turned off.	Pass
	As a teacher, I want to use a button to control number of levels so that I can set the game to only have one gameplay level	Click Partial Mode button	Student will only be able to access the first level.	Pass
Account	As a kid, I want to see my name by scanning of a QR code so that I don't need to type and read	Scan QR received from teacher	Display avatars of students and student can select their avatar.	Pass
	As a kid, I want to select my name one screen so that I can enter the game	Click on the avatar	Set the account information for the student and allow he to start game	Pass
Gameplay	As a kid, I want to watch an instruction before I enter the game so that I can know how to play	Start the test to inspect the tutorial	Display a instruction video and hear voice instructions	Pass
	As a kid, I want to hear the audio instruction so that I don't need to read	Click any button	A voice instruction will be played. No voice will be played if there is no recording existing	Pass
	As a kid, I want to reverse or redraw if I can see a mistake on the pattern I draw so that correct my mistake	Click reverse or redo button	The pattern will be reverted or cleared.	Pass
	As a kid, I want to draw on the dots on the right hand side.	Use finger to draw on the right hand side of gameplay page	The path that finger went through is shown.	Pass
	As a kid, I want to click the OK button so that I can proceed to the next level when I finish the drawn pattern	Click OK button	The game will check if the player gets it done correctly. Let player to confirm if drawn pattern is invalid and let the player proceed to the next page	Pass
	As a kid, I want to see a window showing that I can try one more time if I	Submit wrong answer and inspect the pop up	The confirmation window pops up correctly	Pass

	get it wrong so that I will not lose all marks			
	As a kid, I want to redraw the pattern if I choose to have another go so that I can get half marks.	Click yes button	This level of game will be reloaded.	Pass
	As a kid, I want to click the next level button so that I can go to next level	Click next level	The screen will navigate to the next level	Pass
	As a kid, I want to see the finish page if I have finish the game I want to see the finish page so that I know I have finished the game	Check finish page display	The finish page displayed correctly	Pass
General	As a kid, I want to click the sound button so that I can turn off voice instruction	Click sound button	Sound will be turned off	Pass
	As a kid, I want to see in all visual elements are easy to understand and correctly layout so that I won't be confused by UI	Check layour	Every elements are layout correctly	Pass