**Testing Methodology**

Black box testing was chosen for this project to test the prototype as it is ideal for identifying:

* Interface errors
* Errors in data structures or external database access
* Behaviour or performance errors
* Initialization and termination errors
* Incorrect or missing functions

# Test Plan: Iteration 1, 8 September 2018

| **Test ID** | **Test Description** | **Expected outcome** | **Actual outcome** | **Test Result** | **Comments** |
| --- | --- | --- | --- | --- | --- |
| 1-1 | Press launch icon | * Application loads and displays start screen | * Application loads and displays start screen | Successful |  |
| 1-2 | Press "Start" button | * Category screen is displayed | * Category screen is displayed | Successful |  |
| 1-3 | Select a category | * Application displays the first sentence from the category | * Application displays the first sentence from the category | Successful |  |
| 1-4 | Drag words from Sentence Panel to Answer panel. | * Words able to be dragged from sentence panel to answer panel. | * Words able to be dragged from sentence panel to answer panel. | Partially successful | The function is working at a basic level, however it can be difficult to "catch" the words in order to drag them (especially the small ones like 'I'). User testing confirmed that this was a barrier to the usability of the app. User testing of this function also highlighted a problem with the position of the buttons - to be moved to the bottom of the screen for future iterations. |
| 1-5 | Press "Clear" button | * Words in the answer panel are moved back into the scrambled sentence panel. | * Clear button returns the words that had been dragged into the response panel to the sentence panel, however it duplicates the question and sentence at the top of the screen. | Partially successful |  |
| 1-6 | Macrons displaying correctly from database | * Macrons displaying properly both in the hard coded text and the text pulled from the database. | * Macrons displaying properly both in the hard coded text and the text pulled from the database. | Successful | No additional work was required for this to work. System accepts macrons created using the standard Māori keyboard layout. |
| 1-7 | Sentence is put in correct order and "Submit" button pressed | * "Correct" message displays |  | NA | Not developed |
| 1-8 | Sentence is put in incorrect order and "Submit" button pressed | * "Incorrect" message displays |  | NA | Not developed |
| 1-9 | Images are displaying correctly from database |  |  | NA | Not developed |
| 1-10 | Audio of correct sentence is played |  |  | NA | Not developed |
| 1-11 | Next sentence loads correctly |  |  | NA | Not developed |
| 1-12 | Option to exit the screen works |  |  | NA | Not developed |

# Test Plan: Iteration 2, 21 September 2018

| **Test ID** | **Test Description** | **Expected outcome** | **Actual outcome** | **Test Result** | **Comments** |
| --- | --- | --- | --- | --- | --- |
| 2-1 | Press launch icon | * Application loads * Displays start screen | * Application loads * Displays start screen | Successful |  |
| 2-2 | Press "Help" button. | * Pop up displays general instructions for the application * User is able to cancel out of pop up and return to start screen. | * Pop up displays general instructions for the application * User is able to cancel out of pop up and return to start screen. | Successful |  |
| 2-3 | Press "About" button. | * Information regarding the client and development team are displayed. * Cancel returns the user to the Home screen. | * Information regarding the client and development team are displayed. * Cancel returns the user to the Home screen. | Successful |  |
| 2-4 | Press "Start" button | * Category screen is displayed | * Category screen is displayed | Successful |  |
| 2-5 | Select a category in the Category screen. | * Application displays the first sentence from the selected category scrambled up in the sentence panel. | * Application displays the first sentence from the selected category scrambled up in the sentence panel. | Successful |  |
| 2-6 | Drag words from Sentence Panel to Answer panel. | * Words able to be dragged from scrambled sentence panel to answer panel. | * Words able to be dragged from scrambled sentence panel to answer panel. | Successful |  |
| 2-7 | Sentence is put into correct order and "Submit" button pressed | * "Correct" message displays and prompts user to tap screen for next sentence. | * "Correct" message displays and prompts user to go to the next sentence | Successful |  |
| 2-8 | User taps "Next" in the "Correct" popup. | * Next sentence in category is loaded. | * Next sentence in category is loaded. | Successful | Need to advise user when last sentence has loaded. |
| 2-9 | Sentence is put into incorrect order and "Submit" button pressed | * "Incorrect" message displays. |  | NA | Not developed yet. |
| 2-10 | Press "Home" button | * Popup displayed confirm user wants to return Home. * Pressing "Yes" on pop up returns the user to the Start page. * Pressing "No" cancels the pop up and returns user to the sentence they were on. | * Popup displayed confirm user wants to return Home. * Pressing "Yes" on pop up returns the user to the Start page. * Pressing "No" cancels the pop up and returns user to the sentence they were on. | Successful |  |
| 2-11 | Drag words with in answer panel | * Order of words in answer panel is able to be rearranged. | * Tapping words moves them to the far right of the panel. | Unsuccessful |  |
| 2-12 | Press "Clear" button | * Words in the answer panel are moved back into the scrambled sentence panel. | * Words in the answer panel are moved back into the scrambled sentence panel. | Successful |  |
| 2-13 | Sentence is put in correct order and "Submit" button pressed | * "Correct" message displays * "Correct" audio plays. |  | NA | Not developed |
| 2-14 | Sentence is put in incorrect order and "Submit" button pressed | * "Incorrect" message displays * "Incorrect" audio plays. |  | NA | Not developed |
| 2-15 | Audio of correct sentence plays. |  |  | NA | Not developed yet. |
| 2-16 | Images display | * When sentence loads an image related to the sentence is also displayed. | * When sentence loads a place holder image displayed. | Partially successful | The application displays a place holder image. |

# Test Plan: Iteration 3, 15 October 2018

| **ID Number** | **Test Description** | **Expected outcome** | **Actual outcome** | **Test Result** | **Comments** |
| --- | --- | --- | --- | --- | --- |
| 3-1 | Press launch icon | * Application loads and displays start screen | * Application loads and displays start screen | Successful |  |
| 3-2 | Press "Help" button. | * General instructions for the application are displayed in a pop up. * User is able to cancel out of pop up and return to start screen. | * General instructions for the application are displayed in a pop up. * User is able to cancel out of pop up and return to start screen. | Successful |  |
| 3-3 | Press "About" button. | * Information regarding the client and development team are displayed. * Cancel returns the user to the Home screen. | * Information regarding the client and development team are displayed. * Cancel returns the user to the Home screen. | Successful |  |
| 3-4 | Press "Start" button | * Category screen is displayed | * Category screen is displayed | Successful |  |
| 3-5 | Select a category in the Category screen. | * Pop up screen displays Category‑specific instructions   When user closes popup, application loads sentence screen and displays:   * Question from database * Answer sentence scrambled up from database. | * Pop up screen displays Category‑specific instructions   When user closes popup, application loads sentence screen and displays:   * Question from database * Answer sentence scrambled up from database. | Successful | Category and category instructions are hardcoded. |
| 3-6 | Drag words from Sentence Panel to Answer panel. | * Words able to be dragged from scrambled sentence panel to answer panel. | * Words able to be dragged from scrambled sentence panel to answer panel. | Successful |  |
| 3-7 | Sentence is put into correct order and "Submit" button pressed | * "Correct" message displays and plays. * Audio of the correct sentence plays. User prompted to tap screen for next sentence. | * "Correct" message displays and plays. * Audio of the correct sentence plays. User prompted to tap screen for next sentence. | Successful | Audio is hardcoded. |
| 3-8 | User taps "Next" in the "Correct" popup. | * Next sentence in category is loaded. * If user has got to final sentence, load "Congratulations" popup and take user to Home screen. | * Next sentence in category is loaded. * If user has got to final sentence, load "Congratulations" popup and take user to Home screen. | Successful |  |
| 3-9 | Sentence is put into incorrect order and "Submit" button pressed | * "Incorrect" popup displays and plays audio. * Cancelling popup returns user to the main screen. | * "Incorrect" popup displays and plays audio. * Cancelling popup returns user to the main screen. | Successful | It was decided to leave the users sentence in place when cancelling the pop up, rather than resetting the app. This is so the user can look at what they have done and analysis where they have gone wrong. The user can reset the sentence themselves by using the "Clear" button. |
| 3-10 | Press "Home" button | * Popup displayed to confirm user wants to return Home. * Pressing "Yes" on pop up returns the user to the Start page. * Pressing "No" cancels the pop up and returns user to the sentence they were on. | * Popup displayed to confirm user wants to return Home. * Pressing "Yes" on pop up returns the user to the Start page. * Pressing "No" cancels the pop up and returns user to the sentence they were on. | Successful | Comment from supervisor to remove confirmation pop up. This was included for later stages when a score is kept. |
| 3-11 | Drag words within answer panel | * Order of words in answer panel is able to be rearranged. | * Tapping words moves them to the far right of the panel. | Unsuccessful |  |
| 3-12 | Press "Clear" button | * Words in the answer panel are moved back into the scrambled sentence panel. | * Words in the answer panel are moved back into the scrambled sentence panel. | Successful |  |
| 3-13 | Images display | * When sentence loads an image related to the sentence is also displayed. | * When sentence loads an image related to the sentence is also displayed. | Successful | Hardcoded |