UNIVERSITY OF TEESSIDE

SCHOOL OF COMPUTING

Accessibility & User Experience

ICA Part 2

UX Design and Evaluation

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UX Design

1.1 Use Case

1.1.1 Persona

Student Name:	Georgia Wallis
Student Age:	19 years
School:	Beverley School, Saltersgill Avenue, Middlesbrough, TS4 3JS
Referents:	Miss Calvert (Teacher) Jordan Smith (class mate)

Must Do's
- Music, dance and singing.
- Sitting outside.
- Going to the library in school and sitting there.

Must Not Do's:
- Noise – I wear ear defenders a lot.
- Anyone shouting.
- Jordan being told off or becoming upset.

Useful Info:
- I have a severe allergy to eggs, kiwi fruit, nuts and animal hair.
- I have an inhaler and epipen in my bag. Keep them near at all times. I can manage this myself and will remind staff.
- I tend to leave my ear defenders on even when I don't need them anymore. Staff may need to guide me in this.
- Sometimes I need to be collected from the toilet.

"*People want to know immediately what they're dealing with. And when they think about you, you've got to stand out in their minds--like one of those characters in a novel.*"

Georgia is a 6th form student at Beverley School, she is friendly and is well-liked by other members of her class. She tends to keep herself to herself as Georgia often wears ear phones or what she calls defenders while she is working or trying to concentrate, although sometimes she does tend to leave her earphones on even when she really doesn't need to be wearing them or when she should be listening to her teacher.

As a teenager Georgia has all the skills needed to use hand held devices and does so on a daily basis, using the internet or for just playing games that she likes.

Georgia has to take care in what she eats, as she does have severe allergic reactions to certain foods such as eggs and nuts, and to some animals or pets, she also has mild asthma attacks, mainly due to allergies she has towards some pollutants in the air, and as such she does need to use a prescribed inhaler and egipen which she keeps in her school bag at all times.

Like most teenagers she does like some privacy, even at school and will tend to visit the bathroom (toilet) just to be able to sit and relax for long periods of time, sometimes alerting her teacher(s) to come and collect her.

As an autistic child, and like most children with her condition, she does not like noisy environments, she is not keen on being put in a situation where she is in competition with others and will try to avoid confrontations at all cost, she does not like loud noises or raised voices and as such she will defend the person on the receiving end, especially her class friend Jordan.

1.1.2 Scenario

"I need to be sure that I'm doing things correctly"

Type of School: Specialist school for students with Autism from the ages of 3 to 19 year olds.

Qualifications offered: GCSEs and AS/A Levels

Life experience: Has never been abroad before.

IT experience: Is not particularly confident using hand held devices – they always seem to go wrong with her!

App experience: Less than 6 months – Georgia has recently downloaded the new "Get Set To Travel" app.

Usages of App: Mostly uses "Get Set To Travel" app to listen to small phrases in Portuguese.

Needs to be able to:

- Open app and to understand the homepage navigation.
- Find out how to access the dictionary with the words listed in alphabetical order.
- Find out how to listen to a word (audio file) once she has found it.
- Find out why a word could not be returned and what to do to chase up a result.

Key questions:

- Will Georgia be able to navigate the site?
- Will Georgia be able to find the phrases she will need to communicate?

Scenario Criteria - Georgia and her "Get Set To Travel" app	
Georgia and her 6th form classmates have been chosen for the visit to St Julian's school in Lisbon, Portugal, it is a school not unlike Beverley where the students have autism to varying degrees. Georgia and her classmates will meet at the school at the normal time on Monday morning the 20th August where they will depart via a bus to the airport at Newcastle. On the way to the airport, Georgia takes out her IPad to brush up on her new skills as a Portuguese speaking student, as she has downloaded the app that I had developed for her and is using it on both her hand held devices, she also has an android mobile phone which she uses constantly to access the internet to login to her social networking website.	**Importance:** High **Frequency:** Medium

Scenario steps	Comments	Outstanding Questions	Required Functionality
The British Board of Education have selected Beverley School in Middlesbrough to take part in a cultural enhancement visit to Portugal as part of the Comenius Project, allowing SEN students to discover and learn the cultures and lifestyles of member countries in the EU.	Georgia has downloaded her new app onto her Android mobile phone which allows her to create and listen to Portuguese words and phrases.	Will Georgia know to open her app and start to use it?	Georgia will need to travel with the rest of her class to Portugal to visit a school and meet fellow students.
On the bus to the airport, Georgia opens her app and lands on the home page. She notices the large set of icons and the text underneath each one.	The homepage is made up of large icons depicting categories, such as "favourites" and "common"	Will Georgia know to go to 'Favourites' a list of favourite words already added?	The homepage consists of icons that are clickable. The icons will navigate to other pages within the app.
Georgia clicks on the icon named Favourites.		What will Georgia do once she arrives at the	When an icon is clicked, it will take the user to the category it

		Favourites page?	states.
Georgia is looking at the list of words on the "favourites" page.			On the "favourite's" page, there will be a list of words or small phrases in English.
Whilst browsing the "favourites" page she decides to use the back button at the top of the page which consists of an arrow to navigate back to the home page.		Will Georgia understand the back to homepage arrow on all inner pages?	The "Back" arrow on this and all inner pages will navigate back to the home page.
Georgia decides to take a look at what's inside other icons with names like "Common" and "Romance" so she decides to click on the romance icon. Again the page is similar to the other pages she has ventured to, consisting of a list of words and small phrases, but this time the words and phrases were of the romantic type.	Is Georgia looking for romance on her trip?	Will Georgia discover what happens when she clicks on a word or phrase on this page?	The list of words and phrases will appear in English. When Georgia hovers over a word or phrase, she will see that it creates a dropdown to reveal the word in Portuguese language.
Once again Georgia has opened her app, this time she is on the airplane to Portugal. She heads straight to the icon that says "Shopping" and clicks it to discover the world of shopping in Portugal in small phrases and words. This time she hovers over the phrase "I would like to		I am hoping that it is clear to our user that the word that is hovered over will actually create an event? Will Georgia understand that the small audio icon is a link to an audio file?	On hover event or mouse over event on a phrase or word a dropdown will occur and reveal the Portuguese version of the word or phrase.

purchase". And a drop down occurred directly underneath with the Portuguese equivalent.			
Georgia decides to search for a word as she clicked on the search icon situated at the top of the homepage.	How hard is this option to find`?		Once the search icon is clicked, Georgia will be taken to the search page.
On the search page Georgia knows to start to type in a word in the search bar and as she does so, she can see words and phrases appearing below.		Will Georgia understand the words appearing underneath the search bar are what she is typing? Will she understand the words are under their corresponding categories?	The search bar is designed to recognize words and phrases in the database and has an auto complete built in. The words and phrases will be added underneath under their respective category.
On arrival at the airport in Lisbon, the class were greeted by some members of the school they are to visit, and as Georgia had her app open and was on the "greetings" page, she approached one teacher and clicked on the word "hello" which in turn revealed the Portuguese equivalent and pressed the audio button	I think the app is working for Georgia.		The teacher replied to Georgia with a big smile on her face, "Hello to you too" in a broad Portuguese accent.

Persona and Scenario Feedback
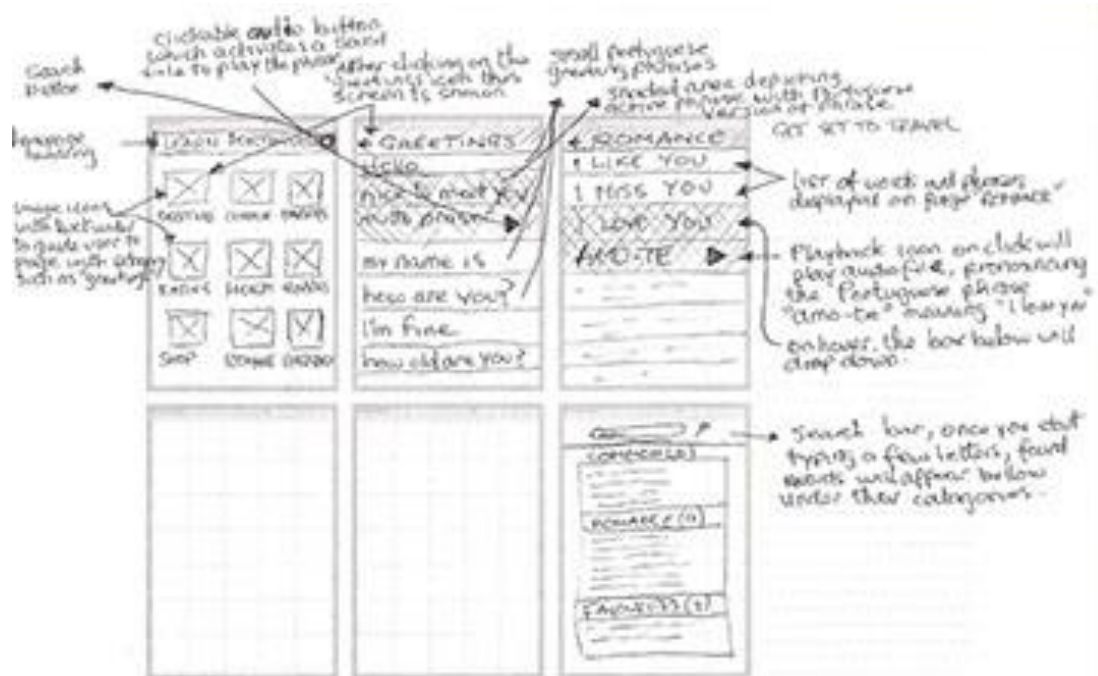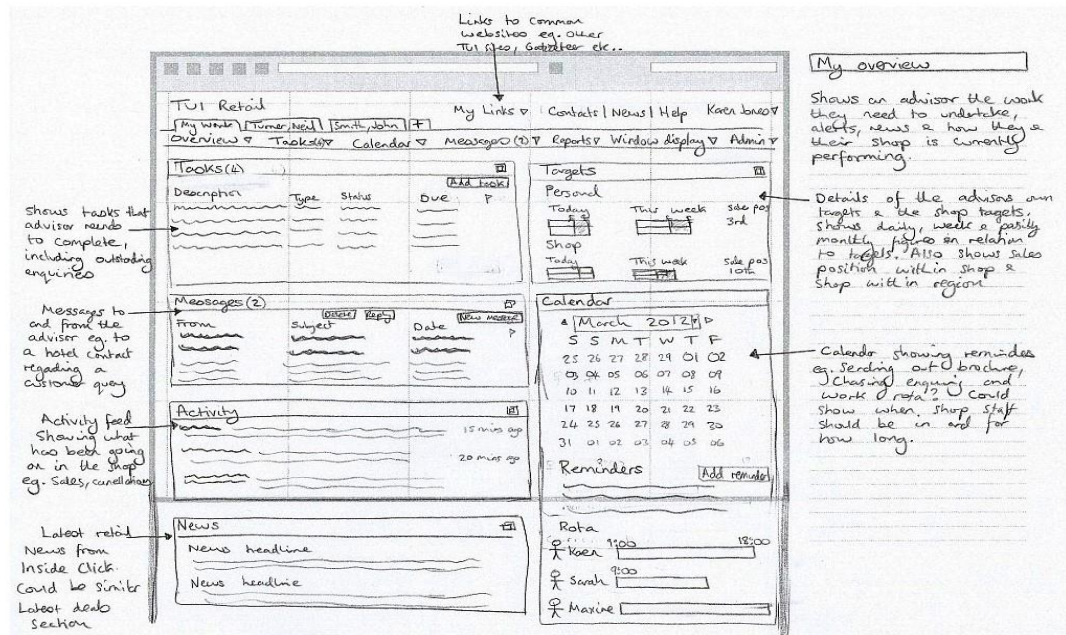
1.1.4 Review Feedback

1. Upon reviewing the **Persona**, the comments made by the tutors were satisfying to hear that they thought it was a good attempt although I would have wished for excellent, as a result some additions and changes were made.

2. The Scenario that was submitted was said to be very good and so needed very little adjustments.

3. I was advised to keep in mind Georgia's **needs and abilities**, as she is after all a student at a special needs school.

4. I was also advised to keep in mind of **Georgia's vulnerabilities** as a special needs student, specifically relating to the "Romance" section.

5. Both tutors liked the **Moodboard**.

1.1.5 Changes to Review Feedback

1. I added some "Likes" and "Dislikes" to Georgia's **Persona** as I was advised to do so.

2. All references to Georgia using the "Romance" section of the app have been removed from my scenario as advised.

3. Have added some of Georgia's **needs and her abilities** to her Persona.

4. I have made adjustments to the app as there were concerns about the **vulnerability** of Georgia as a special needs student. I took it upon myself and took out the "Romance" section altogether.

5. No changes were made to the **Moodboard** as it covered all aspects of the design concept.
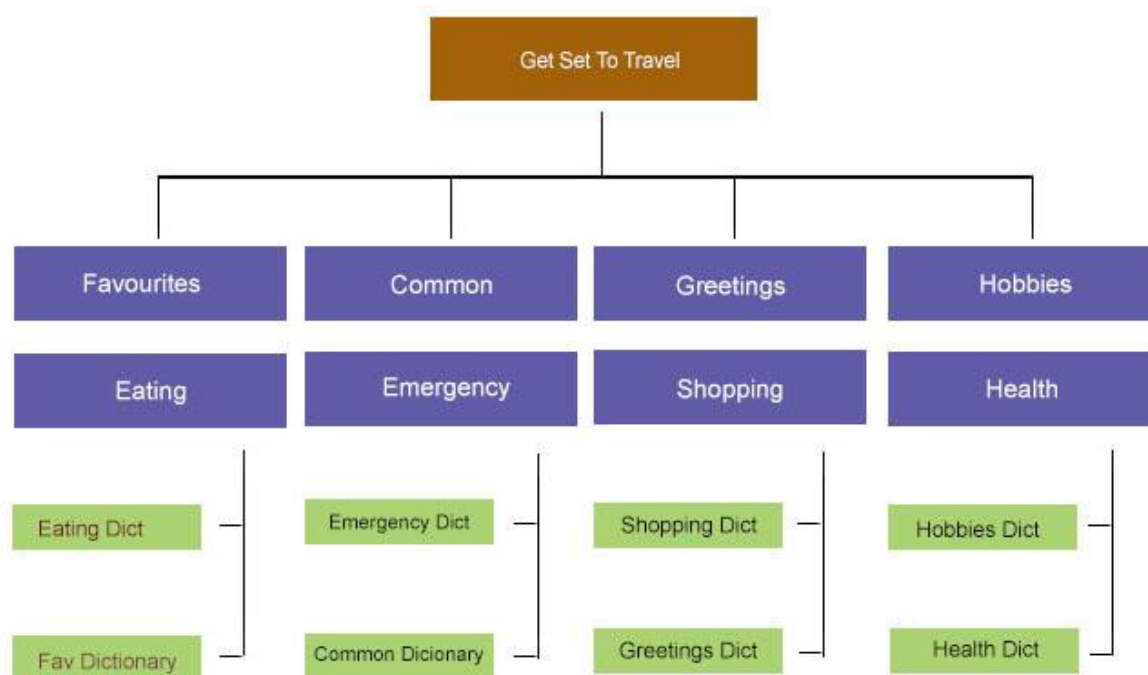
2.1 Concept Design

2.2 Moodboard

Moodboard showing the colour scheme of the app as well as the use of certain font style and text size

2.3 Wire Frames

Sketches below show the design process

2.4 Navigation

Below is the flow chart of the navigation system on the home page consisting of eight categories of Portuguese words and small phrases.
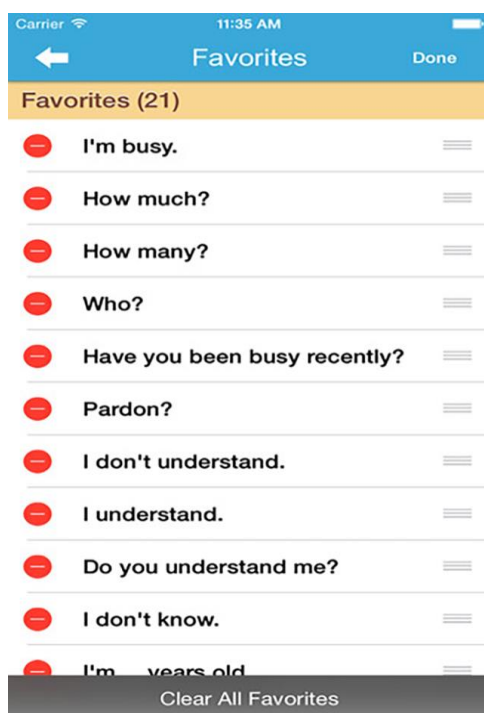
2.5   Get Set To Travel App

Link to the website holding the Prototype https://marvelapp.com/
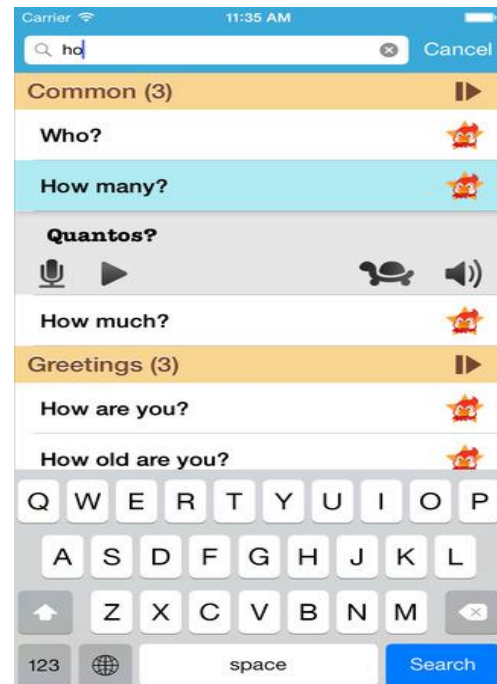
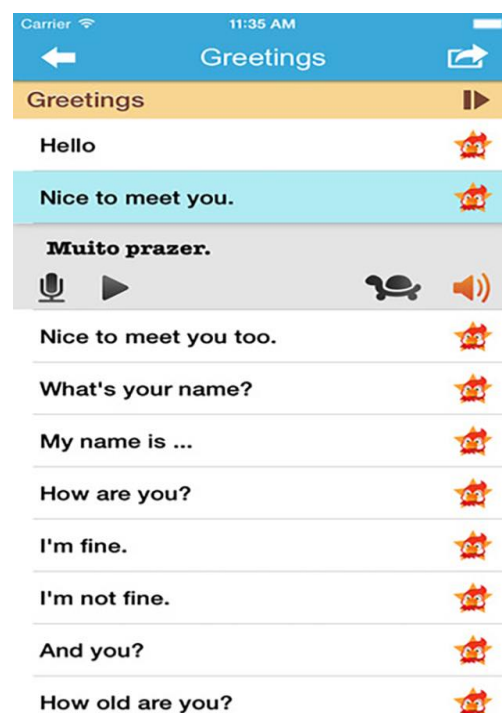Username: Password:

Front page showing large icons

Common page the phrase "how many"

Favourite's page showing a list of 21 words
And small phrases.

Greetings page the phrase "nice to meet
You"

1.1 App Developer Notes

- I have decided to use large icon images with descriptions underneath each one.

- The icons are to be clickable upon the mouseover event.

- The colours used have been chosen carefully as to give a soothing and calm feeling amongst people with Autism and Asperger's.

- The user will be able to click on an icon of their choice. I do believe this is an easy task for children from 5 years upwards.

- There will be a small icons depicting an audio "play" button where the user will click on the button to reveal the Portuguese sounding word.

- After the feedback given to me, I decided to delete the "Romance" category altogether as the app is designed for school children with Autism and it did not seem appropriate.

- One possible enhancement that I would include is the introduction of a help page for students younger than Georgia who may be needing some help to navigate through the app.

3 UX Report

3.1 UX Evaluation

The mobile or handheld app has been developed for Georgia Wallis who is attending Beverley school in Middlesbrough, it is a specialist school for students with Autism from the ages of 3 to 19 year olds, the app is a language translator in which she will use on her trip to Portugal where she will meet students from a local SEN school, St Julian's school in Lisbon along with their teachers and of course there will be a language barrier, but with her new app downloaded on her phone she can look up small phrases and words covering a range of categories, including meeting people for the first time, which can be very stressful for Georgia even in normal circumstances.

As a mobile Hybrid app developer, I do have some background in designing and developing the UX for users with small or no knowledge of the navigation system or layout, so my first thoughts were on Georgia's needs and her abilities using a mobile or handheld app, taking into account the stress factor involved with young people with Autism.

It became apparent I needed to concentrate on the front page development and its ease of use, also to use large icon images with descriptions underneath each one. The icons are to be clickable upon the mouseover event. The colours that have been carefully chosen as to give a soothing and calm feeling amongst young people suffering with Autism and Asperger's.

The inner pages consist of categories containing "Favourites, Common, Greeting, Eating, Emergency, Health, Shopping and Hobbies" all of which have a list of words and phrases associated with them.

The user will click on an icon of their choice, once clicked the user will be taken to another page which will display the category chosen, for instance the user may have clicked on the icon image "Shopping" the page will display a list of words (within its database) connected with shopping. I do believe this is an easy task for children from 5 years upwards.

On the word list page for "Shopping", the user will mouseover a word or small phrase, automatically creating a dropdown effect which will reveal the Portuguese name. Also revealed will be a small icons depicting an audio "play" button where the user will click on the button to reveal the Portuguese sounding word. I have also added an image icon displaying a tortoise, its purpose is to play the audio slowly.

After the feedback given to me, I decided to delete the "Romance" category altogether as the app is designed for school children with Autism and it did not seem appropriate.

The get set to go dictionary app can be used by all members of Georgia's class as well as all members of her school, including staff and other adults. Additional levels or more content could be added in the future.

3.2 UX Evaluation Methods Research

After extensive research delving into the world of App development, I find that there is a variety of apps converting English words and terms to continental European languages, some very good and some not so good in behaviour and UX design. The evaluations below are based on an online survey (Survey Monkey) in which three secondary school children filled in and completed for me.

Ratings of the mobile app is based on the following criteria:

- **Home page** – Is the homepage clear and decisive, does it have the topics in view that Georgia looking for, and is the layout pleasing to the eye?

- **Navigation –** The navigation of the app needs to be consistent on all pages, and needs to be placed in a clear and visible location, I should at all times be one click away from returning to the home page.

- **Content –** The content has to meet the needs of Georgia, and have a good mixture of text and images, and has to be relevant to the needs and abilities of Georgia.

- **Performance –** The pages and images of the app need to load at a reasonable speed and any animations need to function properly.

- **Readability/Accessibility –** The font needs to be easy to read and spaced out correctly and the text needs to be w3c compliant so that it is easy to read for Georgia. The images should also have "alt" capabilities so they can be read with a reader.

When evaluating the app I will be scoring them on each aspect as listed above. I will be marking them on a scale of 1 to 5:

1 = Bad   **2 = Poor**   **3 = Satisfactory**   **4 = Good**   **5 = Excellent**

I will then create a marking table for the app and then divide it by 5 as there a 5 criteria checkpoints.

$$21 \div 5 = 4.2$$

Example:

4 + 4 + 5 + 4 + 4 = 21

Overall app rating = **4.2**

App Aspect	Mark	Reviews
Homepage	5	1. The layout of the homepage is fun and busy 2. Consisting of 3 columns, contains lots of info and a search icon at the top. 3. The colour scheme is cool and I like the large icons.
Navigation	4	1. Navigation is simple and easy to use and is placed across the page so that it is clearly visible. 2. The navigation system is good and easy to follow and understand. 3. Great nav system nice and large image icons.
Content	4	1. There is a good range of content throughout the site with lots of options I would expect, including the addition of audio 2. Easy to understand (not included on all sites) but really important. 3. The site does **not** have an option to view any help files.
Performance	4	1. The performance of the website is good considering that there is a lot of media files on each page. 2. The app is consistently updated with new words which means that it is regularly maintained. 3. The audio feature is quick to respond and works well.
Readability/Accessibility	5	1. The text of the main content is reasonable enough to read and it is not in too many colours which makes it simple to read for people with disabilities. 2. The text of the main content is at a good size so that readers don't strain their eyes and read the text easily. 3. The font and text size are very good size and colour contrast is good.

Final score: = 4.3 – This mobile app is a good example and has many positive features that make it a success. It has a good range of relevant content and media, however it does **not** have the ability to get help if needed.

SurveyMonkey®

Q1: **What are your thoughts on the overall color scheme of the app?**

I like the color scheme

Q2: **What do you think of my method of using an image as a background?**

A good idea, it looks good

Q3: **What are your thoughts on the navigation of the app?**

It's easy to navigate

3.3 UX Evaluation Plan

An **evaluation plan** is a roadmap that identifies the goals and ways in which you'll collect and analyse data. This includes which information you'll collect, along with how, where and when you'll collect it. It identifies your research methods, those responsible for carrying out the **plan**, timelines and budget (Cognitive accessibility user research 2015)

Why – I needed to know the accessibility and usability of the app, its limitations and its pitfalls, there was a concern whether the app could be used by children as young as five or six year old or if indeed autistic children from the age of 6 to 19. The colour scheme was a concern as it needed to be calm and soothing to the eye.

When – The evaluation plan was put into effect as soon as I began to think of my design concept and persona as I needed to research the viability of a dictionary app for Autistic children. My research into child autistic behaviour began when I chose a subject matter for my app.

How - The evaluation plan was set out in three separate phases, the research phase in which included research the Teesside University library for books and written articles on children with autism and the internet.
The design phase was put into effect by selecting screen shots of similar apps available on the Google app store.
Finally the validation phase included an online survey where I asked three secondary school students to participate in the survey. Each phase being equally important as each other.

With Whom - The whole journey of my evaluation plan has been taken with myself as the developer, my classmates and peers if I needed them to lean on occasionally and also the tutors from the module have given help and feedback when needed.
The other players involved have been Georgia Wallis and two of her school friends from Beverley school in Middlesbrough, many thanks to them.

References

Cognitive accessibility user research (2015) Available at: https://www.w3.org/TR/coga-user-research/ (Accessed: 2 January 2016).

Example Personas | accessibility in user-cantered design | just ask: Integrating accessibility throughout design (2003) Available at: http://www.uiaccess.com/accessucd/personas_eg.html (Accessed: 12 December 2015).

HCI lecture 8 (no date) Available at: http://www.psy.gla.ac.uk/~steve/HCI/cscln/trail1/Lecture8.html (Accessed: 8 December 2015).

Kieffer, J. (2011) 10 free iPad Apps for children with special needs. Available at: http://www.autismpluggedin.com/2011/09/10-free-ipad-apps-for-children-with-special-needs.html (Accessed: 18 November 2015).

Tech tips / TCI tech tips- iPod, iPad, & iPhone Apps to support students with autism (2015) Available at: http://www.tcischool.org/techtips (Accessed: 6 December 2015).

The best room color for children with autism (no date) Available at: http://everydaylife.globalpost.com/room-colors-children-autism-10950.html (Accessed: 18 January 2016).

The national autistic society - lessons and break times (no date) Available at: http://www.autism.org.uk/professionals/teachers/lessons-breaktimes.aspx (Accessed: 18 January 2016).

Use cases (2013) Available at: http://www.usability.gov/how-to-and-tools/methods/use-cases.html (Accessed: 18 January 2016).

User Personas (no date) Available at: https://prezi.com/lateug2f98jm/user-personas/?utm_campaign=share&utm_medium=copy (Accessed: 18 January 2016).

What UX methods to use and when to use them: MeasuringU (2013) Available at: http://www.measuringu.com/blog/method-when.php (Accessed: 18 January 2016).