Figure 1: Time Explorers home page

Progress Report

For Major Project Web Application

Design Computing Studio 1 (DECO1800)

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Introduction

Since our last report, we have made considerable changes to the project, both in concept and in design. This progress update aims to address some concerns received during the prototyping stage and outline the design decisions we have made in response.
After the changes we will present our plan for implementation of the final product including team roles, upcoming features, task breakdown and allocation, and potential issues.

Feedback

Paper-prototype

This exercise was extremely important for us as it revealed some major issues that our website was facing. It allowed us to see things from a different perspective and realise some flaws that we did not consider. Our goal was to receive feedback on the layout, navigation and UI design. We also had each participant to fill out a short questionnaire on their experience. See appendix item 1 for the paper prototype testing plan document and appendix item 2 for the questionnaire for the users.

The primary feedback from the paper-prototype was around our navigation, with the user being confused not about where they are, but where they can go from here. The paper-prototype users had trouble in navigating between the map, current year, and party pages. Although some of this confusion would be around a low-fidelity prototype, it pointed out which sections the user will likely get frustrated with.

Other feedback forms the paper-prototype was confusion about what the purpose of the train was. They felt the train was occasionally on the page, however never really engaged or had use with the story line. Users also suggested adding a tutorial or tooltips to help the user better navigate/understand the website layout and more ideas for mini-games (some that were too complex for this project timeline).

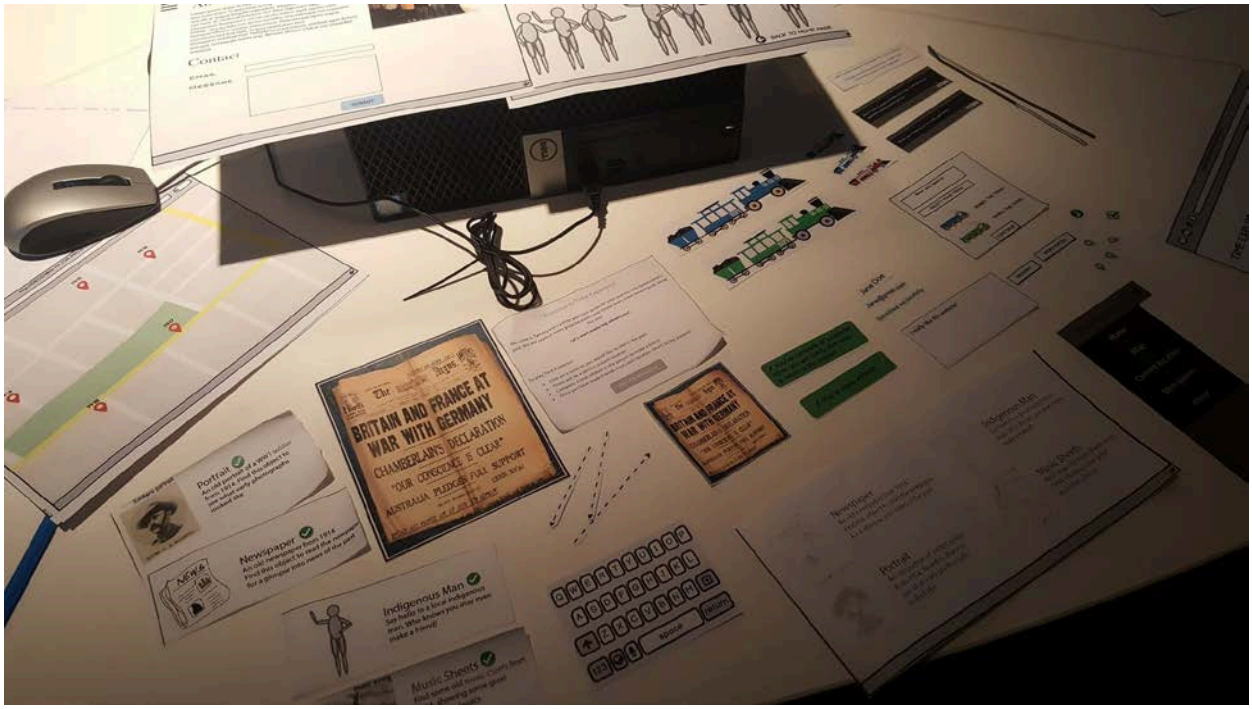

Figure 2: Paper proto-type materials used

Tutor feedback

We were lucky enough to receive a lot of feedback from the tutors which reinforced some of the feedback received during the paper-prototype. First key point from the tutors were that once again the train does not currently have a purpose in the web application. The second point was that the current storyline is not strong enough to engage the user. The idea of collecting friends in the past is a good start, but why are they collecting friends in the past?

The tutors suggested some changes that could help address both these issues. First suggestion was to make the train a pivotable part of the navigation by having the train move between locations. The second suggestion was tying the train to the storyline with such ideas as:

- Train needs to reach a maximum speed, but the carriages are slowing it down. As you finish a year page a carriage is removed.
- The user needs to collect parts to upgrade or repair the train. They can then select the train to see their progress so far.
- The train is a run-away train and the user needs to try to stop the train.

Project changes

As a response to the paper prototype and general feedback, we have changed both minor and major aspects of the project.

Concept changes

Our concept received mixed feedback from both tutors and students. Most approved of the idea itself but weren't sure of our implementation of it. We had envisioned the train to be a companion to the user, and to follow the user throughout the story as a friend/guide. We noticed that many said the train felt unnecessary and didn't really fit the theme or have a reason to be there.

To address this, we will implement some changes that help remove sections that were unused and adopt some of the tutor suggestions to create a stronger storyline involving the train.

The main story component is now based around a time-travelling train that has gone out of control. The time explorers league has tasked the user to collect train parts that were scattered throughout Queensland's history to repair the broken brake system and stop the train. The user will go into each year and instead of making friends, will complete mini-games to find lost brake parts for the train. Once the user has collected all the brake parts they will stop the train and rewarded a hero of time medal from the leader of the Time Explorers.

We have also shifted our goals of the website. Previously we had wanted to teach the user more about the history of Queensland and to make sure that the user had genuinely learned something. Rather than teaching specifics about history we are now focussed on an entertaining/fun journey that leaves the user with a positive experience about history with the aim to inspire them to learn more.

Website changes

The website received some major changes to its UI and layout. The first major change is the removal of both the map page as well as the pop out menu. Users were unsure of how the map page related back to the actual locations, resulting in frustration and confusion. After much deliberating, we realised that the map page does not have much use in the new concept idea. Instead we have replaced the primary navigation with train dashboard located on the bottom of the page. This change will unify different sections of the web application so that it is not only easier to access but also to fit the theme of the website.

Figure 3: An image of a train dashboard for inspiration. Virji (2006)

Things that will be included in the dashboard:

- The left most panel will contain the navigation to different locations/years, a button to stop the train, and a progress bar. The stop button ends the game after the progress bar is filled, supposedly a button that activates the brakes of the train that is out of control. Users can easily see how much of the game they have completed by glancing at the progress bar. The buttons for accessing the locations/years will be lit up green if it has already been completed.
- The middle panel indicates the 'inventory' of the user, it displays the brake items that the user has already collected and outlines the items that the user still needs to collect. Users can click on items to view more information about them.
- The right most panel is the 'learning' section, this is where the user can access further materials to help them pass the mini-games. For example, the user may encounter an Aboriginal family but be unable to understand their language. The can click on the learning material object that is a book with the word languages on it to see English translations of the particular language the family is speaking. The user will then be

tested in a mini-game how much they remember from the book to see whether they successfully translate the dialogue.

- There will also be a section in the bottom right that consists of settings and the about page.

A cosmetic change for the website involves the train being animated on each page so that the train is never stationary. This is two reinforce the story line that the train is out of control.

Current build – minimal viable product (MVP)

Our plan for the MVP was to make sure that the functionality is implemented correctly, and that the main storyline could be completed. This meant that we had to ask ourselves: what defines our web application? We decided that the core definition of our game is that the user explores Queensland's past, completing mini-games in search for objects to fix a run-away train.

Therefore, we decided that our MVP consists of:

- A working home page where the user can start a new game.
- A dashboard where the user can select at least one year/location to visit.
- A single year location with a couple of items that the user can interact with.
- Modal windows for instructions, learning resources, and objects
- A working end game button on the dashboard.
- A placeholder screen for the ending page
- A word match minigame.
- Portraits, newspapers, and language APIs implemented.

Home page

Figure 4: Time Explorers home page

The first version of the train's animation has been implemented using CSS, where the train animates in and out of the screen on a loop. The first version of the background forest artwork has been completed. The "Erase Data" button is fully functional and removes API caches files and local storage variables so that the user can play the game again. Erasing the data will also allow the user to experience a different indigenous language API.

The "How to start" button is fully functional and brings up a modal window with instructions (see figure 5). The modal instructions inform the user that the train has escaped, and they must click on the moving train on the home screen to start the game.

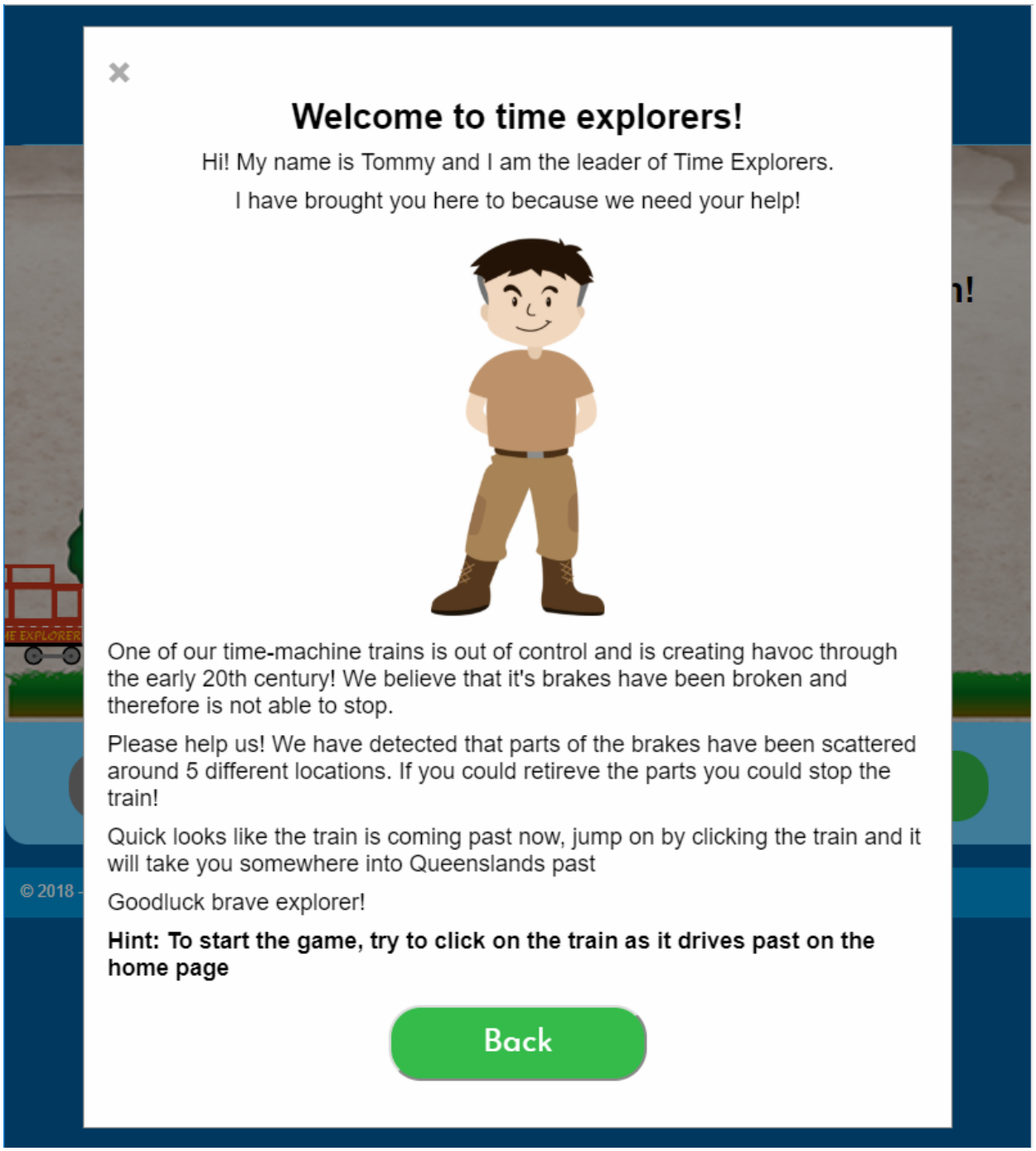

Figure 5: Time Explorers instructions modal window

Location page

Figure 6: Time Explorers 1914 location page

A very early version of the menu bar at the bottom of the page has been implemented with sections from left to right: year select and ending button, inventory section, and learning section. This section has the most features out of any page so for the MVP we have only implemented year 1914, all other years on the dashboard have been greyed out.

The user can click on the portrait or the newspaper to display a modal window with a random WW1 portrait or newspaper respectively from the SLQ portrait API (see figure 7 for an example). They can also select the language book to read translations of the language randomly selected from the SLQ API (see figure 8).

To finish the main story-line the user must click on the indigenous family. When clicked a modal appears asking whether the user wants to attempt a translation. If the user clicks the translate button they are redirected to the word-match mini-game to try to translate their language.

The “stop the train button” has a early implementation version where the user will be redirected if they have collected all the train parts (only one part for the MVP). If the user selects the “Stop the train” button without collecting all the train pieces they will be prompted with an alert message.

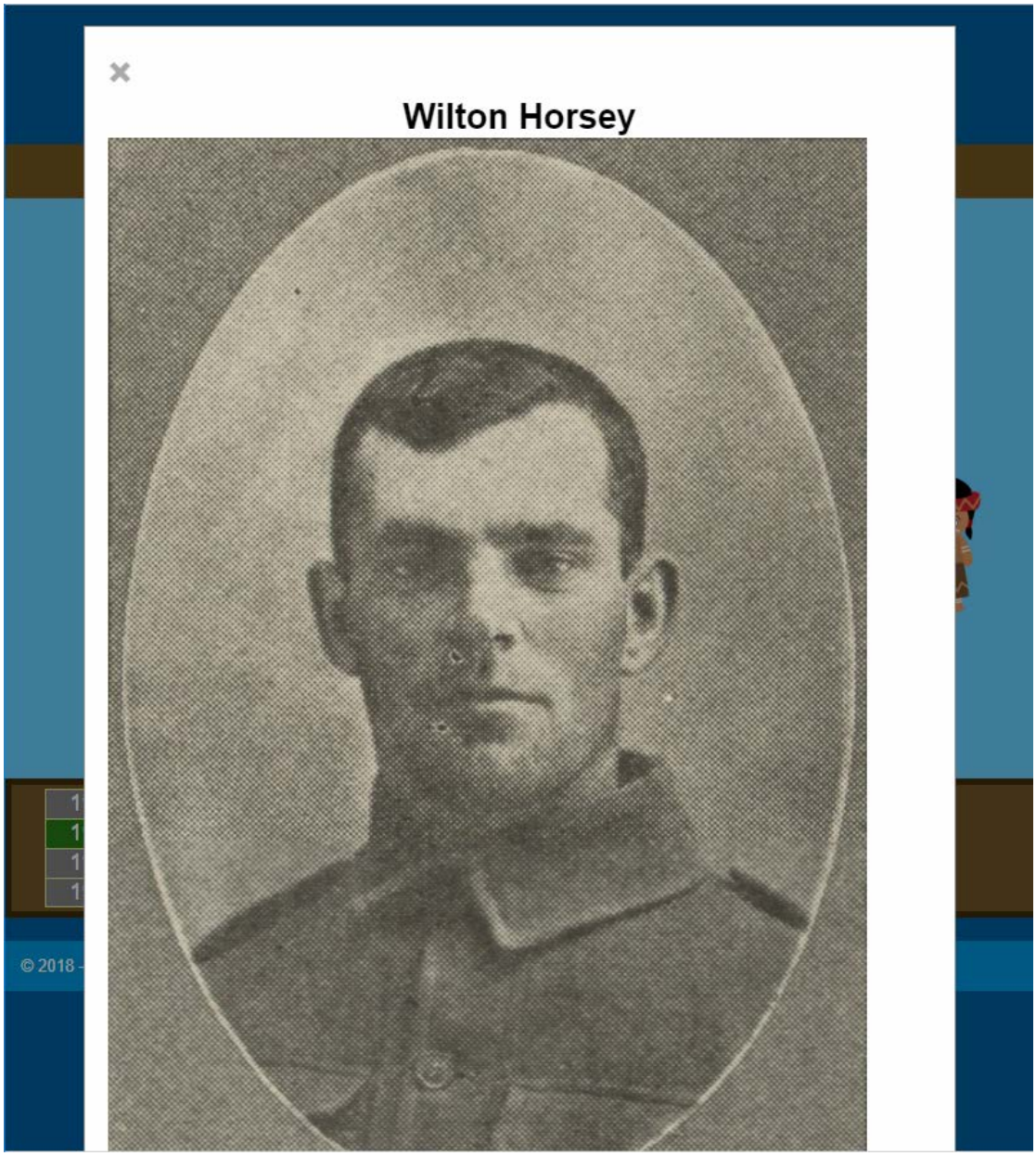

Figure 7: Time Explorers clicking on the portrait object

Figure 8: Time Explorers clicking on the language book

Minigames page

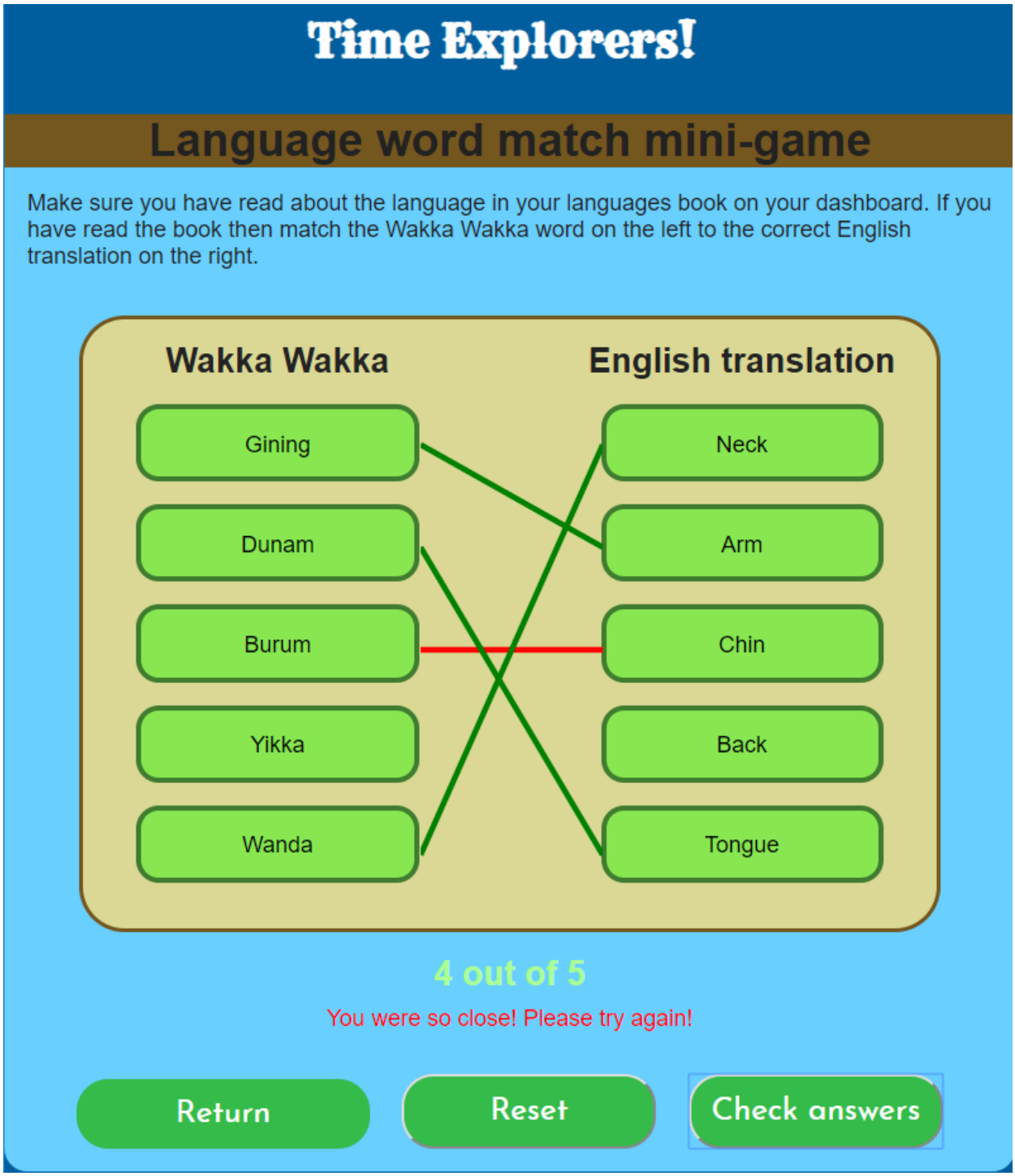

Figure 9: Time Explorers word-match mini-game

One of the pages we are most happy with so far is the mini-game page for the word-match game. A random list of words and their definitions are currently generated from a random indigenous language using the SLQ languages API. The user can select on a word from either list

and then select a word from the other list to create a connection line between them. When the user clicks “Check answers” they will be given a score, text feedback, and visual feedback in that correctly matched lines will turn green and incorrectly matched lines will turn red.

When the user completes the mini-game a variable is saved in storage so that next time they click on the indigenous family they can understand their language.

The reset button removes all line connections and feedback, and the return button redirects the user back to the location year page.

Ending the web application

Figure 10: Time explorers 1914 location page with cog in inventory

Once the user finishes the mini-game the indigenous family gives them an old object they found. This object just happens to be a cog needed for the train brake system. Now that the user has all the train brake system parts (only one for the MVP), the “Stop the train” button lights up green and is now active. When clicked the user is redirected to the ending page where they see the train animate in and come to a stop (see figure 11). The user is then congratulated as they have finished the Time Explorers web application!

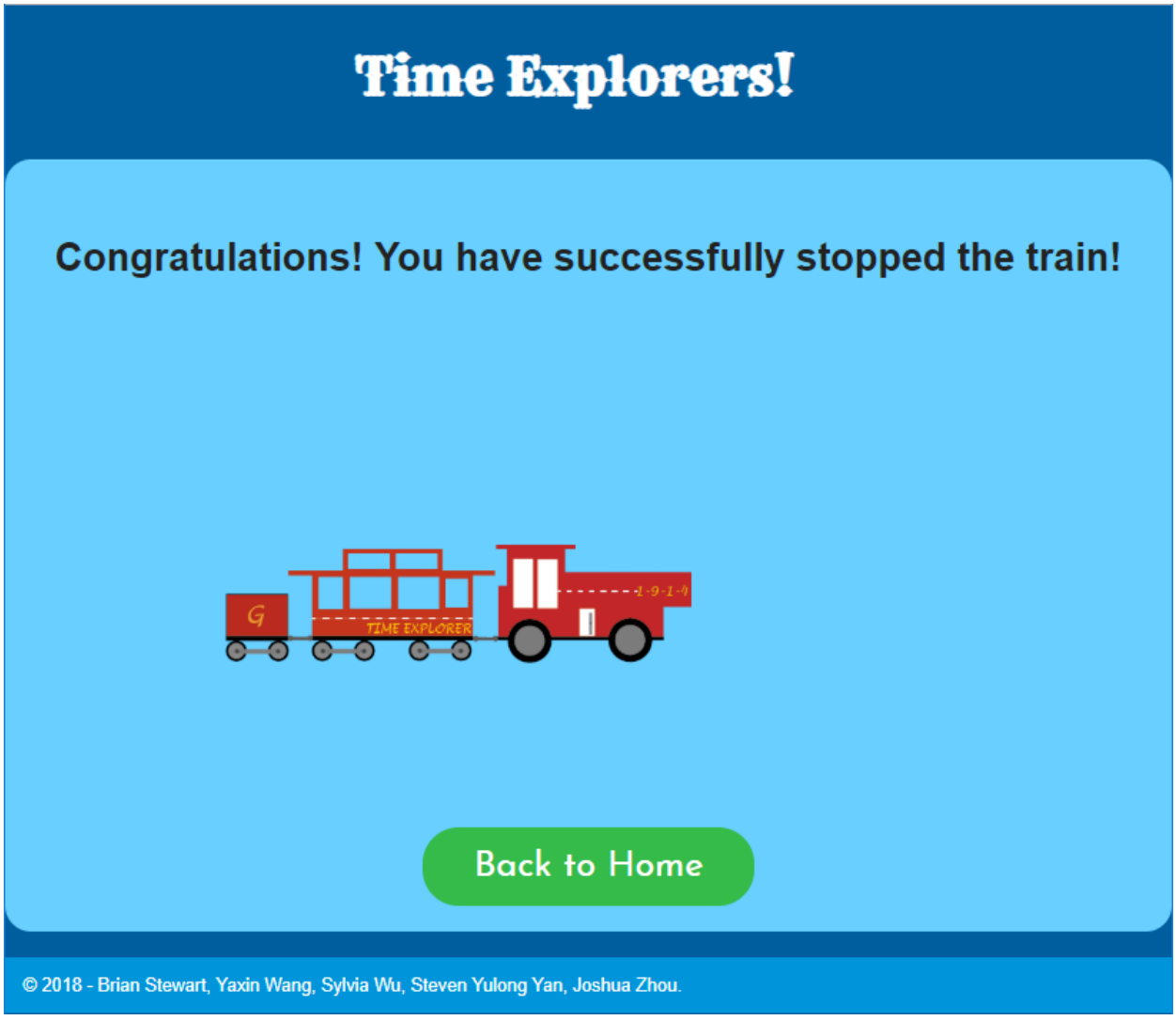

Figure 11: Time Explorers congratulations page

Team roles

These are the primary roles that each member is responsible for. Although this is their primary role, each member will be working across all aspects of the project.

Figure 12: Brian Stewart - team lead and developer. Jakku (2015)

Brian Stewart - Team lead, developer

Brian is responsible for high level duties such as team coordination, overall design approach, and overall technical approach. He will also be responsible for the server-side code in the web application, as well as some of the JavaScript.

Yaxin Wang - Designer

Yaxin will be diving into the CSS, creating a similar cohesive feel across all pages. This includes colour scheme, typography, and general look/layout. Yaxin will also be creating some of the graphics needed for the web application.

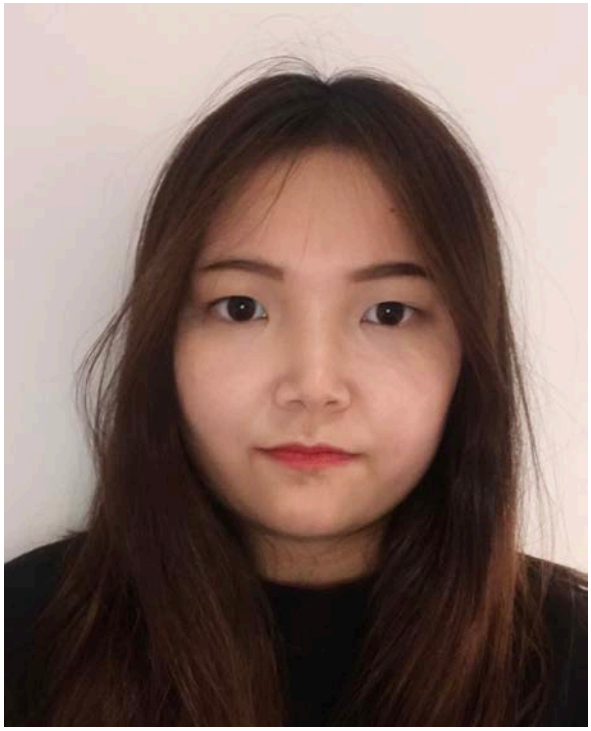

Figure 13: Yaxin Wang - designer. Wang (2018)

Figure 14: Sylvia Wu - designer. Wu (2018)

Sylvia Wu - Designer

Sylvia will be responsible for the graphics and images associated with the web application. With a combination of royalty free images and creating graphics from scratch she will be bringing the web application to life with her art pieces.

Steven Yulong Yan - Developer

Steven is our main developer for HTML and CSS to create the structure and layout of each page. He be responsible in making a similar feel using the layout and will work closely with Yaxin to make this happen.

Figure 15: Steven Yulong Tan - developer. Yan (2018)

Figure 16: Joshua Zhou - developer. Zhou (2018)

Joshua Zhou - Developer

Joshua is our main developer for JavaScript, responsible for creating many of the front-end functionality for the web application. He will be working closely with Steven and Brian to connect the four code bases together (HTML, CSS, JavaScript, and PHP).

Upcoming features

We will approach upcoming key features depending on their priority order below. The team will work on priority 1 features first so that the user can experience the core aspects of the web application before completing priority 2 features. Considering everything runs smoothly the team will implement priority 3 features to add the "icing on top".

Priority 1 (essential): These are key features that are pivotable for the user experience:
4 additional year pages to bring a total of 5 year pages for the user to explore
2 additional mini-games
Contact page with contact form

Priority 2 (important): These are additional features that have a moderate impact to the user experience
Dialogue from the main character when objects are clicked. This will help bring the character to life for the user.
Tracking the years that the user explores and it what order. On the ending page the year timeline is displayed showing the user their unique journey through the web application.
Final design for heading a logo to increase the branding impact of the web application.
Functionality so that the user can select their own train character, which will be displayed throughout the story.
Functionality so that the user can type in their name, which will be displayed throughout the story.
Additional objects to all year pages to expand the amount of interactable objects for each year.

Priority 3 (luxury): These are features that will be implement if time permits, however are not required for the final product.
Minor animations in the page backgrounds to bring the environment to life.
Minor animations to the dashboard menu to bring the dashboard to life.

2 additional mini-games to bring a total of 5 mini-games. This will allow for one mini-game per year where each mini-game needs to be completed before finishing that year.

Optimising for smaller screens, mobile phones, and tablets.

Tasks and allocations

ID	Task	Who	Priority	Due	Dependency
1	Objects in dashboard to learn about a topic	Sylvia	1	Mid-semester break	
2	Artwork for objects in year 1912 page	Yaxin	1	Mid-semester break	
3	Artwork for objects in year 1913 page	Yaxin	1	Mid-semester break	
4	Artwork for objects in year 1915 page	Yaxin	1	Week 10	
5	Artwork for objects in year 1916 page	Yaxin	1	Week 10	
6	Background art for year 1912 page	Sylvia	1	Mid-semester break	
7	Background art for year 1913 page	Sylvia	1	Mid-semester break	
8	Background art for year 1915 page	Sylvia	1	Week 10	
9	Background art for year 1916 page	Sylvia	1	Week 10	
10	Layout for year 1912 page	Steven	1	Mid-semester break	
11	Layout for year 1913 page	Steven	1	Mid-semester break	
12	Layout for year 1915 page	Steven	1	Week 10	
13	Layout for year 1916 page	Steven	1	Week 10	
14	Mini-game interface for finding the correct portrait	Brian	1	Mid-semester break	
15	Mini-game functionality for finding the correct portrait	Brian	1	Mid-semester break	

16	Mini-game interface for newspaper game where you pick the errors	Brian	1	Mid-semester break	
17	Mini-game functionality for newspaper game where you pick the errors	Brian	1	Mid-semester break	
18	Contact form interface	Joshua	1	Mid-semester break	
19	Contact form error messages and client-side validation	Joshua	1	Mid-semester break	
20	Contact form functionality and server-side validation	Joshua	1	Mid-semester break	
21	Tracking for main story quests in additional year pages	Joshua	1	Week 10	10 - 13
22	Enabling ending page when all years are completed	Brian	1	Week 10	10 - 13
23	Dialogue for main character for each object in each year	Joshua	2	Week 11	10 - 13
24	Tracking the years that the user has visited and in what order	Joshua	2	Week 10	
25	Displaying a timeline on the ending pages of the years the user visited	Joshua	2	Week 11	24
26	Design for Logo	Sylvia	2	Week 11	
27	Design for Heading text	Sylvia	2	Week 11	
28	Art work for other train characters	Sylvia	2	Week 11	
29	Layout and interface of the select train page	Steven	2	Week 11	28
30	Replacing all trains throughout the web application with the train selected	Joshua	2	Week 11	28 - 29
31	Replacing all instances of the main characters name with the user's entered name	Joshua	2	Week 11	29
32	Additional objects for year 1912 page	Yaxin	2	Week 11	2, 6, 10
33	Additional objects for year 1913 page	Yaxin	2	Week 11	3, 7, 11

34	Additional objects for year 1914 page	Yaxin	2	Week 11	
35	Additional objects for year 1915 page	Yaxin	2	Week 11	4, 8, 12
36	Additional objects for year 1916 page	Yaxin	2	Week 11	5, 9, 13
37	Minor animations in the background of year 1912 page	Sylvia	3	Week 12	2, 6, 10, 32
38	Minor animations in the background of year 1913 page	Sylvia	3	Week 12	3, 7, 11, 33
39	Minor animations in the background of year 1914 page	Sylvia	3	Week 12	34
40	Minor animations in the background of year 1915 page	Sylvia	3	Week 12	4, 8, 12, 35
41	Minor animations in the background of year 1916 page	Sylvia	3	Week 12	5, 9, 13, 36
42	Minor animations in the background of home page	Sylvia	3	Week 12	
43	Minor animations in the background of ending page	Sylvia	3	Week 12	
44	Minor animations on the menu dashboard	Sylvia	3	Week 12	
45	Mini-game interface for spot the difference with music scores	Brian	3	Week 12	
46	Mini-game functionality for spot the difference with music scores	Brian	3	Week 12	
47	Mini-game interface for drag and drop game with convict boats	Brian	3	Week 12	
48	Mini-game functionality for drag and drop game with convict boats	Brian	3	Week 12	
49	Optimising for smaller screens including mobiles and tablets	Steven	3	Week 12	1 - 48

Table 1: tasks timelines and allocation

Issues

Complexity of Mini-game functionality

Issue: The mini-game pages will have the most complex functionality of the web application with such functionality as drag-drop, correcting the errors, and spotting the difference. The challenge/issue will be whether this functionality can be implemented in a smooth and logical way using JavaScript, in the time provided.

Solution: We will implement the mini-games in stages. For the minimum viable product demo, we have one mini-game working which is a word match game. This was a test to determine how much time was needed to create a mini-game and whether the functionality worked for a web application. With the amount of time taken to create the mini-game we have decided for to create two more mini-games for the priority 1 stage, with the last two mini-games being created in the priority 3 stage if we have time. We will swap out a mini-game from priority stage 1 with a mini-game from priority stage 3 if the there are issues with functionality or time constraints.

High demand for specific layout

Issue: The web application relies heavily on the layout of objects with clickable hotspots on the screen. The issue is creating a layout that is appealing for the user but also responsive to different screen sizes.

Solution: When implementing the layout, we will be using as dynamic measurements as much as possible (i.e. ems and percentages). As the layout it crucial for the user experience we will most likely implement a minimum screen size which may cause the user experience on the phone to be less than desirable.

Number of objects required in year pages

Issue: The plan is to have objects in all five year pages so that the use needs to find the correct objects to click. This requires a large amount of object images to be created by our designers within the time provided.

Solution: We will work on the primary objects to start with so that the user can have the complete web application experience. If time permits, we will then start to create as many objects as possible until the due date.

Time intensity of animations

Issue: The web application is designed for children, so it is important for us to include animations of the train, characters, and backgrounds to bring the application to life. Animating elements can be time intensive and may not be possible in the time provided.

Solution: Animations are not needed for the core web application functionality. We will work on the train animations first with the aim to have all train animations in the web application. Only if the web application is complete will we then work on the other animations as the "icing-on-the-cake".

References for concept document

Jakku, E. (2015). *Brian Stewart portrait* [photograph].

Wang, Y. (2018). *Yaxin Wang portrait* [photograph].

Wu, S. (2018). *Sylvia Wu portrait* [photograph].

Yulong Yan, S. (2018). *Steven Yulong Yan portrait* [photograph].

Zhou, Z. (2018). *Joshua Zhou portrait* [photograph].

Virji, S. (2006). *Pikes Peak Cog Railway dashboard.jpg - Wikimedia Commons*. [online] Commons.wikimedia.org. Retrieved from: https://commons.wikimedia.org/wiki/File:Pikes_Peak_Cog_Railway_dashboard.jpg [Accessed 15 Sep. 2018].

Appendix item 1 – paper-prototype testing plan

Feedback types

The feedback I would like to get out of this exercise is mainly based around the structure and organisation of the website including functionality and flow. I would also like to see how users find the different functionality in the website, in particular, if they find it adds to the website or is unnecessary.

Tasks for the user

1. Personalise your adventure by selecting a train
2. Find a newspaper in the past
3. Make a friend in the past
4. Check if you have missed any items in the location you are currently in
5. Return to the present with your new friends
6. Send some feedback to the creators of the site
7. Replay the memory mini-game

Task 1

Do: Personalise your adventure by selecting a train

Watch: Watch whether the user clicks on the select a train button or clicks start adventure without selecting a train.

Ask: Do you feel it was clear how to select a train before starting the game?

Task 2

Do: Find a newspaper in the past

Watch: Watch how the user navigates the start of the game and whether the user identifies the newspaper and clicks on it.

Ask: Do you feel the newspaper was obvious to find?

Task 3

Do: Make a friend in the past

Watch: Watch how the user interacts with the game in general. Do they seem to be sure where to navigate or hesitant?

Ask: How did you find navigating around the game? How clear was it about what you had to do?

Task 4

Do: Check if you have missed any items in the location you are currently in

Watch: Watch the user to see whether they know that they can scroll down, as well as if they understand that it is the section they are looking for.

Ask: Was it clear what items you had collected and what were still remaining?

Task 5

Do: Return to the present with your new friends

Watch: Watch whether it is clear to the user that they should return to the map after finishing the location. Watch where they click to try and return to the past.

Ask: Did you feel that it was clear when you had finished all locations? How do you feel the flow was reaching the ending screen?

Task 6

Do: Send some feedback to the creators of the site

Watch: Watch if the user can find how to send contact and how smoothly the user interacts with the contact form. Check whether the user moves on to the next task after submitting the form (understanding that it was sent).

Ask: How smooth did you find the process of sending feedback using the contact form? Was there anything in the contact form missing that you felt might be useful?

Task 7

Do: Replay the memory mini-game

Watch: Watch whether the users tries to start the game again or whether they select the mini-game button.

Ask: Did you feel it was obvious that you could play a mini-game without replaying the game?

Appendix item 2 – paper-prototype questionnaire

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The website flowed nicely from one section to the next.					
2. The website was clear and easy to understand.					
3. There were enough instructions on the website to know how to play the game.					
4. Sending feedback to the creator was smooth and intuitive					
5. Navigation wise, I always knew where I was, where I could go, and how I could get there.					
6. What sections of the website did you feel was the most unclear?					
7. What would you recommend implementing to make these sections (or the website in general) clearer to understand what you have to do next?					
8. Was there anything you felt was missing in the contact form? If so what changes would you recommend?					
9. Would you like to see more functionality on the website? If so, do you have any suggestions?					
10. Any other feedback on overall structure and flow of the website?					