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Delivering User Experience (CMT656)

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Part 1: Requirements

Stakeholders

. End Users – these encompass general direct and indirect users who will be affected by the product.

. Lecturer/Course Leader – this person is one of the stakeholders due to them connecting me with GILO and due to the self-admission in this assessment criteria that they are.

. GILO Team – the GILO team are stakeholders due to their vested interest in the prototype that I create being usable for them as an interface for their GILO app.

. Chief Information Security and Data Protection Officer (GILO) – this person is specifically mentioned due to them being the company representative that I have had direct contact with, meaning that the result of my work will likely be passed through them.

Persona

Below is a persona for end users (direct end users), specifically a Student as they are considered the foremost target. Creating a persona for this is useful because understanding the wants and needs of these target users, will allow current and future development to be better catered towards them.

Direct End User – Student – John Doe

Persona Profile

. Age: 11-30

. Gender: Any

. Occupation – Student

. Education: Secondary or Higher.

. Technology: Familiar with writing and research software.

. Language: English (at least).

. Location: Anywhere.

Background:

Students are one of the three main end users that GILO are focusing on. They are (generally) younger people who are either learning to write and convey ideas properly and/or are completing assessed work.

Goals and Needs:

. Wants to have the ability to learn to write better for assessment and as a skill for future employment.

. Streamline writing processes, increasing productivity.

. Have an easy-to-use solution that saves time and effort in manual checking and proofreading.

. Wants to be able to correct logical fallacies in their work and learn how to better express subjective logic correctly.

Frustrations:

. Can be overwhelmed by the number of unknown words in the English language, especially people for which it is not their first language.

. Stressed by lack of experience.

. Can struggle to think/write critically and so often uses flawed arguments and illogic structure.

. Can lack a topical focus and is prone to verbosity.

Functional Requirements

Each functional requirement within this section is uniquely identified with a number, with smaller broken down points given letters unique for each number. Points are also given the following label: (MVP), to indicate whether or not they are required for the Minimum Viable Product of the application.

1. The user must be able to see which keywords/sentences have linked information (such that they don't need to click random words, something that could create a negative user experience) (MVP), this will be done through:
    a. Underlining parts of the inserted text that can be clicked on as a clickable that links to information regarding the reason that piece of text was flagged up (this is relevant to the Evidence and Logic functionalities).
    b. For the other main functionalities (Style and GPT Detection), we still underline the relevant keywords/sentences but because these functionalities analyse the entire piece of text, the underlined parts are not clickable.

2. The application must allow a user to review their writing style – this will help users improve the language and content they use to better convey information and should contain things such as how academic or informal the work they have created is, or detect GPT. (MVP)
    a. All found under the style functionality tab apart from the GPT detection tab which is linked but distinct.

3. The user must have the ability to review abstracts of highly-cited (relevant) studies and then make a decision on whether they want to download and use them, informed by a dynamic tree graph with keywords classified according to field and subfield. (MVP)
    a. The studies will be found on the Evidence functionality tab and will be linked to, with clickables that take you to where the study can be found online or allow you to download the study directly.

4. The application must allow the user to see inspirational quotes from industry insiders and allow them to insert these into their text. (MVP)
    a. Also found under the Evidence functionality tab.

5. The application must give the user the ability to flag up and correct logical fallacies. (MVP)
    a. Functionality found under the Logic tab.

6. The user must be able to learn from the application, improving their metacognitive skills, these can be improved in part by the feeding of recommendations made by GILO. (MVP)
    a. By consistently using suggestions made by the application and understanding their descriptions, users will be able to learn.

7. The application must allow users to give feedback as comments and have a FAQ section.
    a. This links into point 6 directly above and will also allow GILO to better understand any issues users are having with the application.
    b. The FAQ section will also allow users to quickly find answers to common questions, aiding their experience.

8. There should be a patch notes/logs section to the application that allows users to see recent updates to the application.

9. Users should be able to hover over functionality bars and see a short description of what each one does, these should disappear when the mouse is not hovering over.

10. There must be a log in system and a profile page due to the security measures that GILO and potential users value. (MVP)
    a. Users should not be able to use the features of the application until they have logged in.
    b. Once logged in, there should be a profile page whereby GILO can collect the necessary information that it needs (as defined by the client in a meeting) from its users.

Non-Functional Requirements

Each functional requirement within this section is uniquely identified with a number, with smaller broken down points given letters unique for each number. Points are also given the following label: (MVP), to indicate whether or not they are required for the Minimum Viable Product of the application.

11. Users must be able to navigate through the application seamlessly, from page to page and functionality to functionality (high-level of usability). (MVP)
    a. There will be a navigation bar at the top to change pages and tabs on the main page that link to each of the main functionalities.
    b. These navigation clickables should respond quickly and have short loading times.

12. Should have the capability to cater for the target initial consumer base (in terms of hardware etc). (MVP)
    c. The target initial consumer base was defined by the client GILO in a meeting (10,000 over the first year).

13. High-level of security (specifically use of federal data stores to minimise data processed and ensure privacy). (MVP)
    d. This will be reflected in the use of a log in system as previously described in my functional requirements.
    e. The use of federal data stores was a decision made by GILO themselves.

14. The application must have a high uptime in order to provide access to the application for the initial target consumer base, students, who are often working to tight deadlines. (MVP)

Data Requirements

Each functional requirement within this section is uniquely identified with a number. Points are also given the following label: (MVP), to indicate whether or not they are required for the Minimum Viable Product of the application.

15. Knowledge Base – GILO uses thousands of publicly available documents to train its AI models and algorithms. Therefore a range of peer-reviewed publications, highly-cited textbooks and nonfiction across many different disciplines are required. (MVP)

16. User Information – GILO requires specific pieces of personal user information (as defined in a meeting), these not only allow GILO to assign each user a personalised account, but also better helps to understand the demographics of users, allowing better catering to these users in future design and development.

Part 2: Prototyping

Wireframe Link

https://j0zboi.axshare.com

Username : gilo@technologies

Password: 123456

Wireframe Design Guidelines and matching to requirements.

Here I justify why I made the wireframe the way I did and also show that my requirements have all (and not beyond) been met.

I have created a medium fidelity wireframe as this works best during this design exploration phase before I have validation from the client (GILO) that the design is what they are looking for. This includes functional elements but does not actually have the analytical or text editing properties that the final GILO app will. See design explanations using UX principles and matching of features to my requirements below (I will break things down by functionality/page).

Log In System

The first thing that you are met with when you open the wireframe is a restricted homepage. In order to access functional content, the user is required to log in by pressing a button that takes them to a profile page where they can enter email and password. This design is in line with the UX design principle of reciprocity[1] and is used in an attempt to hook users into creating an account and logging in as a result of being given a preview of the functional content that they could access. The relevant section of the homepage is shown in Figure 1 (below).

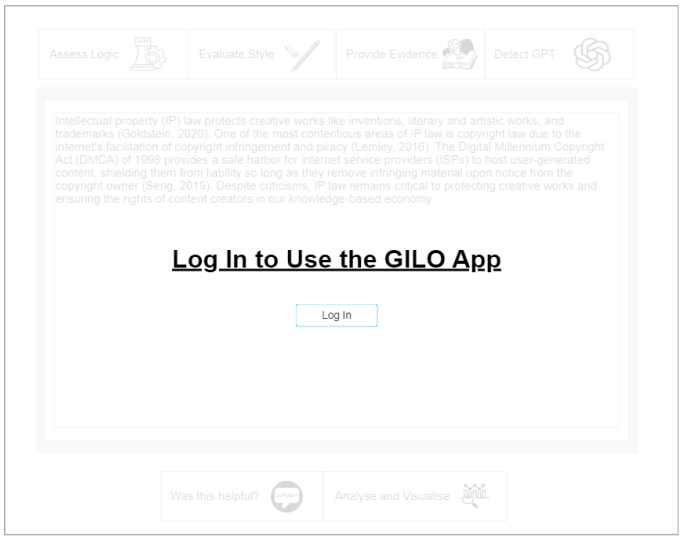

Figure 1 – The box around the content has around half opacity to show the core of the application without allowing the user to access it without logging in. The button 'Log In' takes the user to the profile page. All other links in the navbar for this not logged-in state of the wireframe takes you to pages that are configured such that once you return to the homepage you still need to log in (no way to bypass it).

Once you click the button shown in Figure 1, you are taken to the user profile page (you can also access this page by clicking the image in the top right of the wireframe). Here you are met with the form shown in Figure 2, where you are asked to enter an email address and password. The form is configured such that when a user enters either an incorrect email or password (or both), it shows a red error warning informing them of this. There are also 'Remember Me' and 'Forgot your password?' clickables at the bottom of the form that are not currently functional but can be implemented if the client likes the design. The log In system shown in Figures 1 and 2 specifically meet MVP requirements 10 and 13.

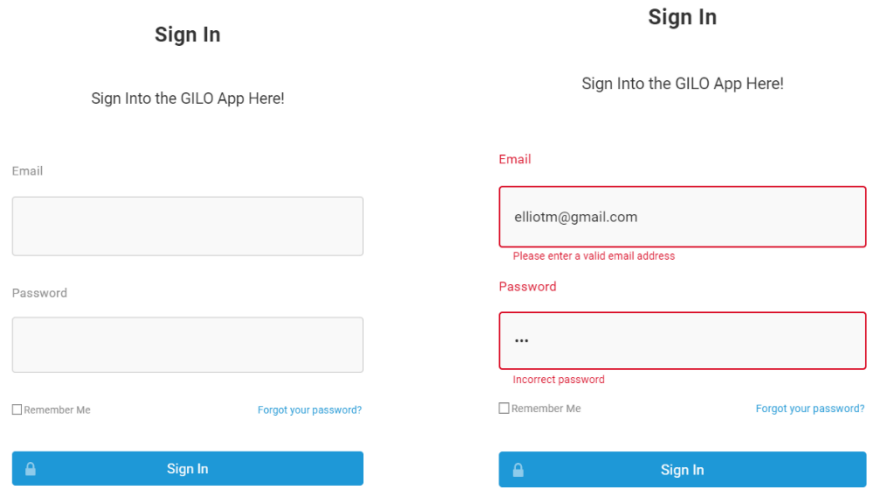

Figure 2 – This shows the Sign In form the user is presented with when they initially go to the profile page (left) and the resulting errors if the email address and password are invalid (right). The form is used and is configured in this way to make sure that the application is secure for users due to GILO's storing of personal data. This specifically adheres to ideas noted by Pawan Vora in chapter 2 of their book 'Web Application Design Patterns' [2].

From this point onwards, I will exclusively be talking through the wireframe as if the user has logged in (as the only differences are on the homepage and profile page and these have already been discussed).

Navigation Through the Application

Ensuring smooth navigation throughout the application was one of the key features I made sure to implement. This is due to a number of factors including the fact that when users first enter the application it is important to enhance the flow of information in terms of what GILO can bring to them value-wise as quickly as possible whilst they form first impressions[3]. It also aids overall functional usability of the application for concurrent users and improves accessibility for those who for which it is relevant. The top navigation bar is also consistent across all pages to make design more consistent and therefore visually and functionally appealing. I also included a footer to each page taken directly from the GILO Technologies website[4], such that this can be implemented to be functional if GILO approve of the design. All of this aims to meet the requirements of requirement 11 (MVP). The navigation bar, footer and further explanations are shown in Figure 3 (below).

Figure 3 – The navigation bar shown here (top), includes the GILO logo, 4 other page links (2 of which are a dropdown with two different options) and a profile photo. The GILO logo links to the homepage as does the 'home' button, since this is a recommended standard. The 'Company' button leads to the Company page, whilst the 'Blog' button is a dropdown that leads to either a 'Blog' page or a 'Patch Logs' page. The 'Contact' button is also a dropdown that leads either to the 'FAQ' or 'Contact Us' pages. The image in the top right leads to the 'Profile' page. In order to make this navigation bar as accessible as possible, I used the 'Arial' font as this is considered to be one of the most readable fonts[5] and additionally added arrows to the links in the navbar that are dropdown links to indicate that they are such. The footer (bottom), could be implemented into the design of the application in order to not just navigate through the application but could also provide a direct link to the GILO Technologies website.

Homepage: Functionality Tabs Design (General designs and 1-6 breakdown):

One the homepage, around the main text box there are 6 main distinct functionalities that are in separate tabs: "Assess Logic", "Evaluate Style", "Provide Evidence", "Detect GPT", "Was this helpful?" and "Analyse and Visualise" (Figure 4 below). Whilst in my requirements it was only stated that there should be some of these functionalities, I made the decision to add some descriptive words to each in order to give a small snapshot of what each does even before the user hovers or clicks on them (e.g. "Assess Logic" as opposed to just "Logic", or even in the case of the GILO app, nothing at all). For each functionality tab I also implemented a further description of each functionality when the user hovers over each tab (additionally shown in Figure 4). Overall, I made two key design decisions that are informed by grounded UX principles. These were having a text box that does not take up the full size of the screen and having functionality tabs that are placed at the top of the box instead of on a left sidebar. I made the first decision because presenting information in this way aids readability[6] and the second decision was made in line with the principle of "Screen Real Estate". This is because, as shown in Figure 5 (below), the perceived importance of the middle-top part of the screen (the Primary Content zone) on a web application is very high. This therefore allows users to quickly see the present functionality options of the application as soon as they enter, allowing for a better initial user experience and meaning that the application could be more likely to hook users as a result. I similarly made the decision to put the Logic, Style, Evidence and GPT functionalities on top of the text box because they are MVP requirements and should therefore be positioned above the initial "fold" of the page[13] (Figure 5 also).

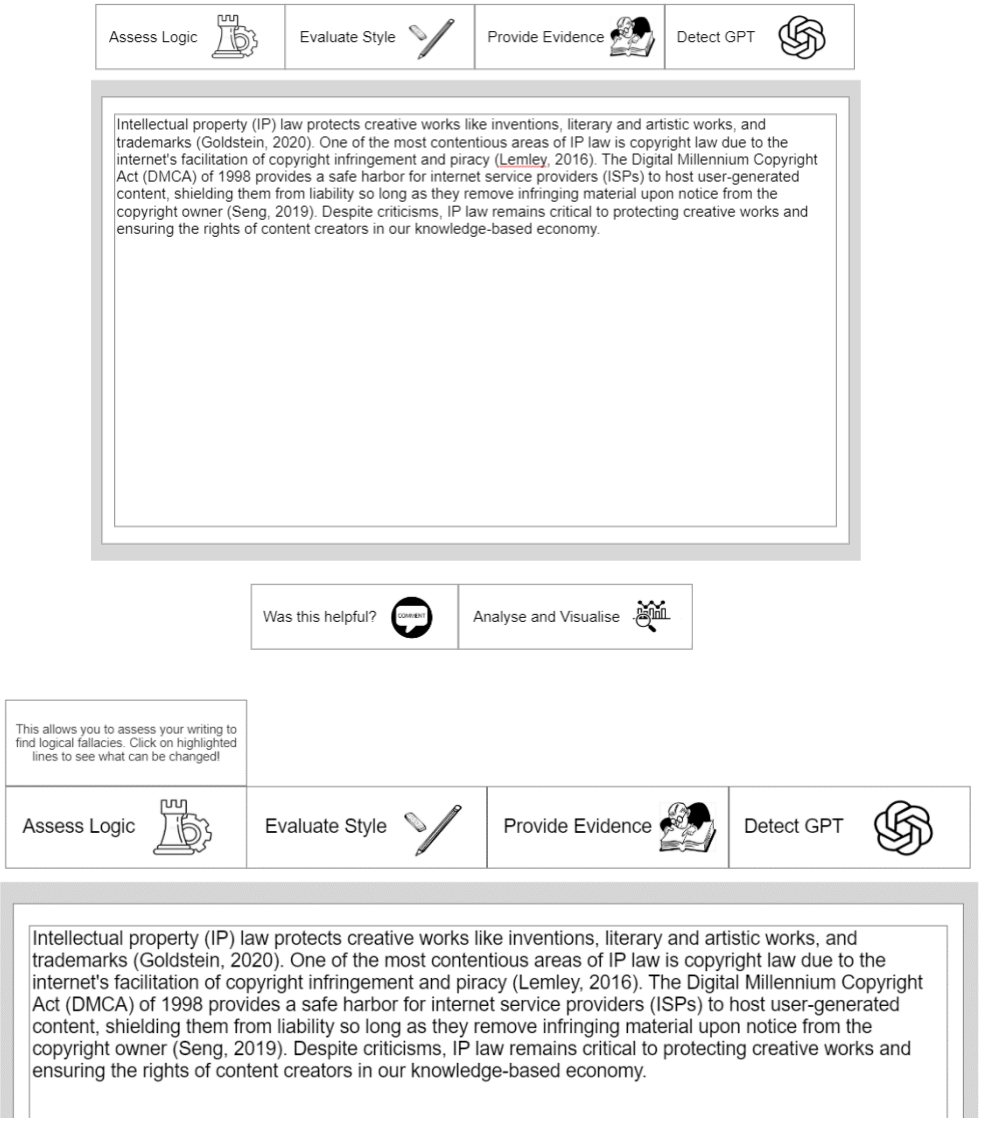

Figure 4 – the top image shows each of the 6 main functionality tabs positioned around the textbox with some sample text. The bottom image showcases an example of the hovering functionality that I implemented (in line with requirement 9). The text description either flips up or down (depending whether the functionality tab is on the top or bottom of the textbox), again abiding by the principles of "screen real estate".

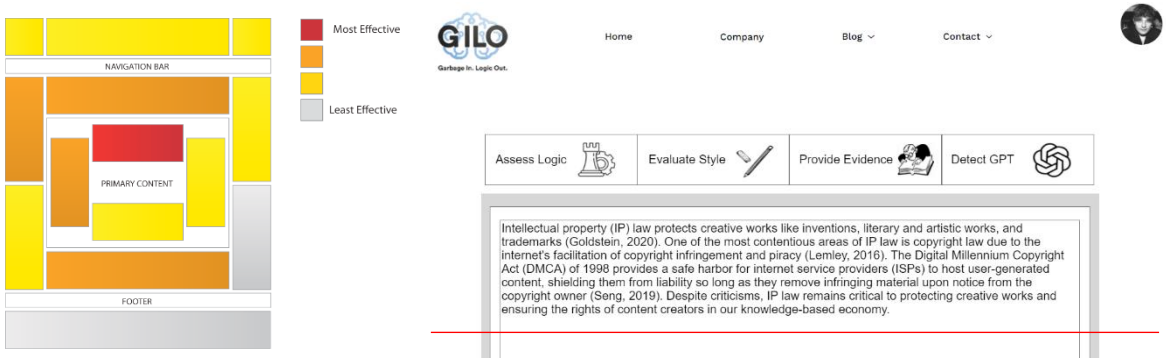

Figure 5 – (left) shows the "Screen Real Estate" diagram mentioned and (right) shows where the initial fold line is for the user when they first enter the application at normal zoom (the red line).

1) Logic

The first of the main functionalities that I will breakdown more is the MVP requirement 5 functionality, styled as "Assess Logic". This tab allows the user to have their writing assessed for logical fallacies and then select specific logical sentences/words to replace them. I decided to underline the text in two different colours as this was something that GILO mentioned in one of the meetings I had with them (with the idea that different colours represent different types of logical error). This could also aid users in learning from their mistakes as seeing the colour of the line their error is highlighted with may make them realise the category of error and the fallacy themselves. Once the user clicks onto a section marked as containing a fallacy, they are taken to a screen that is specific to that error and shows a range of different possible corrections as well as a checkbox and submit button system to choose specific suggestions. One of the key design decisions I made here and in some of the other functionality tabs, was to take the user to a separate screen to see the suggestions as I believe this compartmentalisation of information into having only focused information on the screen at any given point is easier to read for the user[5]. Figure 6 below shows a breakdown of the elements described here.

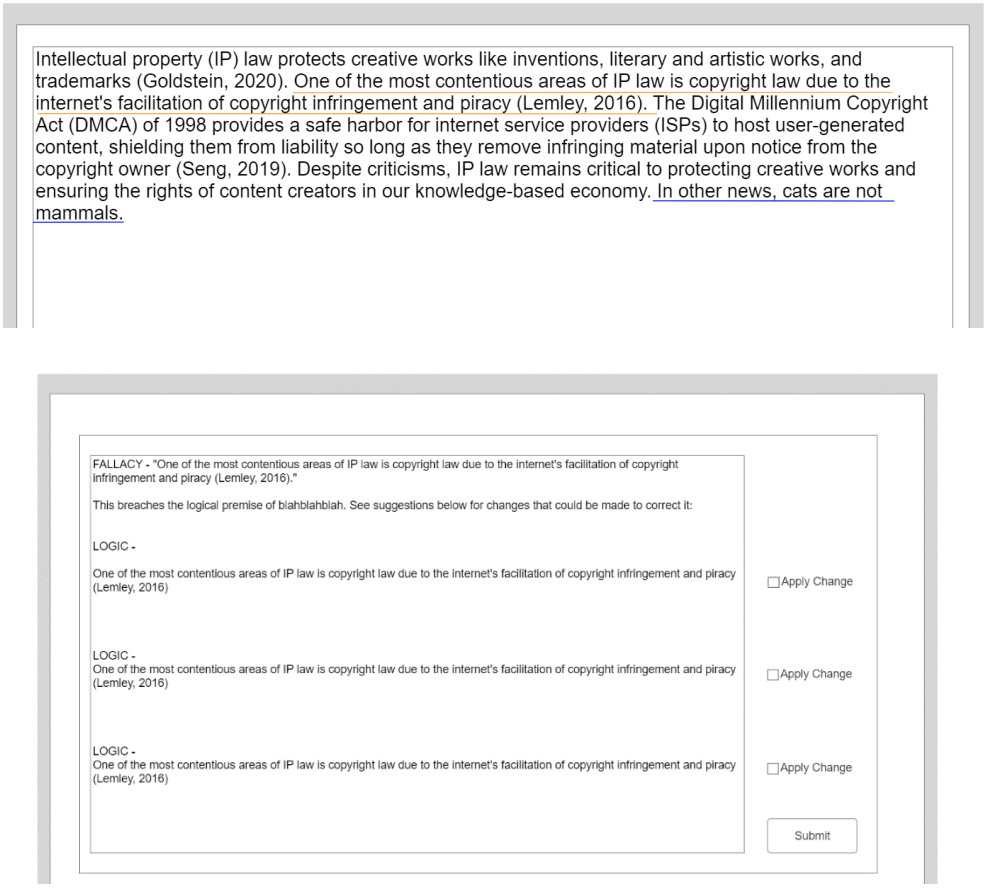

Figure 6 – (top) shows the analysed text with sections underlined in different colours to indicate different logic error type and (bottom) shows the overlay that appears once the user clicks onto one of these errors. This screen includes the checkbox-submit button system I employed and sample information (would obviously be filled with logical improvement suggestions). Aside from MVP requirement 5, this section also covers requirements 1, 6, 9 and 11.

2) Style

The second of the main functionalities I will discuss covers MVP requirement 2 and is titled “Evaluate Style”. When the user clicks on this tab, they are met with colour underlined sections of the sample text, however, different colours are used to that present in the “Assess Logic” tab, to indicate different meaning and reduce confusion. There are two bars shown at the bottom of the text on this screen that show an evaluation of the text in terms of how “Academic” and “Informal” the writing is (given the same colour as underlined parts as to refer to them). If it was desired in a later prototype, other style analysis types for the text could be implemented. All of this is shown in Figure 7.

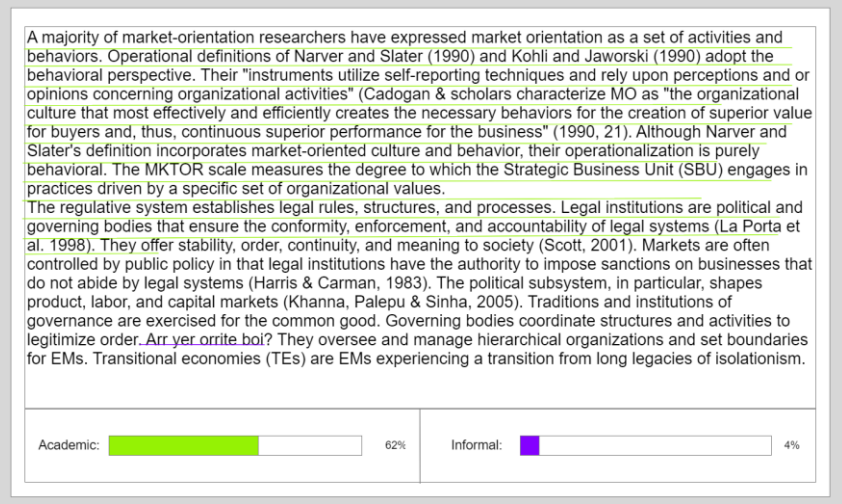

Figure 7 – shows the “Evaluate Style” functionality tab screen with analysis of different sections leading to overall percentages in the style of the writing (the colours coordinate). Aside from MVP requirement 2, this section also covers requirements 1, 6, 9 and 11.

3) Evidence

The “Provide Evidence” functionality tab covers the MVP requirements 3 and 4. When the user clicks on the tab they are presented with underlined clickables as they are in the “Assess Logic” tab. However, when they click on these lines this time, they are taken to a view that shows suggested studies and quotes that they could utilise in order to evidence their work. This is described further in Figure 8.

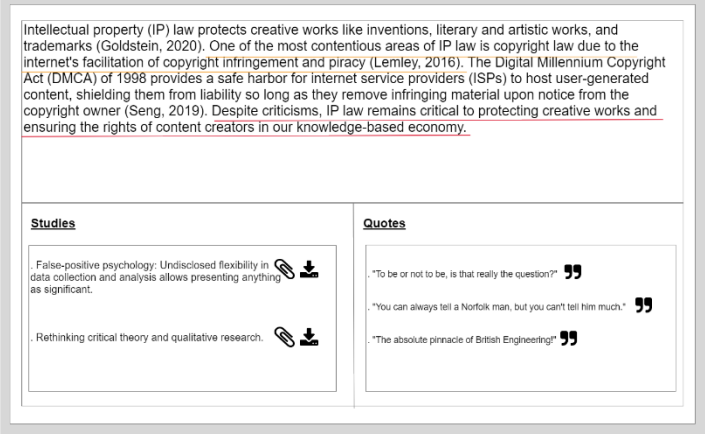

Figure 8 – this image shows the screen the user is met with when they click on the “Provide Evidence” tab and then select a specific line. The (sample) studies and quotes shown have buttons next to them to insert a quote (speech-marks), insert a reference as evidence (paperclip), or download the suggested study directly (download symbol). Aside from MVP requirements 3 and 4, this section also covers 1,6, 9 and 11.

4) GPT Detection

The tab “Detect GPT” covers part of requirement 2. When the user clicks on this tab, they can see sections of their text underlined similar to the previous functionalities and more specifically the “Evaluate Style” functionality. This is because it was originally envisioned as being part of that tab, however when I talked to GILO they expressed agreement with me that it could in fact be separate. I felt this was a good decision due to the ever-increasing use of GPT based services meaning that people are commonly looking for this kind of functionality (therefore the more it stands out and is made easily accessible, the better). Figure 9 below shows this tab and its functionality for the sample text.

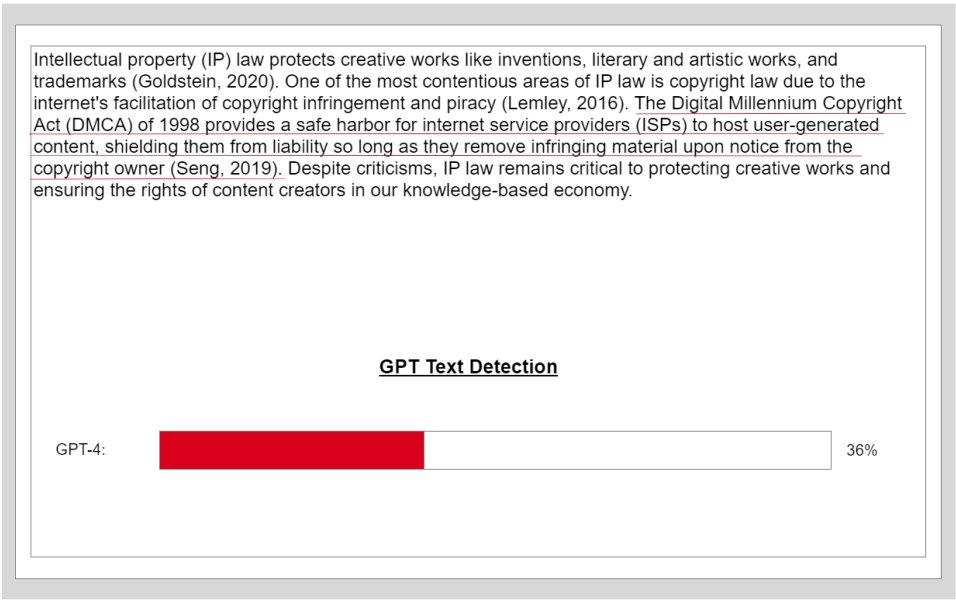

Figure 9 – shows the GPT Text Detection functionality, with relevant sections of the text highlighted in red and the bar and percentage showing how prevalent it is. This tab covers requirements 9 and 11 aside from those already discussed.

5) Comments

The “Was this helpful?” tab (along with the FAQ page) corresponds to requirement 7. It is present to aid users in receiving help if they experience any bugs or if they simply would like to say that what they found was very useful (in this way they are consistently providing GILO with UXs). The wording of this tab could also be described as triggering to users in that it provides motivation for them to aid their frustrations with the problems that users are coming to the application with if the application cannot directly help. The provision of support in answer of these problems through either direct contact (with paid plans) or through answering questions that users give within the FAQ, would provide relief to users and could lead to repeat conditioning and ultimately them becoming hooked, similar to the process described by Nir Eyal in his book ‘Hooked: How To Build Habit Forming Products’.[7] The tab and its commenting box are shown below in Figure 10.

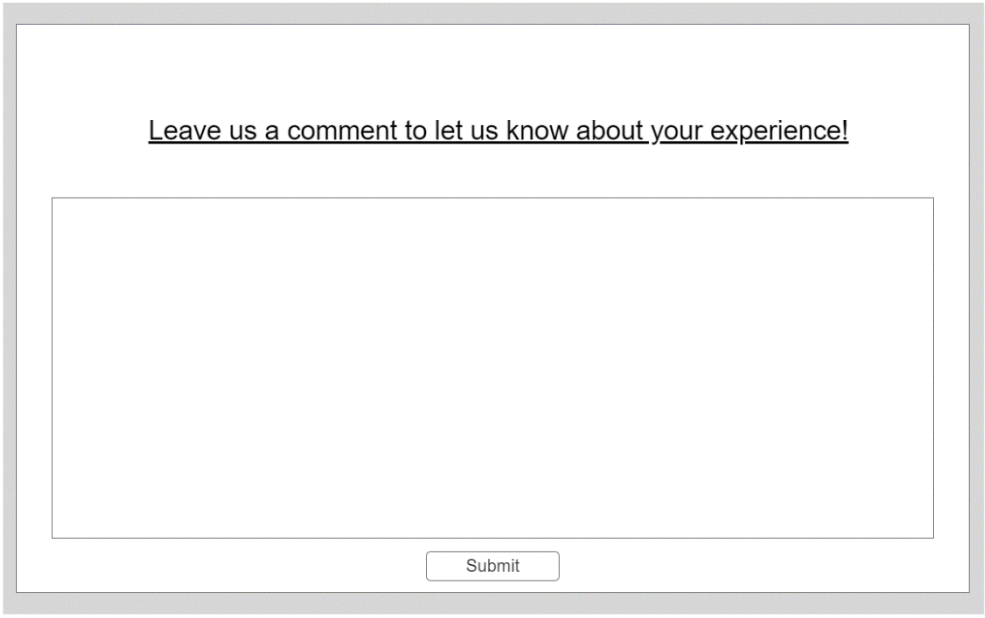

Figure 10 – The commenting box that the user is met with when they click the "Was this helpful?" tab. It includes a submit button and could eventually be directed to the GILO team and placed in the FAQ.

6) Data Visualisation

This final tab "Analyse and Visualise" corresponds to requirement 3 a. and is linked to the "Provide Evidence" tab. I made the design decision to include this as a separate tab though as this can be important for users with accessibility needs such as those who are dyslexic to break heavy text up (as per Home Office accessibility guidelines[8] which are discussed in my accessibility evaluation later further). Therefore it seems logical to me to make this functionality easy to find for the user. The tab and a short explanation are shown in Figure 11.

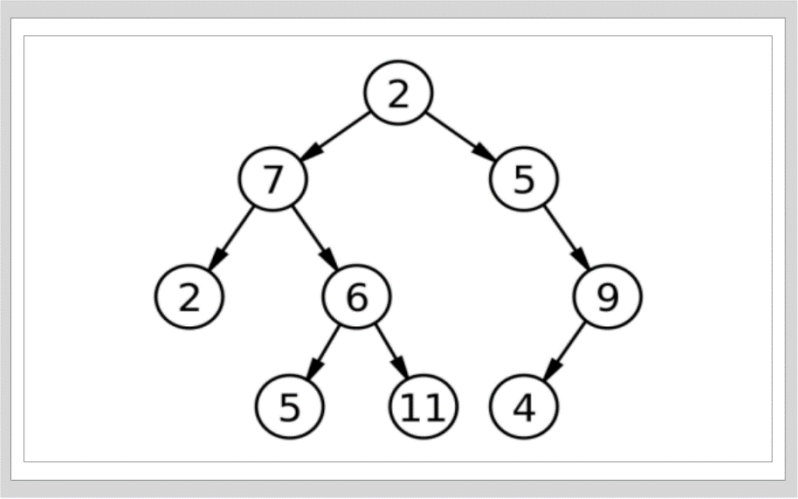

Figure 11 – this tab shows the user a tree graph (in the application it is created from analysis of their data, but here it is clearly a sample image).

Other Pages:

Aside from the homepage which includes the majority of the content that the application contains, The top navbar allows the user to access further pages allowing them to learn more about GILO, contact the GILO team directly (requirement 7), see patch notes (requirement 8; Figure 12) and enter personal information by needed by GILO (requirement 16; Figure 13).

Figure 12 – This page provides a framework for GILO to add patch notes about the application in aid of accessibility of the app for users (it aids accessibility as users can understand new/modified features and how to use them). The buttons below the title (highlighted in blue) have the capability to lead to different versions. This patch notes functionality was communicated as a requirement in a client meeting.

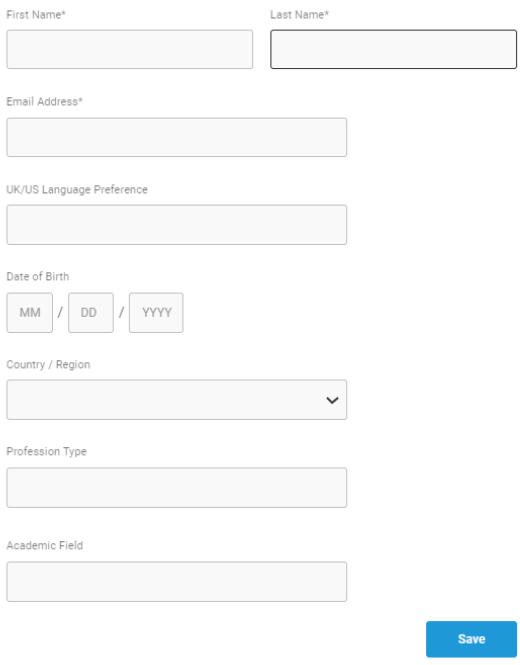

Figure 13 – This is the view that the user gets when they enter the profile page by clicking on the profile image in the top right of the screen (after already having logged in). I made the decision to make the link to this page be the image as this follows convention. The page itself contains data fields that can be filled out and submitted, I did this because of the data requirements that GILO has of its users (the fields shown are necessary pieces of information as defined by requirement 16).

Part 3: Evaluation

Data Collection - Documents

This section shows the two (unfilled) documents that I used to collect data from users in evaluation of the GILO application and my prototype. The filled in versions can be found in the appendix. All are boxed in red.

GILO Application: User Questionnaire

Only answer this questionnaire AFTER you have read, understood and signed the ethics form that has been provided to you. You will be provided a set of questions (divided by topic; 4 in total) and are asked to answer the questions truthfully and in the knowledge that this form is anonymous. In all questions of this questionnaire, it will be stated whether or not the question is relevant to the GILO application or the extra wireframe application provided to you or both.

1	(2)	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

The example above shows how you would fill out the box for different scenarios. If a question only refers to the **GILO** application then make sure that circle a number. If a question only refers to the other **prototype** application shown to you then make sure to red highlight the correct number. If a question refers to both applications, then you can either select different numbers for each answer (with a circle on one number and red highlight on the other), or you can choose the same number for both (by combining the red highlight and circle on the same number).

Section 1 – Functional Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. There is one question that will ask for a written answer but it is ultimately optional. Please circle the number that best meets your response.

Q1

The application has no significant functional bugs in terms of page navigation. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The application has no significant bugs in use of the ‘Style’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application has no significant bugs in use of the ‘Evidence’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4

The application has no significant bugs in use of the ‘Logic’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

The application has no significant bugs in use of the ‘Detect GPT’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q6

The application has no significant bugs in use of the text editor (e.g. text formatting tools such as changing font). (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

The application has no significant bugs in use of the login feature. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q8 (Optional)

If you answered less than favourably for any of the questions above, please list the bugs that you encountered when using the application (describing how they occurred as much as possible). (GILO first and Prototype second)

Section 2 – Visual Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The UI on the home/main page for the application is laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The UI on all other pages for the application are laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application as a whole is visually appealing. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

If you answered less than favourably for Q1 in this section (or otherwise), what do you think could be changed in regards to the UI for the home/main page? Please answer below. (GILO first and Prototype second)

Q5 (Optional)

If you answered less than favourably for Q2 in this section (or otherwise), what do you think could be changed in regards to the UI for other pages of the application? Please answer below, name the page(s) and give any relevant comments for each. (GILO first and Prototype second)

Q4 (Optional)

If you answered less than favourably for Q3 in this section (or otherwise), what do you think could be changed in order to make the application more visually appealing? Please answer below. (GILO first and Prototype second)

Section 3 – Content

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The application has represented all of the functional content that you feel you would need for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The functional content included in the application could be improved to be better for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application adequately includes, aside from its core functionalities, the ability to contact the team, learn more about recent changes to the application (through the patch notes) and learn more about GILO. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

Depending upon how you answered Q1 and Q2 in this section, either state the particular functionalities that you liked within the application (and the reasons why), OR give reasons why you didn't like certain functionalities/ways in which you think they could be improved. (GILO first and Prototype second)

Q5 (Optional)

Are there any further pieces of content that you feel are important that the application lacks? (GILO first and Prototype second)

Section 4 – Miscellaneous

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

I am concerned about the security of my data having seen the information that GILO takes from its subscribing users (shown on the profile page) or for another reason. (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

I would regularly use the application during my work/study. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

I would be happy to use one of the paid subscription plans having seen the application and having read about the advantages of doing so. (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4

I would recommend this application to my peers and/or my organisation. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

There were no performance related issues when using the application. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q6 (Optional)

If you answered Q1 less than favourably, what particular elements of security are you concerned about and what do you think GILO could do/change in order to better address your concerns? (GILO first and Prototype second)

Q7 (Optional)

If you answered Q2, Q3 within this section favourably, how often would you use the application based off of what has already been shown to you and how much would you be willing to pay for these features and for the additional features mentioned? (GILO first and Prototype second)

Q8 (Optional)

If you answered Q4 less than favourably, what performance related issues did you encounter?, give as much detail as you can and if possible, the specification of the device you are accessing the application on and your internet speed. (GILO first and Prototype second)

Q6 (Optional)

Are there any other things that have not been directly mentioned in this questionnaire that you feel GILO would like to know? These can be concerns or positive experiences.

GILO Application: User Interview Questions

THE QUESTIONS BELOW ARE TO BE USED SOLELY FOR THE PURPOSES OF INTERVIEWING PARTICIPANTS OF THE GILO APPLICATION USE STUDY. THEY SHOULD NOT BE ASKED PRIOR TO THE PARTICIPANT SIGNING THE PROVIDED ETHICS CONSENT FORM. FOLLOW UP QUESTIONS MAY BE ASKED IN RESPONSE TO SOME ANSWERS.

Q1 (Optional)

How long do you think you have spent experimenting with the GILO application? Minutes, hours, days?

Q2 (Optional)

Are there any other applications that you currently use within the space of document processing and analysis?

Q3 (Optional)

When you think of the GILO application, what are the first things that come to your mind?

Q4 (Optional)

Can you think of any reasons why someone may not want to use this product if they are looking for a document processing and analysis tool?

Q5 (Optional)

Do you think the organisation you study under/work for would consider using the GILO app as a global product for employees? (Leads on from questionnaire question)

Q6 (Optional)

Leading on from a question posed to you in the questionnaire, having also tested another wireframe of an application given to you, are there any things that you feel were better or worse with this one compared to the GILO application?

Q7 (Optional)

How was the performance of the other prototype given to you compared to the GILO application?

Q8 (Optional)

Do you have any questions for me that you would like me to pass onto the GILO team? (Infer that this question may be included in the FAQ if so).

Data Collection – Methodology and Justification

As shown by the two documents in the previous section, I used two different forms of data collection within this study, one a structured questionnaire and the other a semi-structured interview. I will talk about each in turn here and explain why I chose certain data collection types for each part of the study and further explain my rationale behind the decisions I made in what I would ask applicants.

Questionnaire

I split my questionnaire into four main sections, “Functional Usability”, “Visual Usability”, “Content” and “Miscellaneous”. I did this in order to try and confer to the participants the angle at which I was expecting answers from in each section and in order to allow me to effectively split all of the different data that I was asking for from users into categories that I could later analyse. Throughout the questionnaire, I used two different types of questions: short questions where the user was asked to circle or highlight a number (or both), on a scale from 1 to 5 (1 being “Strongly Disagree” and 5 being “Strongly Agree”) and written questions which usually led on from a shorter question (such that the questionnaire would get a quantitative answer and a qualitative explanation for the same question). I also used these questions in order to follow a modified version of the HEART framework created by Google[9] that allows one to qualitatively analyse UX by (in my case) adopting the following metrics: “Efficiency", “Engagement”, “Adoption”, “Retention” and “Task Success”. Across this questionnaire and the interview, I created questions in order to facilitate analysis by these metrics, with performance related questions targeting “Efficiency”, time spent questions targeting “Engagement”, likelihood of future use and adoption related questions targeting “Adoption” and “Retention” and finally, bug-related questions targeting “Task Success”. This will all be explained further for the purposes of analysis in a later Qualitative Analysis section.

Within the questionnaire, I used short answer (circle/highlight the answer) questions for more quantifiable, less open ended questions or those that were further clarified upon later. An example of this is how I used a short format for the statement reaction question: “The application has no significant bugs in use of the login feature.”, but conversely would not have used this format for a longer written question I had in: “Are there any other things that have not been directly mentioned in this questionnaire that you feel GILO would like to know? These can be concerns or positive experiences.” (due to how unsuitably open ended this is), or for a statement such as: “I am happy when using the application” (as this question is very open ended, i.e. what is happiness?). I also made the conscious decision to put these short answer questions throughout the questionnaire as the succinct format of them can raise user engagement with questionnaires as a whole[10], therefore leading to better quality of collected data.

Throughout the questionnaire, I gave users the ability to answer many of the questions for both the GILO application AND my wireframe. This aids my evaluation of the two and also allows users (and therefore me) to gain a better insight into the success and failures of different features with direct practical experience.

Interview

I used a semi-structured style of interview with 10 "Starting point questions" that were further explained to ensure that answers flowed conversationally for each. I tried to make sure to implement this by telling each participant at the start of the interview that I may also ask follow up questions after some answers. This decision was made as whilst qualitative analysis may be more difficult in some cases with answers in this form, this style of interview often leads to better understanding of overall UX (due to the flexibility to ask follow up questions)[11].

In terms of observational evaluation, I asked participants to make sure that they had both the GILO application and my wireframe open at the start of the interview, such that they could continue to look at the applications as and when questions were asked. I audio recorded each interview in order to aid the flow of questions and answers, transcribing the interviews afterwards and deleting the recordings (per the ethics application I filled out and the consent form the participants signed).

During one of the questions in the interview, I implemented a think-aloud protocol. This was so that the rest of the interview could remain at least semi-structured and the responses would be easier to compare qualitatively. The question I did this for was: "When you think of the GILO application, what are the first things that come to your mind?", because as further explained to a participant in one of the cases, I was interested in a stream of consciousness style of response (whatever first comes to their mind, something that could help me understand what they associate GILO with for later analysis).

It should also be mentioned that I decided to interview 2 of the 4 participants of the study (at random through generating a random number between 1-4 twice), as time constraints meant that conducting 4 interviews would not have been viable.

When designing the interview questions I again thought about how I could get answers that would fit the modified HEART framework[5] metrics that I have previously described and I also followed steps for creating a good UX interview as defined by Maria Rosala of the Nielsen Norman Group[12] (by engaging in practices such as trying to leave questions as broad as possible as to generate high quality, unique responses that can later be analysed).

SCHOOL OF COMPUTER SCIENCE AND INFORMATICS

APPLICATION FOR ETHICAL REVIEW

For Office Use Only	
SREC Reference:	Meeting/Review Date:

SECTION 1. GENERAL INFORMATION				
Application Type:	☐ Staff	☐ PGR student		
	■ PGT/Masters Student	☐ Undergraduate		
Research Project Title:	A study into the user experience of the GILO application.			
Short Title (where applicable):				
For Staff Projects				
Name of Chief/Principal Investigator:				
Contact details:				
Other members of research team:				
For Student Projects				
Name of Student:	Elliot Noyes			
Contact details:	noyese@cardiff.ac.uk, 07388 121262			
Name of Supervisor(s):	Dr Fernando Loizides			
Contact details:	loizidesf@cardiff.ac.uk			
Other members of research team:				

SECTION 2. SCREENING QUESTIONS			
		Yes	**No**
2.1	Is the research project categorised as 'Research' (as defined in the Cardiff University Policy on the Ethical Conduct of Research involving Human Participants, Human Material or Human Data (Ethics Policy))? *If **no** (i.e. the research project is a Service Evaluation or Audit), the Committee is not required to conduct a review of the proposal but may choose to do so. **Please contact Committee (comsc-ethics@cardiff.ac.uk) to seek advice before proceeding with this application.***	Yes	
2.2	Does the research project involve human participants, human material or human data (as defined in the Ethics Policy)? *If **no**, you are not required to submit the research proposal to this Committee. **Please do not continue with this application.***	Yes	

2.3	Does the research project require review by an external ethics committee (refer to Appendix 1 of the Ethics Policy)? Please note that this includes all research projects involving participants who lack the capacity to consent. *If **yes**, the research project should be submitted to the relevant external ethics committee for review and does not fall within the remit of this Committee. Please contact the Research Governance Team for further advice. **Please do not continue with this application.***		No
2.4	Has the research project been ethically reviewed by another university or research institution (for example, where the Chief/Principal Investigator for the research project is based at another institution)? *If **yes,** please provide evidence of the review conducted (such as an outcome letter or communication) and the ethical review policy of the relevant institution or committee. **Please do not continue with this application.***		No
2.5	Is the research project exempt from ethical review under the University's framework for the 'Ethical Review of Research using Secondary Data and/or Publicly Available information only'? This framework allows certain research projects using only secondary data and/or publicly available information to proceed without ethical review by a SREC provided certain conditions are met. The framework is outlined in the Appendices of the Ethics Policy. For the avoidance of doubt, projects that involve the collection/use of data from social media platforms (or similar platforms) MUST be subject to ethical review. *If **yes**,* you are not required to submit the research proposal to this Committee. **Please do not continue with this application**. If in doubt, please seek advice from the committee (comsc-ethics@cardiff.ac.uk).		No
2.6	Does the research project fall within the scope of the UK Policy Framework for Health and Social Care Research? This Framework broadly applies to research taking place within, or involving, the health and social care systems. *If **yes**, you will need to apply to the Research Governance Team for Sponsorship using the Advanced Project Information Proforma (APIP) (available on the Cardiff University intranet). The Research Governance Team will advise you on the approvals that are required for the research project after it has conducted a review of the APIP and supporting documentation. **Please do not continue with this application until you have sought advice from the Research Governance Team.***		No
2.7	Does the research project involve the collection or use of Human Tissue (including, but not limited to, blood, saliva and bodily waste fluids)? *If **yes**, the research project should be submitted to the Human Tissue Act Compliance Team (HTACT) prior to submission to an ethics committee. **Please note that submission of a research protocol/proposal to HTACT is essential for all projects involving the collection or use of Human Tissue. Please do not continue with this application until you have sought advice from HTACT.***		No

2.8	Does the research project fall within the scope of the University's Security-sensitive Research Policy? This Policy broadly applies to research involving terrorism, extremism or radicalisation (or access to materials of such a nature). *If **yes**, you must register the research in accordance with the Policy and comply with the IT and security arrangements contained in the Policy.*		No
2.9	Has the research project received appropriate peer/scientific review? (For student research projects, review by the research project supervisor is an acceptable form of scientific review) *If **no**, please obtain appropriate peer/scientific review before submitting the application to this Committee.*	Yes	
2.10	Have you and all other Cardiff University co-applicants/ /Supervisors/Members of the research team (as listed in Section 1) completed the University's Research Integrity Online Training Programme.? *If **no**, you must complete the training before submitting the application to this Committee.*	Yes	
2.11	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment in support of the answers to 2.1 through 2.9 and that the School Research Ethics Committee is the appropriate committee to review the application.		
2.12	Will this project involve the explicit recruitment of participants by the research team?	Yes	
2.13	Will this project involve the explicit recruitment of participants via a Gatekeeper? *A Gatekeeper is someone external to the research team that will facilitate initial (and where relevant continual) access to potential research participants. Further guidance on Gatekeepers can be found in Ethics Policy.*		No
2.14	If the answer to 2.12 OR 2.13 is 'Yes':		
	Have you used the provided University templates for the Information Sheet and Consent form? *All applications are expected to use these templates. Links to these templates are provided at: https://www.cs.cf.ac.uk/ethics/*	Yes	
	Have you addressed and resolved each of the instructions/placeholders in [square brackets] in the Consent Form template? *Note that for new applications, the date should be the date of document creation and the version should be 1.0. This should be incremented along with a new date for each change and resubmission of documents.*	Yes	

	Have you removed anything not in accordance with the instructions/placeholders in [square brackets] from the content of the Consent Form? If Yes, explain what and why below. *Note that in almost all circumstances, any removals will not be considered as acceptable, EXCEPT for the "Participant ID no:" box if participation will be anonymous AND the initials and signatures if presented in an online, anonymous format. However, the participant will still need to confirm they consent to each point in the consent form before being able to participate. Refer to the Ethics Policy for guidance on Informed Consent and describe how this will be achieved below.*		No
	Have you read, followed, and removed the "INSTRUCTIONS FOR RESEARCHER" section from the Participant Information Sheet template?	Yes	
	Have you addressed and resolved each of the instructions/placeholders in [square brackets] in the Participant Information Sheet template? *Note that for new applications, the date should be the date of document creation and the version should be 1.0. This should be incremented along with a new date for each change and resubmission of documents.*	Yes	
	Have you removed anything not in accordance with the instructions/placeholders in [square brackets] from the content of the Participant Information Sheet template? If Yes, explain what below. *Note that in almost all circumstances any removals will not be considered as acceptable.*		No
2.15	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment in support of the answers to 2.12, 2.13, and 2.14 and confirm that appropriate decisions have been made and instructions followed in the need for, and creation of a consent form and participant information sheet.		
If the research project involves the use of animals, please contact the Cardiff University Biological Standards Office bso@cardiff.ac.uk to seek further advice.			
SECTION 3. PROJECT SUMMARY			
3.1	Summarise the research project (including the purpose and its methodology) using language that would be understood by a lay person.		
It is a research project that aims to receive feedback from users of the GILO application and another prototype to make conclusions about UX and inform future development.			
3.2	State the research question(s).		

What is the user experience of the GILO application and my wireframe together and when compared	
3.3	Estimated start date.
20/04/2023	
3.4	Estimated end date (usually the end of data collection).
27/04/2023	
3.5	Is the research project funded? *If **yes**, please name the funding body.*
No	
3.6	Are there any potential conflicts of interest? *If **yes**, please confirm the action you propose to take to address such conflicts.* *Information and guidance on conflicts of interest is contained in the Research Integrity Online Training Programme and the Research Integrity and Governance Code of Practice.*
No	
3.7	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment in support of appropriateness and completeness of the answers to this section.

SECTION 4. FULL REVIEW CRITERIA

Your answers to the questions in this Section 4 will help the Committee determine whether your project requires full or proportionate review.

If all 'No' boxes apply, your project may be considered for proportionate review.

If a 'Yes' box applies, your project will proceed to full review unless the School has approved an Ethics Protocol for that particular criterion. The list of the School's Ethics Protocols are provided at: https://www.cs.cf.ac.uk/ethics/. Where an Ethics Protocol applies, this is confirmed below. If you have complied with the Ethics Protocol, your project may be considered for proportionate review.

Please refer to the School's Ethics Procedure for details and approximate lead times for the proportionate and full review systems: https://www.cs.cf.ac.uk/ethics/.

		Yes	**No**
4.1	Will the research project be performed without the participants' prior consent? *Note, research projects involving the collection/access of data from social media is likely to fall into this category.*		No

	If you have answered 'Yes' to 4.1, have you complied with the School's Ethics Protocol for Research using online data without participants' prior consent?		
4.2	Does the research design include an element of deception, including covert research?		No
4.3	Will the research project involve children under the age of 18 or 'at risk' (vulnerable) adults or groups? *The Cardiff University Safeguarding Children and Adults at Risk: Policy and Guidance sets out examples of 'at risk' or 'vulnerable' adults.*		No
4.4	Does the research project include topics which may be considered highly sensitive for participants? *This includes sexual behaviour, illegal activities, political, religious or spiritual beliefs, race or ethnicity, experience of violence, abuse or exploitation, and mental health.*		No
4.5	Does the research project require access to records of a sensitive or confidential nature, including Special Category Data or criminal offence data? *Special Category Data is defined in data protection legislation and currently includes information about an individual's: racial or ethnic origin; political opinions; religious beliefs; trade union membership; physical or mental health; sexual life or orientation; genetic data; and biometric data where this is used to identify an individual.*		No
4.6	Is permission of a gatekeeper required for initial or continued access to participants? *This includes participants in custody and care settings, or research in communities where access to research participants is not possible without the permission of another adult, such as another family member or a community leader.*		No
	If you have answered 'Yes' to 4.6, have you complied with the School's Ethics Protocol for Research needing a Gatekeeper?		
4.7	Does the research project involve intrusive or invasive procedures? *This includes the administration of substances, vigorous physical exercise, procedures involving pain or more than mild discomfort to participants (including the risk of psychological distress, discomfort or anxiety to participants).*		No
4.8	Does the research project involve visual or audio recordings of participants?	Yes	
	If you have answered 'Yes' to 4.8, have you complied with the School's Ethics Protocol for Research involving visual or audio recordings?	Yes	
4.9	Does the research project involve the collection or use of human tissue?		No
4.10	Does the research project involve more than a minimal risk of harm to the safety and wellbeing of participants and/or the Researchers?		No

	Please answer this question based on your assessment of the risks involved in this project. Further information about possible harm or potential risks to participants/researchers must be provided in Section 7 of this form.		
4.11	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment below in support of the answers of the answers to this section. For each question answered as 'Yes', provide a comment of support of why the project necessitates the answer needing to be 'Yes' and would not otherwise be feasible.		
SECTION 5. PARTICIPATION AND RECRUITMENT			
5.1	How will you identify and recruit participants to the research project? *Please note that wherever possible, potential participants should not be approached individually. Instead, 'broadcast' style communication such as mailing lists, social media posts, etc. should be used.*		
We will be approaching random users of the GILO application to take part in the study.			
5.2	How many participants are you aiming to recruit? *If applicable, please include a breakdown of participants by type and number.*		
4-6 Students.			
5.3	What are the inclusion and exclusion criteria for participants?		
They must have used the GILO app enough to experience all of the main functionalities that it has to offer.			
5.4	Will the research project involve participants that are Cardiff University staff or students or clients of the University (or the place in which you may otherwise work)? *If applicable, please provide details.*		
Yes, it will include students of the university from the Software Engineering MSc course.			
5.5	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment in support of appropriateness and completeness of the answers to this section.		
SECTION 6. CONSENT PROCEDURES			
6.1	Will informed consent be obtained from participants? If so, how? *Please include who will be taking consent, how consent will be recorded, when participants will be provided with information about the research project, and how long potential participants will be given to decide whether to take part.*		
Yes, the participants will be given an ethics consent form and will only be allowed to take part in the study once they have signed the form and read a participant information sheet.			
6.2	Will participants be offered any incentives to take part in the research project?		

No.	
6.3	If a questionnaire is to be used, will you give participants the option of omitting questions they do not wish to answer?
Yes there are written questions that are optional, the other questions are not optional (unless they would like to leave the study altogether).	
6.4	Will participants be informed that their participation is voluntary and that they may withdraw at any time and for any reason?
Yes if they wish to withdraw for any reason (including not wanting to answer required questions), then they are free to do so.	
6.5	Have you provided a detailed, lay summary of ALL tasks participants are expected to do AND how long each of these will take in Section 4 of the Participant Information Sheet template?
Yes the questionnaire given to participants will have a description of how the study works and how long its different sections will take.	
6.6	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment in support of appropriateness and completeness of the answers to this section.
SECTION 7. POSSIBLE HARM TO PARTICIPANTS/RESEARCHERS	
7.1	Is there a risk of the participants experiencing physical, emotional or psychological harm or distress*?* *If yes, please provide details of how ethical issues will be handled and how any risks will be minimised. Please consider whether the research project includes topics which could be considered as highly sensitive for participants.*
No.	
7.2	Is there a risk of the Researcher(s) experiencing physical, emotional or psychological harm or distress? *If yes, please provide details of how ethical issues will be handled and how any risks will be minimised.*
No.	
7.3	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment in support of appropriateness and completeness of the answers to this section.

SECTION 8. DATA MANAGEMENT, CONFIDENTIALITY AND DATA PROTECTION

8.1 How, and by whom, will data be collected?

Me personally and through a questionnaire and a series of interviews (one per participant for questionnaires, 2 participants at random will be interviewed).

8.2 Will you be accessing or collecting Personal Data (identifiable personal information) as part of the research project?

Note: If your project involves Personal Data, you are advised to review the University's GDPR Guidance for Researchers and to check whether your project requires, or would benefit from, the completion of a Data Protection Impact Assessment (DPIA). The University's DPIA Screening Assessment page will help with this. The equivalent student pages are: Data protection impact assessments (DPIA) - Student intranet - Cardiff University; Data protection impact assessment screening assessment - Student intranet - Cardiff University. *It is not the role of the SREC to review or advise on DPIA's, but if you have completed one, please confirm this below. For further advice, please refer to the 'DPIA' intranet page or contact complianceandrisk@cardiff.ac.uk.*

If yes, briefly describe below what Personal Data will be accessed and/or collected. Remember to consider the information being captured through any consent process, alongside information captured during the research activity itself.

For EACH piece of data, provide an explicit justification for why this is strictly necessary, linking back to the research questions in 3.2, and why the research will not be feasible without it.

Data	Collected/Accessed by	Justification for needing the data
Name	Interview	So that interviews and their feedback can be tracked to be followed up if need be.
Use of the app	Interview/Questionnaire	So that we can better understand their opinions, for example, in the context of how often they have used the application.
Voice	Interview	It is needed before transcription of these interviews takes place (at which point the audio files will be deleted).

8.3 How long will you retain the Personal Data collected in connection with the research project? Please also explain any data deletion arrangements.

Note: Research records and data must be retained for the period specified in Section 2.9 ('Research Project Conduct') of the University's Research Records Retention Schedule. If identifiable information is being collected, researchers must ensure that this is limited to the information necessary to achieve the relevant purpose (data minimisation). The University expects raw data containing identifiable information (questionnaires and audio tapes for example) to be retained for the full retention period unless: (1) the identifiable information is not required to support the research or to demonstrate good research conduct; ***and*** *(2) stringent measures have been taken to verify and ensure the integrity of any anonymised or*

	pseudonymised records/data produced from the raw data. Where (1) ***and*** *(2) apply, the researcher* ***must*** *take the necessary steps to remove the personal data. Consent Forms must be retained for the full retention period.* *Please note that where UG and PGT projects do not contribute to a publication or wider research project, research records and data may be held for a shorter period. Please refer to the guidance notes in Section 2.9 of the University's Research Records Retention Schedule for further detail.*		
Only for the length of the project (as long as they are needed), so therefore, once the project finishes (projected to be the 2nd May), all personal data will then be deleted as these are not important to the outcomes of the study.			
8.4	What efforts will be made to anonymise the data collected (where possible)?		
The questionnaire will be done completely anonymously by adapting the questionnaire I created into a digital form that anonymises responses. The data collected from interview will only be published if it is not considered personal data (none of what is needed fits into this bracket).			
8.5	Are you proposing to utilise 'public task' as the lawful basis for processing Personal Data for the purposes of the research project (as recommended by the University)? *If no, please explain why and what alternative lawful basis you propose to use.*	Yes Yes	No
8.6	Have you utilised/incorporated into your Participant Information Sheet the following sections from the University's template Participant Information Sheet: *'What will happen to my Personal Data'* and *'What happens to the data at the end of the research project?'* *If* ***no****, please explain why this content has not been used and/or how you have otherwise ensured that the relevant data protection/privacy information has been provided to participants.*	Yes Yes	No
8.7	For how long will the collected anonymised data be retained? Please also explain any data deletion arrangements. *Note: Anonymised research data must be retained for the period specified in Section 2.9 ('Research Project Conduct') of the University's Research Records Retention Schedule. Please note that where UG and PGT projects* ***do not*** *contribute to a publication or wider research project, research records and data may be held for a shorter period. Please refer to the guidance notes in Section 2.9 of the University's Research Records Retention Schedule for further detail.*		
Indefinitely as the anonymised data will be used for analysis and therefore will contribute towards the outcome of the study directly, meaning that it must be retained long-term.			
8.8	Who will have access to the data?		
Only me and my supervisor (should they wish).			
8.9	Will the data be shared in any way, for example through deposit in a data repository, with third parties, or a transcription service?		No

	If yes, please confirm what steps will be taken to ensure that the data is treated with an appropriate level of care (particularly if it involves any data capable of identifying a participant) e.g. contracts/data processing agreements, a de-identification process, informing the participants about the data sharing etc.		

8.10	What anonymised demographic, sensitive, or confidential data will be collected from or about participants, (e.g., Age, Sex, Gender, Employment status, etc.) including data concerning sensitive or confidential topics outlined in criteria 4.4 and 4.5? For EACH piece of data, provide an explicit justification for why this is strictly necessary, linking back to the research questions in 3.2, and why the research will not be feasible without it.

Data	Collected/Accessed By	Justification for needing the data
Age	Questionnaire/Interview	Needed to assess whether participants are within the target market for GILO.
Employment	Questionnaire/Interview	Needed to assess whether participants are within the target market for GILO.

8.11	If the data collection involves the use of audio or video recording of participants, provide an explicit justification for why this is strictly necessary over alternative methods of data capture and why the research will not be feasible without it.

Audio recording is necessary for the interviews in order to make them feasible time wise (for the participants). The audio transcripts for each interview will be transcribed and then the audio files deleted in order to ensure this data is only kept for as long as needed.

8.12	For student projects only - to be completed by the lead supervisor. As the lead supervisor for this proposal, provide a comment below in support of the <u>appropriateness and completeness</u> of the answers to this section.

SECTION 9. OTHER ETHICAL CONSIDERATIONS

Please outline any other ethical considerations raised by the research project and how you intend to address these. You are obliged to bring to the attention of the SREC any ethical issues not covered in this Ethics Review Application Proforma.

SECTION 10. SUPPORTING DOCUMENTS

I have attached the following documents in support of this application – marked with an X.

All documents should be provided as files. Web links will NOT be accepted.

All documents should be attached if this is a resubmission or an amendment, NOT just the adjusted documents, with the changes highlighted.

All documents should be versioned AND incremented following any changes if a resubmission.

		Yes	No	Version no.
1	Research Project Protocol/Proposal	X		
2	Recruitment Adverts/Invitation Letters	X		
3	Participant Information Sheet	X		
4	Consent Form	X		
5	Data Collection Tool(s) (e.g. questionnaire(s)) or a detailed description of the proposed tool which provides the SREC with clear information about the parameters of the tool i.e. what themes/areas will be covered and what will be excluded.	X		
6	Other participant communications (e.g. debrief sheets)		X	
7	Evidence of Research Integrity training completion for ALL Cardiff University co-applicants/Supervisors/Members of the research team (as listed in Section 1). *In the case of student projects, supervisors may send evidence of training completion separately to the application, but a Favourable Opinion will not be issued until it is received.*	X		
8	List of changes made (ONLY if this is a resubmission following a Provisional or Conditional or Unfavourable opinion). Provide the list of requirements outlined in the Outcome Letter and describe underneath each of these how it has been addressed in the new documents.		X	
9	*Applicant to list any additional documents provided to the SREC, particularly any additional documents relevant to recruitment, consent and participation*		X	

If you have selected 'No' for any of the documents listed above, please confirm why these have not been provided. If a listed document is not relevant to your project, please confirm this below.

Those that have not been provided are because they were not used at all.

SECTION 11. SIGNATURES AND DECLARATIONS

Applicant declaration

I confirm that:

a. The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.
b. I have the necessary skills, training and or/expertise to conduct the research project as proposed.
c. I am familiar with the University's health and safety requirements and policies and that all relevant health and safety measures have been taken into account for the research project.
d. I am familiar with, and will comply with, the University's Policy on the Ethical Conduct of Research involving Human Participants, Human Material or Human Data and the University's Research Integrity and Governance Code of Practice.
e. The relevant equality and diversity considerations have been taken into account when designing the research project.
f. If the research project is approved, I undertake to adhere to the research project protocol, the terms of the full application as approved and any conditions set out by the Committee and any other body required to review and/or approve the research project.
g. I will notify the Committee and all other review bodies of substantial amendments to the protocol or the terms of the approved application, and to seek a favourable opinion from the Committee before implementing the amendment.

Signed: 

Print name: Elliot Noyes

Date: 18/04/2023

SUPERVISOR DECLARATION (FOR STUDENT PROJECTS)

I confirm that:

a. I am familiar with the University's Policy on the Ethical Conduct of Research involving Human Participants, Human Material or Human Data and the University's Research Integrity and Governance Code of Practice.
b. I have reviewed this application, and all supporting documents, and I am satisfied that the project as proposed meets the University's ethical standards.
c. I have the necessary skills, training and or/expertise to offer appropriate supervision and support to the student researcher/applicant.
d. I will encourage the student to discuss with me, and reflect on, any ethical issues that arise during or after the project and, where relevant, I will ensure such issues are notified to the SREC.
e. I have written the application form sections starting with 'For student projects only - to be completed by the lead supervisor.'

Signed:

Print name:

Date:

Please submit the completed application and supporting documents to comsc-ethics@cardiff.ac.uk

Your electronic submission should contain wet-ink or electronic signatures of all relevant parties. Please note that if any information is missing, the application may be returned to you.

CONSENT FORM

Title of Research Project: Requirements, prototyping and evaluation – GILO Application

Organisations Involved: GILO Technologies

Name of Principal Investigator: Elliot Noyes

Name of Interviewer: Elliot Noyes

Name of Questionnaire Handler: Elliot Noyes

This study is part of a Masters (MSc) Software Engineering project that I am currently undertaking. The study will be completed in two sections:

1. **Questionnaire** – A questionnaire will be given to each of the participants and they will be asked to fill it in based on their experiences with the GILO application. All written questions are optional and whilst the non-written questions are compulsory for the study, participants can choose to not answer these questions and in doing so leave the study at any time.
2. **Interview** – An interview will be carried out with each participant, again eliciting data about their experiences with the GILO application. This will be a short (approximately 5 minute long) interview and is again ultimately optional. However, if participants do not agree to take part in the interview then they can again leave the study at any time.

In order to qualify to take part in this study, participants must:

. Speak English as your first language or have successfully passed a recognised test such as TOEFL (Test of English as Foreign Language), indicating that the participant has a basic level of English.

. Have experience in using the GILO application; This must include use of all of the core functionalities described on the GILO Technologies site and experience in navigation around the rest of the GILO Academia site.

. Let me know if they have any disabilities that they would deem relevant, these will then be considered on a case by case basis to ensure that participants are facilitated for as best as possible.

What data will be taken from participants and how it will be used:

. Limited personal data will be taken, with the questionnaire being anonymous (with the only possible identifying feature being the field of work/study that the participant is in).

. The main source of data that will be held is that surrounding use of the GILO application and the experience of the participants.

. The personal data sourced in this study will only be used within the confines of this study and no personal data will be published.

. The outcomes of this study (in terms of trends in responses for example) could be used, however none of this will be identifying for any of the participants.

. Audio recording of the interview will be taken by default, however whilst this will be deleted once a transcript is created, participants can ask for the interview not to be recorded at all in the agreement section below.

Please Initial Box

I confirm that I understand the procedure for this study and that I conform with the qualification requirements.	
I understand that I have the right to not take part in this study at all if I choose.	
I understand that I have the right to leave the study at any time that I choose.	
I confirm that I am happy with my data being collected and utilised as described.	
I understand that the personal data collected will be held and used for the duration of the study but will be deleted upon the end of the study.	
I understand that non-personal data may be used outside of this study and that none of this data is identifiable to me.	
I consent to an audio recording of the interview in this study that I will participate in being taken (If you do not consent this does NOT remove you from the study).	
I understand that I have the right to ask for proof of ethical approval clearance or any information to confirm the details given on this consent form.	
I understand that this study includes a minimal risk of discomfort.	
I agree to take part in this research project.	

Name of participant (print)	Date	Signature
Name of person taking consent (print)	Date	Signature

Principal Investigator

Role of person taking consent

(print)

THANK YOU FOR PARTICIPATING IN OUR RESEARCH

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

PARTICIPANT INFORMATION SHEET

GILO Technologies – Application Use Study

You are being invited to take part in a research project. Before you decide whether or not to take part, it is important for you to understand why the research is being undertaken and what it will involve. Please take time to read the following information carefully and discuss it with others, if you wish.

Thank you for reading this.

1. What is the purpose of this research project?

This is a project that aims to evaluate the effectiveness of the GILO application as a document processing and analysis tool. Participants will be asked to fill out a questionnaire and take part in an interview to discuss the GILO application and how it compares to another prototype application that they have been provided with.

2. Why have I been invited to take part?

You have been invited because you are a student (one of the target markets for GILO) and because you have enough experience with technology and specifically the GILO app to give informed opinions.

3. Do I have to take part?

No, your participation in this research project is entirely voluntary and it is up to you to decide whether or not to take part. If you decide to take part, we will discuss the research project with you and ask you to sign an ethics consent form. If you decide not to take part, you do not have to explain your reasons and it will not affect your legal rights. As a Cardiff University student, involvement in this research project will have no effect on your education or progression through a degree course.

You are free to withdraw your consent to participate in the research project at any time, without giving a reason, even after signing the consent form.

4. What will taking part involve?

You will be asked to take part in a questionnaire and interview, both of which will be short and can be scheduled for a time within the first week that you sign up to be involved.

5. Will I be paid for taking part?

No.

6. What are the possible benefits of taking part?

There will be no direct advantages or benefits to you from taking part, but your contribution will help GILO understand how to improve their application for you and others in the future.

7. What are the possible risks of taking part?

There is minimal risk in taking part in this study.

8. Will my taking part in this research project be kept confidential?
Yes, there will be no possibility of identifying participants from the outside of this study.

9. What will happen to my Personal Data?
All personal information will be used solely within the confines of the project and then deleted, the only way that any of your data could be used for purposes outside of this study is through your anonymised opinions better shaping GILO in the future.

Cardiff University is the Data Controller and is committed to respecting and protecting your personal data in accordance with your expectations and Data Protection legislation. Further information about Data Protection, including:

- your rights
- the legal basis under which Cardiff University processes your personal data for research
- Cardiff University's Data Protection Policy
- how to contact the Cardiff University Data Protection Officer
- how to contact the Information Commissioner's Office

may be found at https://www.cardiff.ac.uk/public-information/policies-and-procedures/data-protection

Your personal data will be used before the 2nd May 2023 within this study.

After 2nd May, the research team will delete all the personal data it has collected from, or about, you in connection with this research project, with the exception of your confidential consent form. Your consent form will be retained for another week after the 2nd May and may be accessed by members of the research team and, where necessary, by members of the University's governance and audit teams or by regulatory authorities. Anonymised information will be kept for a minimum of a week but may be published in support of the research project and/or retained indefinitely, where it is likely to have continuing value for research purposes.

Any participant who decides to leave the study can opt out of having the data already collected from them being used. This would mean that it would all instead be deleted.

10. What happens to the data at the end of the research project?
Aside from how personal data will be handled (as mentioned above), your other data may be used internally within GILO and has a chance of being published. This however will of course be anonymised.

11. What will happen to the results of the research project?
If the results are indeed published or you would like to see the outcomes of the study then you can contact GILO directly and the relevant information will be passed onto you.

12. What if there is a problem?
If you wish to complain, or have grounds for concerns about any aspect of the manner in which you have been approached or treated during the course of this research, please contact Elliot

Noyes at noyese@cardiff.ac.uk. If your complaint is not managed to your satisfaction, please contact comsc-office@cardiff.ac.uk.

If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, you may have grounds for legal action, but you may have to pay for it.

13. Who is organising and funding this research project?

The research is organised by Elliot Noyes of the School of Computer Science and Informatics in Cardiff University under the supervision of Dr Fernando Loizides.

14. Who has reviewed this research project?

This research project has been reviewed and given a favourable opinion by the COMSC School Research Ethics Committee, Cardiff University.

15. Further information and contact details

Should you have any questions relating to this research project, you may contact us during normal working hours:

Elliot Noyes

07388121262

noyese@cardiff.ac.uk

Thank you for considering to take part in this research project. If you decide to participate, you will be given a copy of the Participant Information Sheet and a signed consent form to keep for your records.

Research and Innovation Services

This is to certify that

Elliot Noyes

has successfully completed

Completion of Research Integrity Training (Student) / Cwblhau Rhaglen Hyfforddiant Ar-lein Gonestrwydd Ymchwil (Myfyriwr)

on

21 April 2023

Qualitative Analysis

In order to qualitatively analyse results I received in both the questionnaires and interviews, I will evaluate how well each of the applications satisfies the metrics laid out by my own modified version of Google's HEART framework[5]. This was mentioned previously but effectively consists of the following categories of analysis: "Efficiency", "Engagement", "Adoption", "Retention" and "Task Success" (so my version of the framework actually spells EEART or ARETE for convenience of use). Questions across the interview and questionnaire were designed with these metrics in mind, with performance related questions targeting "Efficiency", time spent questions targeting "Engagement", likelihood of future use and adoption related questions targeting "Adoption" and "Retention" and finally, bug-related questions targeting "Task Success". The framework consists of evaluating these 5 categories of user experience in a 3 stage process, but I have also modified it by adding a fourth so I can also have a section dedicated to comparing the results across the two applications and making improvement suggestions for future development. The stages therefore are:

1. **Goals:** Broad objectives. For efficiency, a goal might be to "have all functional load times be under 30 seconds".
2. **Signals:** Indicators that the application is making progress toward its goals. For Engagement, a signal might be "The amount of time users spend on the application".
3. **Metrics:** Quantifiable data points indicating success or failure. For Retention, a useful metric might be "participants indicating that they would use the application again x number of times"
4. **Assessments:** A category that I have added whereby I can make conclusions based upon relevant metrics. For Task Success, a useful metric might be "users found more tasks ended in failure with application A compared to application B".

A breakdown for the framework as described here for my results is shown in the table below.

	Goal(s)	**Signals** (all as per the results of data collection)	**Metrics** (all as per the results of data collection)	**Assessments** (all suggestions for future development are highlighted in red)
Efficiency	**Increase the efficiency of users' writing**, as per some of the key benefits that GILO describes to its users; "overcome paralysis by analysis", "limit time on desktop research".	. How satisfied users are with the performance (in terms of time efficiency) of the application.	. 2 of the 4 participants had notable **performance issues**, with them **"Strongly Disagreeing"** with the notion that the GILO application had no performance related issues. Both of these participants gave positive responses when questioned about the efficiency through performance of the prototype **("Agreeing" and "Strongly Agreeing" respectively).** . 2 of the 4 participants gave either **neutral or positive responses** to their experience with the performance of both applications (one gave 3 = "Neutral" for both and one have 5 = "Strongly Agree" for both).	All performance-related concerns were flagged for the GILO application and not the prototype. Whilst it is clear that the prototype likely does not encounter these same issues due to a lack of back-end functionality, this clearly does not excuse the GILO application in the mind of users. The user experience of the application would therefore be much more

			. The interviewees **both made negative comments about the performance of the GILO application**: "Speed becomes a real issue with the application, it can be prone to crashing as well" and **"The performance is bad".**	influential in increasing the writing efficiency of its users (as it primarily aims to do) if hosted on higher-performing servers (and/or its backend code is optimised further).
Engagement	For users to use the application enough that they discover and experiment with **all of the main features.**	. The amount of time users engage with the application. . How visually appealing users find the two applications as this can also affect their level of engagement with functionalities	. Both interviewed participants stated that they had spent **approximately 2-3 hours using the application.** One stating that it took them ***"a few hours looking at all of the different features".*** . 2 participants seemed to find the **GILO application more visually appealing**, stating that *"Adding some **colour or graphics** to the prototype will make it a little bit more visually appealing"* and *"the **colour scheme** of the GILO application seems to **fit better**".* . 2 participants commented on the layout of the homepage, both shared a **liking of the centralised design of the prototype** compared to the GILO application: "*I think the **GILO application should adopt the central design** layout the prototype has", "the **prototype makes it much easier for the information to be displayed** to the user being **centrally focused.**", "I like how it's **narrower**. So you don't have to read the screen **all the way from left to right**".*	Firstly, both interviewees spent at least 2 hours on the application and one of the interviewees stated that in the few hours that they spent on the application that they were looking at all of the different features, this suggests that level of engagement on the GILO application are pretty high. Furthermore, 2 of the study participants mentioned their liking of the GILO colour scheme design over the prototype, suggesting that colour and graphic design helps the users stay engaged. However, the fact that participants really liked the centralised design of the homepage UI in the prototype, citing reasons such as readability (this makes sense when considering centralised value in Screen Real Estate), means that GILO should

				consider modifying the UI of their homepage in this way.
Adoption	The ability to **attract new users**, either directly or through other means such as recommendation.	. How likely users would be to recommend the application to other people. . How likely users think their organisation would be to endorse the application.	. In terms of recommendation, **none of the participants** said that they would be **more likely** to **recommend the GILO version** of the application **compared to the wireframe.** . **Both interviewed participants** said they could see themselves **recommending the GILO application**, but one was conditional: *"I think with **much further development**, potentially, **yes**.",* "I think absolutely, you know, it's a very **powerful tool for students and academic writing."** . One of the participants spoke negatively about recommending the GILO application: "in a professional environment, the **standard of this app is not good enough**", "I get just **too busy just to be sat here waiting for it to load**.", further stating that "**Chat GPT will probably have these features**" (soon), directly referencing a **competitor**.	The fact that none of the participants said that they would recommend the GILO version of the application over the wireframe may be explained by previous performance and design issues discussed. This can be seen for one of the participants who said that they would recommend it only with *"much further development"* (due to performance related issues). The remarks made by one of the participants surrounding time efficiency is directly related to adoption, as if they believe that its not at a professional standard, they will not recommend it and their organisation is unlikely to endorse it. GILO must tackle mentioned recurring issues in order to not lose out to advancing competitors who may produce applications users will adopt instead.
Retention	The ability to **retain users who have already used the application** (for as long as	. How likely users are to use the application in their daily lives.	. **None of the participants** said that they would be more likely to use the **GILO application than the wireframe** in their day-to-day lives, but some still mentioned where they could see either being useful: *"I could see the use*	In general, users seemed to be pretty neutral as to whether or not they would use the application in their daily lives. I would

	possible), the higher customer retention (along with adoption), the better for business.	. How much would users be willing to pay to use the application (if they would).	*for such when needing to write AGILE documentation about Software Management".* . **All participants either felt neutral or negative about the idea of paying for the application**: *"I would definitely **not pay to use the GILO application**", The prototype doesn't have performance issues so I would be **happy to pay for this application** monthly because I do see **immense value in the app's functionalities**.", "Features **not good enough** to spend money on."*	argue this is worse than it may sound, as customer retention is important for the majority of businesses[14] and unless GILO is different, this coupled with none of the participants saying that they would pay for the GILO application having seen the payment plans is very negative. GILO could however combat this in a number of ways: implementing new features, improving existing features and modifying payment plans to be more incentivising.
Task Success	For users to **accomplish their own goals that they come to the application with** (as long as it is related to the functionality of the application).	. The level of prevalence of bugs in the application. . How successful the application is at supplying target users with functionalities relevant to their specific field/study area.	. Both interviewees mentioned that they had encountered **numerous bugs with the GILO application**: *"When I click on a different section of functionality whilst another piece is still loading (after a while) the application will crash.", "Sometimes, features are selected and if the user accidentally or purposefully clicks anywhere else on the page, the **request for the feature is cancelled.".*** . One interviewee said that they felt the functionalities were adequate for what they require, but the other did not agree: *"I would like the option for a **summarisation feature** to produce a short abstract/introduction based on the input text."* . Overall, most participants seemed to be happy with the extent of the functionalities.	Prevalence of bugs in the GILO application when using the main functionalities is clearly high, GILO should address the following issues: . Crashing was commonly reported. . Instead of features cancelling when you click anywhere else on the page they could prevent this and implement a 'cancel' button feature. . Cited texts and references should be relevant to the text as a whole, not just a particular key word.

Quantitative Analysis

In this section, I will be quantitatively analysing the answers from the set of Likert Scale[15] questions that were given to each of the 4 participants (in the questionnaire). I decided to use a Paired Sample T-Test as this allows me to directly, statistically compare the difference between each application through testing whether the mean difference between the scores given are statistically significant or not. The participants answering the same questions about each application allows me to do this and I will carry one test out across all sections in order to increase the sample size and therefore the validity of whatever result I receive.

Research Question

How does the created prototype compare to the GILO application by the User Experience metrics laid out in the questionnaire?

Assumptions

In order for the Paired Sample T-Test to be a suitable choice of statistical test, we need to lay out certain assumptions. These are as defined by Statistics Solutions[16]:

- *"The dependent variable must be continuous"* – the Likert scale can be treated as continuous[17] so this is not something we have to be concerned about.
- *"The observations are independent of one another"* – again this is something that we can satisfy as both applications are distinct and whilst we are asking the same questions for both applications, no answers directly rely on the other.
- *"The dependent variable should not contain any outliers"* – due to how confined the scale that I am using is, I will assume that we have no outliers.
- *"The dependent variable should be approximately normally distributed"* - this is something that cannot just be assumed and is vital for the validity of this test, therefore the section below details how certain I can be of normal distribution.

Normal Distribution Assumption

In the real world, due to a number of factors (particularly sample size in this case), distributions are not always exactly as one would expect. Therefore in order to make sure that the normal distribution assumption is valid, I have created a histogram from all of the *difference scores* that I calculated from the results that I received. These *difference scores* were calculated by taking away the Likert scale number received from a participant about my wireframe application for any particular question from the number received from the same participant and on the same question but about the GILO application. From this histogram shown below in Figure 14, we can compare the shape to that of a Gaussian curve and see that the assumption that we have a normal distribution is absolutely a valid one to make.

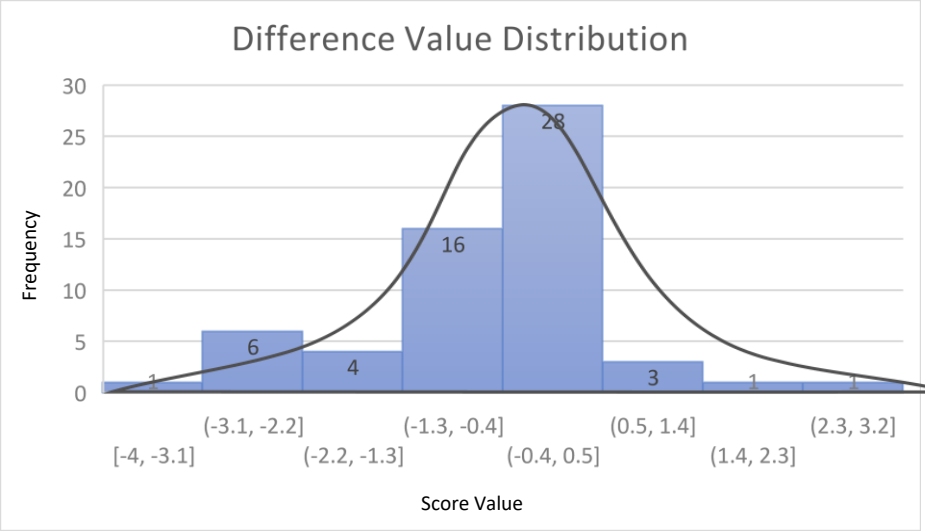

Figure 14 – This shows a histogram of all of the difference scores calculated by using differences between the GILO application and my prototype. Negative values are where participants marked my prototype as better in any particular question, positive values are where they marked the GILO application as better and a zero value is where they were graded the same. A bell curve is overlayed to compare to our distribution.

Hypotheses

For this test I have two different contentious hypotheses:

- **Null Hypothesis/H_0** – this is where I assume that the true mean difference for my results is zero.
- **Two-Tailed Alternative Hypothesis/H_1** – this is where I assume that the true mean difference is not zero.

After analysis I will be able to accept and reject one each of these hypotheses based on the result of the test. The significance 'p' value that I have decided to use is p = 0.05.

Calculations

. **Sample Size** = **n** = 60, as this is the number of paired values we have in the sample.

. **Sample Mean** – here I take all 60 paired score values and calculate the mean across the sample. Here I get using the 60 scores a mean of -38/60 = 0.6333…

. Now using the STDEV formula in excel, I calculated that the **Standard Deviation** = 1.26 (3 s.f.).

. Then, the **test statistic**[16], is given by:- **t** = (-0.633333…) / (1.26/sqrt(60)) = -3.89 (3 s.f.).

. Looking up the **critical t-value** for a two-tailed test in a T-Distribution table[18], with 59 degrees of freedom (n-1) and p = 0.05, gives us the value: 2.0010. This is the probability of observing the test statistic under the null hypothesis.

. Since the absolute value of our **test statistic (t)** is 3.89 and our **critical t-value** is 2.0010, we compare the two and see that since 3.89 > 2.0010, we can reject the null hypothesis and accept the alternative hypothesis. This leads us to the conclusion that our results are statistically significant and that we can be sure with 95% probability that the **true mean difference is not 0 and is actually favoured in the direction of my prototype.**

Conclusions and Suggestions for Improvement

In the knowledge that the numerically collected results of my questionnaire are indeed statistically significant, I will spend the majority of this section explaining why I believe the results are weighted significantly in favour of my prototype. I will break these down section by section and make suggestions as to what GILO could do more akin to the prototype in order to meet the needs of its current and future users.

1. Functional Usability – across all participants, this section had an overall score differential of 25 in favour of my prototype and a mean of -1.04 (3 s.f.). This suggests that users overall found the GILO application to be far more buggy than the prototype, indicating that (as described in my qualitative analysis section), GILO needs to put a big focus on improving the quality of the functionalities that they already have in the application (as opposed to introducing new features or focusing on other areas such as marketing at the moment).
2. Visual Usability – across all participants, this section had an overall score differential of 4 in favour of my prototype, with a mean of -0.23 (3 s.f.). I think this mean was much closer to zero because I previously found users preferred the colour scheme and graphical design of the GILO application, but that most also preferred the layout of the homepage UI on the prototype. This would further cause me to suggest that GILO focus on improving their UI too (by for example making the textbox smaller so everything is more centralised and naturally readable), as if they had done this such that none of the participants said they preferred the UI of the wireframe (all those in favour are nullified), the score differential for this section would have been 2 in favour of the GILO application itself.
3. Content – across all participants, this section had an overall score differential of 5 in favour of my prototype, with a mean of -0.42 (3 s.f.). The range for this question in terms of difference score was only 1, which implies that the applications were actually viewed very similarly in terms of assessing the content they contain (this makes sense when considering they fundamentally exist through very similar requirements). The only thing that I would say, was that 3 participants noted that the ability to contact GILO was better implemented in the prototype. Therefore I would suggest that GILO implement another tab alongside the functionalities (this was specifically mentioned by one user as being a feature they liked) that includes a fast, simple way to contact GILO directly, even if this is only a feature for users on a payment plan.
4. Miscellaneous – across all participants, this section had an overall score differential of 11 in favour of my prototype, with a mean of -0.92 (3 s.f.). The range for this section however was the highest at 4 (for the same question with a different participant), this was due to a difference in how users experienced the performance of the GILO application. This inconsistency in the application needs to be addressed and suitable measures to do this were already described in my qualitative evaluation section previously.

Heuristic Evaluation

For the purposes of a heuristic accessibility evaluation, I have decided to use guidelines laid out by the UK Home Office in 2016[8], these were influenced in part by the commonly used WCAG guidelines[19]. I will discuss each section of the guidelines, evaluating the effectiveness of my wireframe in meeting them and suggesting improvements where it does not. The guidelines themselves are named the "Dos and don'ts on designing for accessibility" and refer to a system of sub-guidelines for 6 of the most common accessibility needs, a breakdown of my evaluation is shown in the table below:

Group Of Users	Dos	Don'ts	Wireframe Evaluation
Users on the Autistic Spectrum	Use simple colours	Use bright contrasting colours	I used a simple range of colours with no bright contrasts.
	Write in plain English	Use figures of speech and idioms	All explanations given were designed to concisely and plainly explain functionalities.
	Use simple sentences and bullets	Create a wall of text	The only 'wall' of text that existed in my work was in the textbox itself, this could be improved to have wider line spacings though, aiding readability.
	Make buttons descriptive - for example, Attach files	Make buttons vague and unpredictable - for example, Click here	Whilst buttons for each of the main functionalities had a hover activated description, I could improve some other buttons, for example, the quotes, download and attach buttons are not properly explained in the application (In the 'Provide Evidence' functionality).
	Build simple and consistent layouts	Build complex and cluttered layouts	I feel my wireframe was an improvement on an oversimplified (therefore making the nuances of it) complex GILO application. All main functionalities are centralised in the screen and design is consistent across the different functionality states and also across the other pages I created (e.g. the navbar I used on every page made navigation through the wireframe consistent throughout).

Users of Screen Readers	Describe images and provide transcripts for video	Only show information in an image or video	There were no videos present in my wireframe (as per my requirements), however in further development of this prototype, I would add alt text properties to images in order to allow them to be described.
	Follow a linear, logical layout	Spread content all over a page	I tried to lay everything in the page out using a kind of box system, making it highly logical and not spread all across the page in various different panels (as it is in the GILO application).
	Structure content using HTML5	Rely on text size and placement for structure	This was not relevant for this medium-fidelity prototype, but in future development, would be a necessity.
	Build for keyboard use only	Force mouse or screen use	The wireframe does not have the ability to be controlled entirely by a keyboard and so could be modified with further development to account for this (e.g. using the 'tabindex' HTML element[20]).
	Write descriptive links and heading - for example, Contact us	Write uninformative links and heading - for example, Click here	I feel overall that all links, headings and button names were given concise descriptive names.
Users With Low Vision	Use good contrasts and a readable font size	Use low colour contrasts and small font size	Whilst this would not be ideal for users on the Autistic Spectrum, it is valuable for those with Low Vision, and so I could improve my application by adding a feature where the user can choose to change colour contrasts and increase overall font sizes.
	Publish all information on web pages (HTML)	Bury information in downloads	No information in the wireframe is 'buried' in a download, in fact the only downloadable item that would be on the application if it were full functioning, would be

			the research papers that the 'Provide Evidence' functionality supplies.
	Use a combination of colour, shapes and text	Only use colour to convey meaning	Whilst I attempted to use multiple mediums in order to convey meaning, I could for example, have improved how the lines under relevant keywords in some main functionalities were signified (e.g. instead of just colour to convey different logical errors, I could have used shapes too on the lines with a key to be found next to the textbox).
	Follow a linear, logical layout -and ensure text flows and is visible when text is magnified to 200%	Spread content all over a page -and force user to scroll horizontally when text is magnified to 200%	My application did not have this capability for adaptive sizing, this is an issue for those with Low Vision but also many people who may simply struggle with the readability. I could improve this by for example, using the Flexbox CSS styling module[21] which would have allowed for adaptive text to screen sizing.
	Put buttons and notifications in context	Separate actions from their context	I felt that all buttons were adequately placed in context.
Users With Physical or Motor Disabilities	Make large clickable actions	Demand precision	By making the main functionality tabs on the homepage larger than the GILO app and fixed on the page (rather than a retractable sidebar), they are easily found and clicked without much precision.
	Give form fields space	Bunch interactions together	I gave all form fields adequate space, with for example, an entire tab on the homepage being dedicated to a comments form with one large field.
	Design for keyboard or speech only use	Make dynamic content that requires a lot of mouse movement	Design for keyboard only use has been mentioned previously. As for speech

			use, I could further implement software that takes speech-to-text instructions,
	Design with mobile and touch screen in mind	Have short time out windows	This was not a focus for GILO (stated in a client meeting), but if I was to improve my wireframe to be capable of these things, I could use something such as WebKit CSS extensions[22] .
	Provide shortcuts	Tire users with lots of typing and scrolling	I purposely tried to make sure that not much vertical (and no horizontal) scrolling were needed at 100% zoom. However this could still be improved by for example, making the footer on the page (taken from the GILO technologies site) more concise.
Users Who Are D/deaf or Hard of Hearing	Write in plain English	Use complicated words or figures of speech	All explanations given were designed to concisely and plainly explain functionalities.
	Use subtitles or provide transcripts for video	Put content in audio or video only	Whilst no audio or video content is used on either the GILO site or my wireframe, if it ever were to be, a transcript that prints to the screen could be provided.
	Use a linear, logical layout	Make complex layouts and menus	I tried to lay everything in the page out using a kind of box system, making it highly logical and not spread all across the page in various different panels (as it is in the GILO application).
	Break up content with sub-headings, images and videos	Make users read long blocks of content	Answer to a very similar (differently worded) question was given previously in the section on users on the Autistic Spectrum.
	Let users ask for their preferred communication support when booking appointments	Make telephone the only means of contact for users	I could have improved the comments tab that I provided to include the ability to say how you would like to be contacted by GILO.

Users With Dyslexia	Use images and diagrams to support text	Use large blocks of heavy text	In order to aid these users, a tree diagram functionality tab was added to the wireframe that would allow them to visualise results the application produces (as opposed to having to deal with large blocks of heavy text). However, as previously mentioned for a different section, I could have implemented greater spacing between lines to reduce how heavy blocks of text are.
	Align text to the left and keep a consistent layout	Underline words, use italics or write capitals	Text in the main functionality text box was all assigned to the left, within a consistently sized, rectangular shaped box.
	Consider producing materials in other formats (for example, audio and video)	Force users to remember things from previous pages - give reminders and prompts	This is something that GILO themselves would have to decide whether or not they want to focus on this. Audio and videos could be produced though for a number of reasons including, having the option to have the features of the application explained to users through another medium.
	Keep content short, clear and simple	Rely on accurate spelling - use autocorrect or provide suggestions	In using a centralised, minimalistic layout, I believe that I kept the content short, clear and simple, but I could have implemented a spelling correction feature.
	Let users change the contrast between background and text	Put too much information in one place	I did not implement this, however I could improve the wireframe in this regard by adding textbox and font sizing options.

Overall, I feel that whilst I adequately met many design specifications from the angle of accessibility, I could still improve my application to be more accessible to a wider range of users by the methods described. This would not only allow GILO to access more of a user market for their product, it would allow these users to feel empowered to use an application that has had their needs integrated into its design.

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Appendix

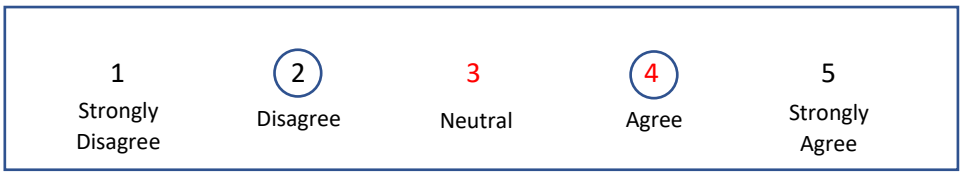
Answered Questionnaires

All questionnaires in this section will be signified by a green box surrounding them. Any questions not answered (optional written questions) will be cut out of the questionnaire transcripts shown here (for ease of reading), of course they will still be taken into account as non-answers in analysis.

Unknown Participant 1 – Questionnaire

GILO Application: User Questionnaire

Only answer this questionnaire AFTER you have read, understood and signed the ethics form that has been provided to you. You will be provided a set of questions (divided by topic; 4 in total) and are asked to answer the questions truthfully and in the knowledge that this form is anonymous. In all questions of this questionnaire, it will be stated whether or not the question is relevant to the GILO application or the extra wireframe application provided to you or both.



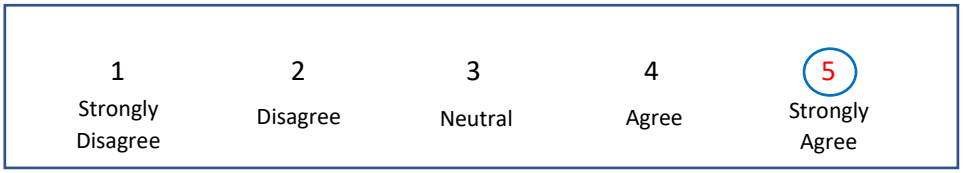
The example above shows how you would fill out the box for different scenarios. If a question only refers to the **GILO** application then make sure that circle a number. If a question only refers to the other **prototype** application shown to you then make sure to red highlight the correct number. If a question refers to both applications, then you can either select different numbers for each answer (with a circle on one number and red highlight on the other), or you can choose the same number for both (by combining the red highlight and circle on the same number).

Section 1 – Functional Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. There is one question that will ask for a written answer but it is ultimately optional. Please circle the number that best meets your response.

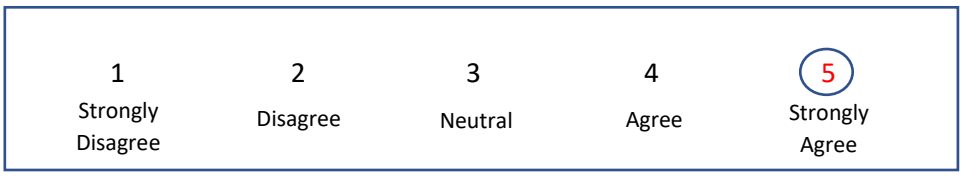
Q1

The application has no significant functional bugs in terms of page navigation. (GILO and Prototype)



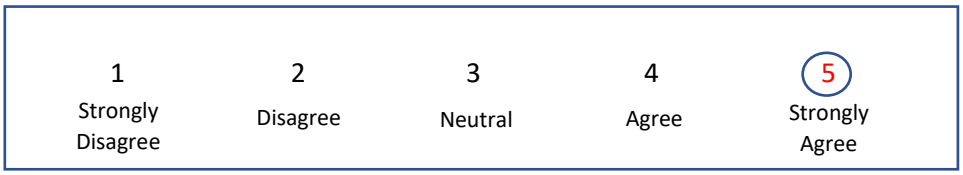
Q2

The application has no significant bugs in use of the 'Style' functionality provided. (GILO and Prototype)



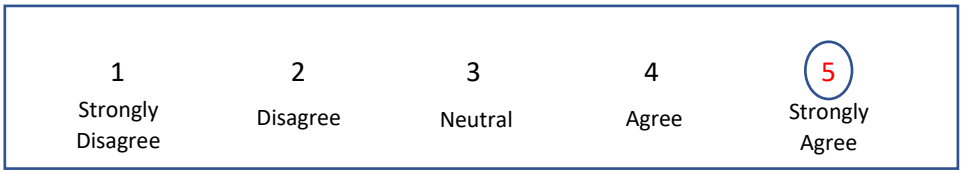
Q3

The application has no significant bugs in use of the 'Evidence' functionality provided. (GILO and Prototype)



Q4

The application has no significant bugs in use of the 'Logic' functionality provided. (GILO and Prototype)



Q5

The application has no significant bugs in use of the 'Detect GPT' functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q6

The application has no significant bugs in use of the text editor (e.g. text formatting tools such as changing font). (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q7

The application has no significant bugs in use of the login feature. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Section 2 – Visual Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The UI on the home/main page for the application is laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The UI on all other pages for the application are laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	4	(5)
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application as a whole is visually appealing. (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

If you answered less than favourably for Q1 in this section (or otherwise), what do you think could be changed in regards to the UI for the home/main page? Please answer below. (GILO first and Prototype second)

Ans: Due to the way it is laid out, there seems to be too much of information. I think making the GILO application more visually appealing could help in this regard.

Q6 (Optional)

If you answered less than favourably for Q3 in this section (or otherwise), what do you think could be changed in order to make the application more visually appealing? Please answer below. (GILO first and Prototype second)

Ans: I think providing the information content in a more concise way in the application can make the application more visually appealing.

Section 3 – Content

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The application has represented all of the functional content that you feel you would need for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	3	4	(5)
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The functional content included in the application could be improved to be better for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application adequately includes, aside from its core functionalities, the ability to contact the team, learn more about recent changes to the application (through the patch notes) and learn more about GILO. (GILO and Prototype)

1	2	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Section 4 – Miscellaneous

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

I am concerned about the security of my data having seen the information that GILO takes from its subscribing users (shown on the profile page) or for another reason. (GILO)

(1)	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

I would regularly use the application during my work/study. (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

I would be happy to use one of the paid subscription plans having seen the application and having read about the advantages of doing so. (GILO)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4

I would recommend this application to my peers and/or my organisation. (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

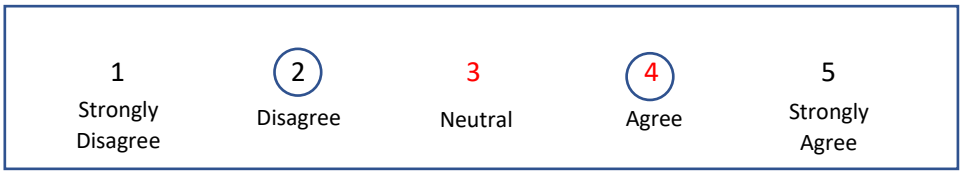
There were no performance related issues when using the application. (GILO and Prototype)

1	2	3	4	(5)
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Unknown Participant 2 – Questionnaire

GILO Application: User Questionnaire

Only answer this questionnaire AFTER you have read, understood and signed the ethics form that has been provided to you. You will be provided a set of questions (divided by topic; 4 in total) and are asked to answer the questions truthfully and in the knowledge that this form is anonymous. In all questions of this questionnaire, it will be stated whether or not the question is relevant to the GILO application or the extra wireframe application provided to you or both.



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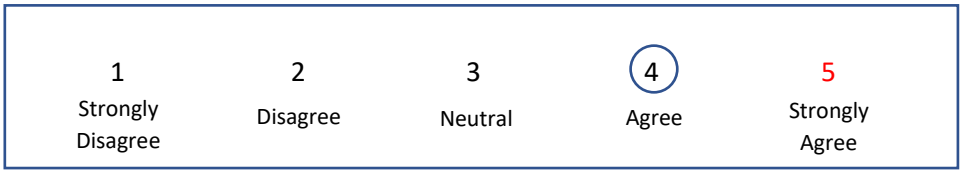
Section 1 – Functional Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. There is one question that will ask for a written answer but it is ultimately optional. Please circle the number that best meets your response.

Q1

The application has no significant functional bugs in terms of page navigation. (GILO and Prototype)



Q2

The application has no significant bugs in use of the ‘Style’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application has no significant bugs in use of the ‘Evidence’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4

The application has no significant bugs in use of the ‘Logic’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

The application has no significant bugs in use of the ‘Detect GPT’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q6

The application has no significant bugs in use of the text editor (e.g. text formatting tools such as changing font). (GILO)

1	2	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q7

The application has no significant bugs in use of the login feature. (GILO and Prototype)

1	(2)	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q8 (Optional)

If you answered less than favourably for any of the questions above, please list the bugs that you encountered when using the application (describing how they occurred as much as possible). (GILO first and Prototype second)

The GILO application tended to be slow and buggy, sometimes it would take too long to load and it gives me the impression that the application has crashed. When I click on a different section of functionality whilst another piece is still loading (after a while) the application will crash.

I couldn't see any text editing tools on the prototype – this I believe is not detrimental to the user experience though because I would edit my text in a different application (Microsoft Word).

Section 2 – Visual Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The UI on the home/main page for the application is laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The UI on all other pages for the application are laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application as a whole is visually appealing. (GILO and Prototype)

1	2	3	4	(5)
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

If you answered less than favourably for Q1 in this section (or otherwise), what do you think could be changed in regards to the UI for the home/main page? Please answer below. (GILO first and Prototype second)

I think the GILO application should adopt the central design layout the prototype has.

Q5 (Optional)

If you answered less than favourably for Q2 in this section (or otherwise), what do you think could be changed in regards to the UI for other pages of the application? Please answer below, name the page(s) and give any relevant comments for each. (GILO first and Prototype second)

I believe both applications make logical sense. I think having constant top-bar on the prototype is a good logical implementation.

Q6 (Optional)

If you answered less than favourably for Q3 in this section (or otherwise), what do you think could be changed in order to make the application more visually appealing? Please answer below. (GILO first and Prototype second)

The GILO app is fairly visually appealing.

I think maybe adding some colour or graphics to the prototype will make it a little bit more visually appealing, but as this is a prototype I am not expecting a full range of graphics and colours to be added and the original design implementation is sufficient and solid. I think it is better to have a clutter free prototype but this is something definitely to think about if this prototype were to go into production.

Section 3 – Content

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The application has represented all of the functional content that you feel you would need for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The functional content included in the application could be improved to be better for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application adequately includes, aside from its core functionalities, the ability to contact the team, learn more about recent changes to the application (through the patch notes) and learn more about GILO. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

Depending upon how you answered Q1 and Q2 in this section, either state the particular functionalities that you liked within the application (and the reasons why), OR give reasons why you didn't like certain functionalities/ways in which you think they could be improved. (GILO first and Prototype second)

I like the Style, evidence and logic functionalities. I believe as a student I would gain value from all of these functions. Sometimes I struggle with the style of my writing so this is a must. The logical feature is good to have because sometimes an illogical phrase may slip into my writing un noticed so its good to have a method to correct this. The evidence feature is good but in my personal opinion, I prefer to have a conversation with AI to find out facts and quotes, because its more interesting to me.

I believe the addition of a GPT detector on the prototype is an excellent addition due to the fact that a lot of students will be using AI services to help write certain things. I like the comments box on the prototype

Q5 (Optional)

Are there any further pieces of content that you feel are important that the application lacks? (GILO first and Prototype second)

Not really to be honest I believe both the prototype and the app have the correct functionality needed for this point in time.

Section 4 – Miscellaneous

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

I am concerned about the security of my data having seen the information that GILO takes from its subscribing users (shown on the profile page) or for another reason. (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

I would regularly use the application during my work/study. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

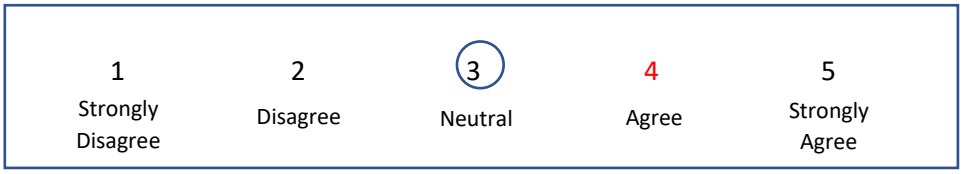
Q3

I would be happy to use one of the paid subscription plans having seen the application and having read about the advantages of doing so. (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

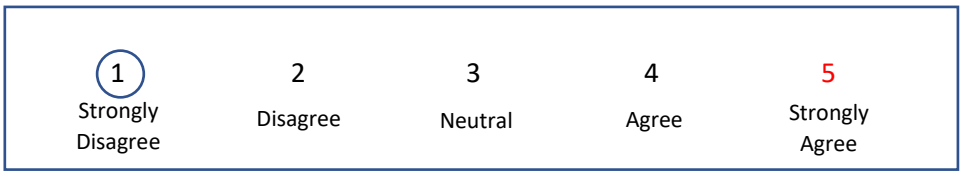
Q4

I would recommend this application to my peers and/or my organisation. (GILO and Prototype)



Q5

There were no performance related issues when using the application. (GILO and Prototype)



Q6 (Optional)

If you answered Q1 less than favourably, what particular elements of security are you concerned about and what do you think GILO could do/change in order to better address your concerns? (GILO first and Prototype second)

I am not concerned about the security but it would have been a nice feature to on both applications to have a pop-up or section that defines your privacy rights.

Q7 (Optional)

If you answered Q2, Q3 within this section favourably, how often would you use the application based off of what has already been shown to you and how much would you be willing to pay for these features and for the additional features mentioned? (GILO first and Prototype seco

I would definitely not pay to use the GILO application because it is too buggy and the performance is terrible. The prototype doesn't have performance issues so I would be happy to pay for this application monthly because I do see immense value in the app's functionalities and I like the design of it.

Q8 (Optional)

If you answered Q4 less than favourably, what performance related issues did you encounter?, give as much detail as you can and if possible, the specification of the device you are accessing the application on and your internet speed. (GILO first and Prototype second)

Windows 10 (education) core i7 Dell laptop

64 bit

220Mbps Wifi download speed

The GILO app took ages to load functional options

Q9 (Optional)

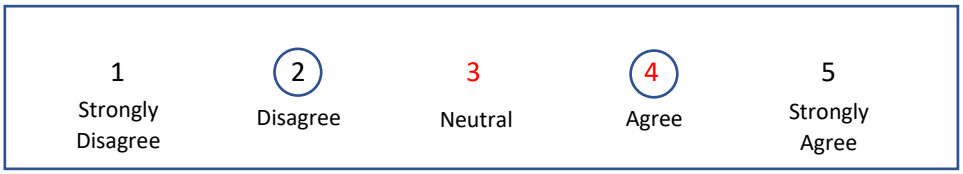
Are there any other things that have not been directly mentioned in this questionnaire that you feel GILO would like to know? These can be concerns or positive experiences.

I believe that GILO should take onboard this prototype design due to the fact that it is clean and responsive. I feel that GILO's retracting sidebar is a mistake and a constant left-sidebar would be much better. The gpt detector is a good addition and it should be shown to GILO.

Unknown Participant 3 – Questionnaire

GILO Application: User Questionnaire

Only answer this questionnaire AFTER you have read, understood and signed the ethics form that has been provided to you. You will be provided a set of questions (divided by topic; 4 in total) and are asked to answer the questions truthfully and in the knowledge that this form is anonymous. In all questions of this questionnaire, it will be stated whether or not the question is relevant to the GILO application or the extra wireframe application provided to you or both.



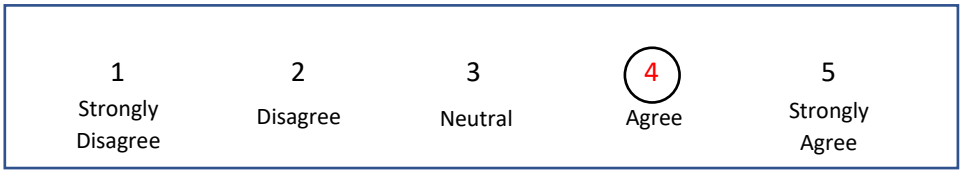
The example above shows how you would fill out the box for different scenarios. If a question only refers to the **GILO** application then make sure that circle a number. If a question only refers to the other **prototype** application shown to you then make sure to red highlight the correct number. If a question refers to both applications, then you can either select different numbers for each answer (with a circle on one number and red highlight on the other), or you can choose the same number for both (by combining the red highlight and circle on the same number).

Section 1 – Functional Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. There is one question that will ask for a written answer but it is ultimately optional. Please circle the number that best meets your response.

Q1

The application has no significant functional bugs in terms of page navigation. (GILO and Prototype)



Q2

The application has no significant bugs in use of the ‘Style’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application has no significant bugs in use of the ‘Evidence’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4

The application has no significant bugs in use of the ‘Logic’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

The application has no significant bugs in use of the ‘Detect GPT’ functionality provided. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q6

The application has no significant bugs in use of the text editor (e.g. text formatting tools such as changing font). (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q7

The application has no significant bugs in use of the login feature. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Section 2 – Visual Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The UI on the home/main page for the application is laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The UI on all other pages for the application are laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application as a whole is visually appealing. (GILO and Prototype)

1	2	3	(4)	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

If you answered less than favourably for Q1 in this section (or otherwise), what do you think could be changed in regards to the UI for the home/main page? Please answer below. (GILO first and Prototype second)

Nothing for GILO.

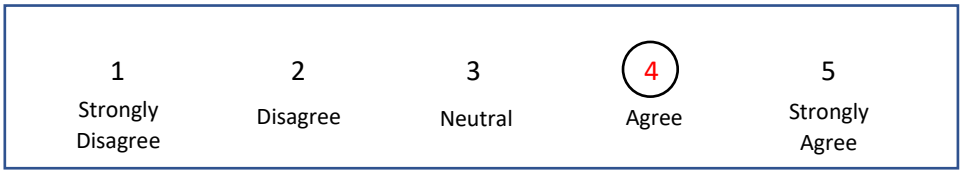
But for the prototype, not quite understand why the Analyse and Visualise button is at the bottom of the page instead of in the button group at the top.

Section 3 – Content

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

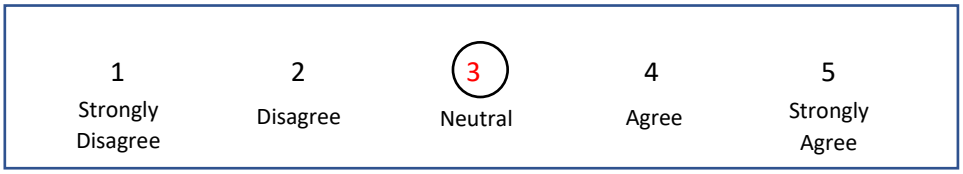
Q1

The application has represented all of the functional content that you feel you would need for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)



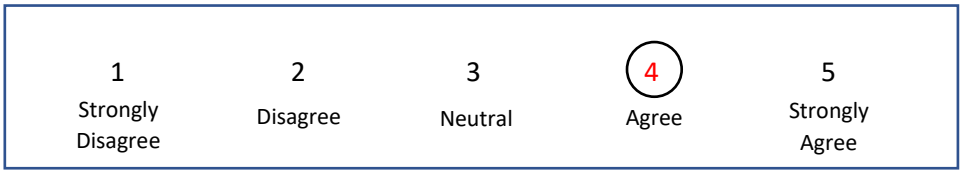
Q2

The functional content included in the application could be improved to be better for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)



Q3

The application adequately includes, aside from its core functionalities, the ability to contact the team, learn more about recent changes to the application (through the patch notes) and learn more about GILO. (GILO and Prototype)



Q4 (Optional)

Depending upon how you answered Q1 and Q2 in this section, either state the particular functionalities that you liked within the application (and the reasons why), OR give reasons why you didn't like certain functionalities/ways in which you think they could be improved. (GILO first and Prototype second)

Section 4 – Miscellaneous

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

I am concerned about the security of my data having seen the information that GILO takes from its subscribing users (shown on the profile page) or for another reason. (GILO)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

I would regularly use the application during my work/study. (GILO and Prototype)

1	(2)	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

I would be happy to use one of the paid subscription plans having seen the application and having read about the advantages of doing so. (GILO)

(1)	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4

I would recommend this application to my peers and/or my organisation. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q5

There were no performance related issues when using the application. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q7 (Optional)

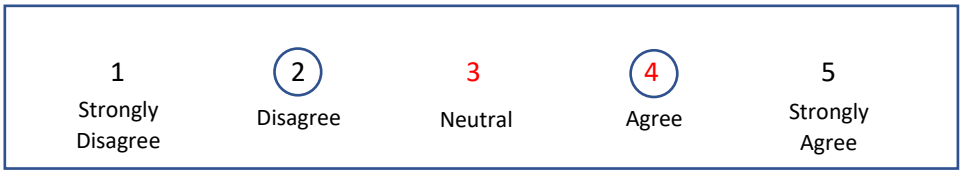
If you answered Q2, Q3 within this section favourably, how often would you use the application based off of what has already been shown to you and how much would you be willing to pay for these features and for the additional features mentioned? (GILO first and Prototype second)

GILO: Features not good enough to spend money on. Even the existing application still has a lot of room for improvement.

Unknown Participant 4 – Questionnaire

GILO Application: User Questionnaire

Only answer this questionnaire AFTER you have read, understood and signed the ethics form that has been provided to you. You will be provided a set of questions (divided by topic; 4 in total) and are asked to answer the questions truthfully and in the knowledge that this form is anonymous. In all questions of this questionnaire, it will be stated whether or not the question is relevant to the GILO application or the extra wireframe application provided to you or both.



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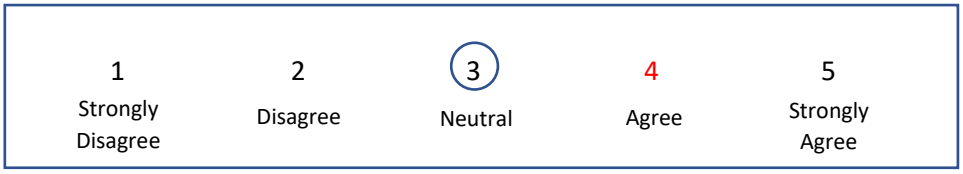
Section 1 – Functional Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. There is one question that will ask for a written answer but it is ultimately optional. Please circle the number that best meets your response.

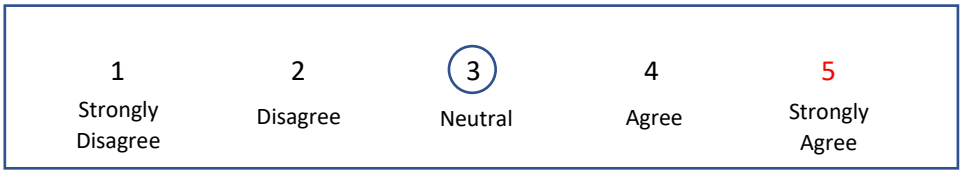
Q1

The application has no significant functional bugs in terms of page navigation. (GILO and Prototype)



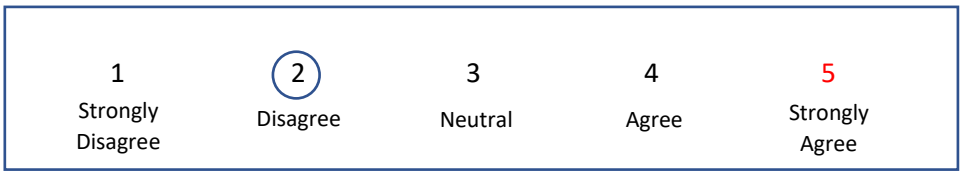
Q2

The application has no significant bugs in use of the ‘Style’ functionality provided. (GILO and Prototype)



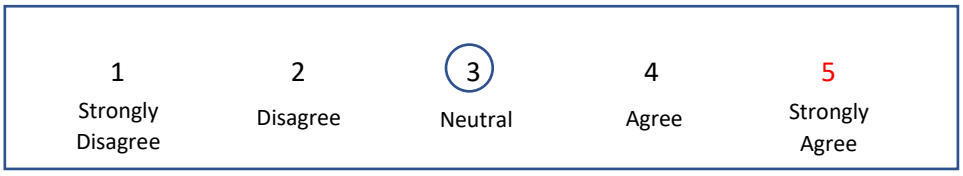
Q3

The application has no significant bugs in use of the ‘Evidence’ functionality provided. (GILO and Prototype)



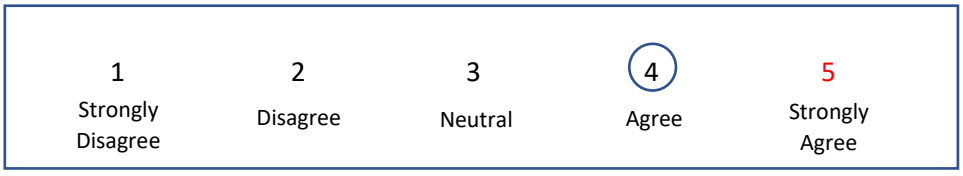
Q4

The application has no significant bugs in use of the ‘Logic’ functionality provided. (GILO and Prototype)



Q5

The application has no significant bugs in use of the ‘Detect GPT’ functionality provided. (GILO and Prototype)



Q6

The application has no significant bugs in use of the text editor (e.g. text formatting tools such as changing font). (GILO)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q7

The application has no significant bugs in use of the login feature. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q8 (Optional)

If you answered less than favourably for any of the questions above, please list the bugs that you encountered when using the application (describing how they occurred as much as possible). (GILO first and Prototype second)

Speed issues of processing requests are the biggest issue for the GILO application. When a feature has been selected, the pro cessing time is way too long for the desired purpose and makes the overall user experience worse. Additionally, sometime features are selected and if the user accidentally or purposefully clicks anywhere else on the page, the request for the feature is cancelled. This is may be a design feature implemented by the application to allow the user to exit a request, however a clearer option of a 'CANCEL' button could be used to make it clearer, since there is no error reporting that the process has been cancelled.

Section 2 – Visual Usability

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The UI on the home/main page for the application is laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The UI on all other pages for the application are laid out in a way that makes logical sense and is easy to use. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application as a whole is visually appealing. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

If you answered less than favourably for Q1 in this section (or otherwise), what do you think could be changed in regards to the UI for the home/main page? Please answer below. (GILO first and Prototype second)

The layout of both pages is very fluid and makes logical sense. Each feature leads on to the relevant function. Some of the tabs on the left hand side of the GILO application could use more explanation for a user and their first time using the application.

Q5 (Optional)

If you answered less than favourably for Q2 in this section (or otherwise), what do you think could be changed in regards to the UI for other pages of the application? Please answer below, name the page(s) and give any relevant comments for each. (GILO first and Prototype second)

I would suggest putting the prompts and information about each feature in the centre of the page for the user to see rather than the right hand side bar. Although this works well and suits the flow of the GILO application, the prototype makes it much easier for the information to be displayed to the user being centrally focused.

Q6 (Optional)

If you answered less than favourably for Q3 in this section (or otherwise), what do you think could be changed in order to make the application more visually appealing? Please answer below. (GILO first and Prototype second)

With regards to the prototype, the page had a fluid feel but the colour scheme of the GILO application seems to fit better with the overall feel of the website. Similarly, text in the prototype's text editor could be slightly clearer and better formatted.

Section 3 – Content

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

The application has represented all of the functional content that you feel you would need for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

The functional content included in the application could be improved to be better for research/writing within your given role/field (as a knowledge professional, student or researcher). (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q3

The application adequately includes, aside from its core functionalities, the ability to contact the team, learn more about recent changes to the application (through the patch notes) and learn more about GILO. (GILO and Prototype)

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q4 (Optional)

Depending upon how you answered Q1 and Q2 in this section, either state the particular functionalities that you liked within the application (and the reasons why), OR give reasons why you didn't like certain functionalities/ways in which you think they could be improved. (GILO first and Prototype second)

Most of the functionality the application included worked well and provided excellent responses to the text that was input. One aspect of the evidence functionality that I would like to see improved would be quotes or abstracts for whole sentences or phrases rather than just key words. A lot of the time, the keyword is taken out of context and provides quotes or abstracts that are not relevant to the input text.

Q5 (Optional)

Are there any further pieces of content that you feel are important that the application lacks? (GILO first and Prototype second)

I would like the option for a summarisation feature to produce a short abstract/introduction based on the input text. A feature for spelling & grammar mistakes would also be a nice addition.

Section 4 – Miscellaneous

The questions in this section will have a mixture of two question types. Some will require you to give answers as numbers on a scale, with a wholly negative response giving a value of 1 and a wholly positive response giving a value of 5. Some questions will ask you to provide written answers but are ultimately optional. Please circle the number that best meets your response.

Q1

I am concerned about the security of my data having seen the information that GILO takes from its subscribing users (shown on the profile page) or for another reason. (GILO)

1	(2)	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Q2

I would regularly use the application during my work/study. (GILO and Prototype)

1	2	(3)	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

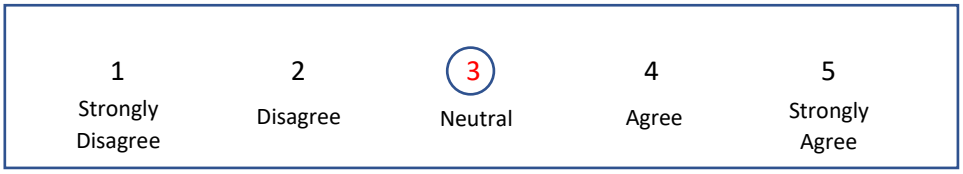
Q3

I would be happy to use one of the paid subscription plans having seen the application and having read about the advantages of doing so. (GILO)

1	(2)	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

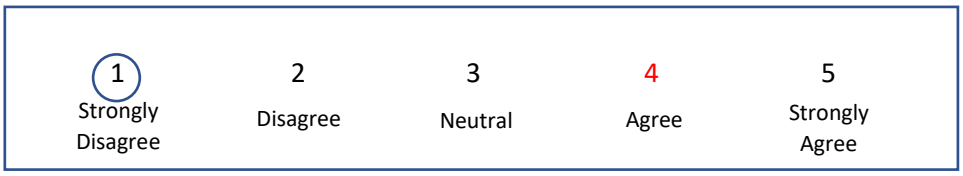
Q4

I would recommend this application to my peers and/or my organisation. (GILO and Prototype)



Q5

There were no performance related issues when using the application. (GILO and Prototype)



Q6 (Optional)

If you answered Q1 less than favourably, what particular elements of security are you concerned about and what do you think GILO could do/change in order to better address your concerns? (GILO first and Prototype second)

I don't think there are any issues with security. The only data the application took from me was my email address and password and no other personal data.

Q7 (Optional)

If you answered Q2, Q3 within this section favourably, how often would you use the application based off of what has already been shown to you and how much would you be willing to pay for these features and for the additional features mentioned? (GILO first and Prototype second)

For me personally, I would not use the application as much as other industries due to my course of study (software engineering). Since most of my work is coding and not academic/research writing, it is not as necessary in my field. However, I could see the use for such when needing to write AGILE documentation about Software Management where it could be deemed useful. I believe that for what the application provides me and my current level of study and need for the application, I would not be willing to pay for the extra features.

Q8 (Optional)

If you answered Q4 less than favourably, what performance related issues did you encounter?, give as much detail as you can and if possible, the specification of the device you are accessing the application on and your internet speed. (GILO first and Prototype second)

Speed issues were the biggest performance issue as detailed further in Q8 of section 1. Accessing of an i7 intel core processer with 16GB RAM. Average internet speed at time of accessing were 85mbps-160mbps.

Q9 (Optional)

Are there any other things that have not been directly mentioned in this questionnaire that you feel GILO would like to know? These can be concerns or positive experiences.

Will there be any future updates to the application to include features that have been eluded to by the GILO company?

Answered Interviews

All interview transcripts in this section will be signified by a blue box surrounding them.

Interview 1 – 25/04/2023 with Joseph McSweeney

Elliot:

I'm going to start the recording. So, thanks for being here, Joe. This is an interview about the GILO application study and comparing it to my prototype, so the questions given to you are solely asked for the purposes of interviewing participants of this study, and you've signed the consent form to be part of this study. So they should not be asked prior to you signing the ethics consent form. So can I confirm that you have done that? Yeah. Cool. Okay. Right. So the first question I have for you is, how long do you think you've spent experimenting with the GILO application minutes, hours, days? Can you give any kind of ballpark? And again, all of these questions are optional, by the way, so if there are any that don't wish to answer then, that's fine.

Joe:

How long I've spent as an investigator too or I've how long I've spent as a user?

Elliot:

Either.

Joe:

Okay, probably like a few hours looking at all of the different features.

Elliot:

Okay cool thankyou, so the second question that I have for you, is, are there any other applications that you currently use within the space of document processing and analysis? So maybe some other commonly used tools or things such as Grammarly? Are there any other tools aside from GILO that you've used?

Joe:

Yeah, so I've used I've dabbled in Grammarly for a bit, but I it ties you into a contract? So I just don't use it anymore. Like, I find that quite useful.

Elliot:

Okay Grammarly yep.

Joe:

I like to use Chat GPT sometimes to like rework my sentences and stuff like that. But I don't really use any other tools to be honest.

Elliot:

Yeah, I ask because I want to kind of get an understanding of the use of some of the competitors of GILO among the participants. So yeah, that's great. Thank you. So Question three. So when you think of the GILO application, just when you first think of it? What are the things that come to your mind?

Joe:

What is this? Like, where am I meant to put in my information? Like, I know, there is information already put in there, but like, there's no real defined textbox I can see. I had to zoom out, to find the side pane just to start looking at it.

Elliot:

Okay yeah I get what you're saying.

Joe:

And then as far as like when it goes to the side pane, I don't know, like it is a good explanation of what they are. But yeah, there should be a bit more of like a defined text box. And it's too wide to read as well. I was thinking why am I reading something from the left side of my monitor all the way to the right side of my monitor? I would rather just read a book.

Elliot:

Okay, yep no that makes sense. There's some really informative points there. Yeah, obviously first impressions are a big thing so thank you for sharing your thoughts on that. Now for question four. Can you think of any reasons why someone may not want to use this product if they're looking for a document processing and analysis tool, so by that I mean over other products in the space, so obviously, there are things that GILO brings that others can't bring? But do you think that those things in itself are significant enough to pull people away from its competitors?

Joe:

Yeah, yeah, I'd probably say so, I think it is quite different to the other competitors. I like the style logic and evidence, functions.

Elliot:

Okay cool that's great to hear. So the next question I have for you is do you think the organization you study under or work for would consider using the GILO app as a global product for employees? So this leads on from a question in the questionnaire.

Joe:

I think with much further development, potentially, yes.

Elliot:

Yeah.

Joe:

But within that time, I think a competitor is gonna get there, because this app has many flaws with just how the response time is ridiculously slow. And, like, I get just too busy just to be sat here waiting for it to load. Okay. So and especially in a professional environment, the standard of this app is not good enough. So I think, potentially a if they have like, two years worth of solid development, but then I think by the time that time comes right, Chat GPT probably have these features, and they right now don't have any response problems.

Elliot:

Okay, thanks for the answer. So leading on from another question posed to you in the questionnaire, you should have also tested another wireframe of an application given to you (the prototype that I sent to you). Are there any things that you feel were better or worse with this prototype compared to the GILO application? Any particular things that stand out?

Joe:

So yeah, my first umm, my first thought, which relates to the point I said earlier, where I opened the app and just thought 'what is this?', the thing I really like about this prototype is the fact the buttons are well described, Like it has the writing on the buttons. So you know what they are, do you know, what the app does. There's also a clear box where you put your writing in. And like it's all in the middle of the screen. I like how it's narrower. So you don't have to read the screen all the way from left to right. I know, on the other app, it does change, but the fact remains that you're still reading across the whole screen. I really like how with the other application it's like reading a book, it makes it feel way more natural. Especially if you have a hard time reading or something. Yeah, I also like how it's just responsive, when I click on things they're straight there in front of me with no messing about.

Elliot:

Okay yeah so some really helpful points there, thanks Joe. Okay, so the next question I have for you is, How was the performance of the other prototype given to you compared to the GILO application? So I know you mentioned that a little bit there before. But yeah, do you feel the performance in terms of loading times and responsiveness and therefore also usability was better?

Joe:

Yeah, of course, the performance is bad. But I think probably the reason why performance is worse on the other one is because it's obviously having to process things. That being said I did find that I had certain performance bugs with hovering over the functionalities not working properly in the GILO application and sometimes could not even access the site.

Elliot:

Okay thanks for the dissection of a few specific points there. So the last question I just have for you here is, do you have any questions for me that you'd like me to pass on to the GILO team? So if you do pose any questions here, they may be included in the Frequently Asked Questions on the GILO Technologies site or the GILO Academia application site. But yeah, are there any things that you would like to ask me or for me to pass on?

Joe:

No.

Elliot:

Okay, great, this interview has been really helpful, so thank you, and I'm going to conclude our time together here.

Interview 2 – 26/04/2023 with Zakir Chaudry

Elliot:

Okay. Hi, Zak. Thanks for being here today to answer some questions about the GILO app and the other prototype you were presented with. So the questions in this interview are solely for the purposes of participants of the study, which, obviously you are. And I just want to check first of all, that you've signed the ethics consent form already, as that's a requirement before this.

Zak:

Yeah, I've received and signed the consent form.

Elliot:

Okay great, so if you want to get started, we can move on to question one?

Zak:

Cool.

Elliot:

Okay, so the first question I have for you is, how long do you think you've spent experimenting with the GILO application? minutes, hours days? So this is specifically the GILO application, not the other prototype you were sent. But yeah, how long do you think you've probably spent looking at it in total?

Zak:

Well all in all, with testing and looking at the design of it, I'd probably say I've spent a couple of hours messing around with the app. Yeah, looking at some of the functionality as well. Yeah, I've probably spend about two hours.

Elliot:

Okay yeah, that's great. That's just a quick little opening question. So yeah, thanks for that. So the second one I have for you is are there any other applications that you currently use within space of document processing and analysis? So an example I could give you would be something like Grammarly? And I was just wondering if you have used or continue to use any tools within that space?

Zak:

Yeah, so Grammarly is a good example of one tool that I've used in the past. And of course, Chat GPT is quite good for detecting sentence structures and things like that as well.

Elliot:

Okay, so the third question I have for you is, when you think of the GILO application, what are the first things that come to your mind? The first things when someone says to you GILO that you think?

Zak:

So not first impressions of loading up the application?

Elliot:

Not necessarily, just based on everything you've learned about the application and everything that you've done with it. If someone yeah mentioned the GILO application to you, what is the first thing you think and it doesn't necessarily have to be about the functionalities or anything? It can be whatever, what comes into mind?

Zak:

Well, I guess you would say, tech, developing AI and yeah just efficiency of writing, a writing tool I guess.

Elliot:

Cool, so, the next question I have for you is, can you think of any reasons why someone may not want to use this product? (If they're looking for a document processing and analysis tool).

Zak:

I don't see why anybody wouldn't use this. Providing that it's a service that's within their their budget. So because there are a lot of tools out there already, such as you know, we've mentioned Grammarly and Chat GPT. So if the application has the unique selling point of improving efficiency for academic writers and researchers, I do think that is a very valuable tool and something they should be using. If there are alternatives out there that are cheaper, or providing a similar service or for free, then maybe I could see why people would not need to use the service and maybe look elsewhere.

Elliot:

Okay. And just further on that, you can use the digital application for free. So with that having the possibility of being free and say something like Chat GPT as well, if we don't consider the fact that that may become paid at some point. Right now, do you think that this application has selling points that give reasons why people would use this over that?

Zak:

Yeah, absolutely. I mean, even comparing Chat GPT and GILO application, the functionality of the application is much greater than anything that other services can provide (that I've seen anyway).

Elliot:

Okay, so, question five, just a few more after this. Do you think the organization you study under or work for would consider using the GILO app as a global product for employees? So this leads on from a question in the questionnaire where I asked if you would you kind of recommend the app? But do you think that either the organization you study under or work for would consider using it?

Zak:

I think absolutely, you know, it's a very powerful tool for students and academic writing. When we're talking maybe specifically about my course of software engineering, maybe it's not so relevant. So I probably wouldn't recommend it to developers or other software engineers. However, if we're looking more higher up, maybe management, who are having to write portfolios and things, then I think it becomes a lot more just.

Elliot:

Okay thanks for an informative answer, so leading on from a question posed to you in the questionnaire as well, having also tested another wireframe of an application given to you (the prototype). Are there any things that you feel were better or worse for this one compared to the GILO application? Now that question is kind of purposely open ended, and I would like to hear your thoughts.

Zak:

Yeah, absolutely. So on first impressions of the prototype I've been sent, it has a lot clearer layout, and you can determine instantly what the tabs do in each case, but when looking at the the GILO application, the taskbar on the left hand side, it's not visible to the user instantly (what each icon represents), the user has to dive deeper and actually understand how to use the app. Comparing that with the prototype, you can see a nice tab along the top, and each icon instantly explained even just with a couple of words. Furthermore, moving away from that, the actual functionality, when we have a look at the 'Assess Logic' tab, it's got a nice transition, and the information about logical fallacies is displayed directly in front of the user not off to the side, it's there clear for the user to see. Maybe one thing I would like to say though is the font sizing could be bigger, I know It's not a developed application like the GILO application, but that's one thing I could see being an issue for some people. But the overall design of the page is really aesthetic and has a good fluid feel.

Elliot:

Yeah thank you for giving me some insight into your experience there. Okay, so I just have a couple of other questions. Firstly, how was the overall performance of the other prototype given to you compared to the GILO application? So when I say performance, that that can be kind of thought about in terms of many things really, but I'm specifically talking about loading times. Also the tendency for crashing or bugs? Do you have some thoughts on any of that?

Zak:

Yeah so I mean, with the prototype, there's an instant speed when processing requests, but when using the GILO application, when an option has been selected, there's a long pause while the system is actually processing each request. I know it's doing quite a lot in the background, but speed becomes a real issue with

the application. It can be prone to crashing as well. I've noticed a couple of times when I first started using the application it would also produce HTML code in the text which is odd and obviously just not necessary for the user. So I would say the overall performance means the prototype functions a lot better than the GILO application does.

Elliot:

Again thank you for the answer, so now just the last question I have for you here is, do you have any questions for me that you would like me to pass on to the GILO team? If you do have any, they may have included in the FAQ in the future if it's something that other people in this study also tend to ask a lot. But yeah, I just wanted to know if you have any other questions.

Zak:

Yeah, so I guess one question would be that there's some functionality that's been spoken or mentioned about by GILO, such as for example, including introductions or summarisations of inputted text. This and some of those functionalities that are not included or even alluded to in the application but were mentioned on the site I'm assuming will be released in further updates?

Elliot:

Okay yeah I'll certainly pass that on to them. Do you have any other questions?

Zak:

No That's pretty much it.

Elliot:

Well, thank you for being here today and for taking part in this interview. This concludes our time together today.

ETHICS Filled Documents

All consent forms in this section will be signified by a yellow box surrounding them.

Joseph Michael McSweeney – Consent Form

CONSENT FORM

Title of Research Project: Requirements, prototyping and evaluation – GILO Application

Organisations Involved: GILO Technologies

Name of Principal Investigator: Elliot Noyes

Name of Interviewer: Elliot Noyes

Name of Questionnaire Handler: Elliot Noyes

This study is part of a Masters (MSc) Software Engineering project that I am currently undertaking. The study will be completed in two sections:

1. **Questionnaire** – A questionnaire will be given to each of the participants and they will be asked to fill it in based on their experiences with the GILO application. All written questions are optional and whilst the non-written questions are compulsory for the study, participants can choose to not answer these questions and in doing so leave the study at any time.
2. **Interview** – An interview will be carried out with randomly selected participants, again eliciting data about their experiences with the GILO application. This will be a short (approximately 5 minute long) interview and is again ultimately optional. However, if participants do not take part in the interview then they can again leave the study at any time.

In order to qualify to take part in this study, participants must:

. Speak English as your first language or have successfully passed a recognised test such as TOEFL (Test of English as Foreign Language), indicating that the participant has a basic level of English.

. Have experience in using the GILO application; This must include use of all of the core functionalities described on the GILO Technologies site and experience in navigation around the rest of the GILO Academia site.

. Let me know if they have any disabilities that they would deem relevant, these will then be considered on a case by case basis to ensure that participants are facilitated for as best as possible.

What data will be taken from participants and how it will be used:

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. The main source of data that will be held is that surrounding use of the GILO application and the experience of the participants.

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. The outcomes of this study (in terms of trends in responses for example) could be used, however none of this will be identifying for any of the participants.

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Please Initial Box

I confirm that I understand the procedure for this study and that I conform with the qualification requirements.	JMM
I understand that I have the right to not take part in this study at all if I choose.	JMM
I understand that I have the right to leave the study at any time that I choose.	JMM
I confirm that I am happy with my data being collected and utilised as described.	JMM
I understand that the personal data collected will be held and used for the duration of the study but will be deleted upon the end of the study.	JMM
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I understand that I have the right to ask for proof of ethical approval clearance or any information to confirm the details given on this consent form.	JMM

I understand that this study includes a minimal risk of discomfort.	JMM
I agree to take part in this research project.	JMM

JOSEPH MICHAEL MCSWEENEY	25/04/2023	JMM
Name of participant (print)	Date	Signature
Elliot Noyes	29/04/2023	
Name of person taking consent (print)	Date	Signature

Principal Investigator

Role of person taking consent

(print)

THANK YOU FOR PARTICIPATING IN OUR RESEARCH

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Po Yan Tang – Consent Form

CONSENT FORM

Title of Research Project: Requirements, prototyping and evaluation – GILO Application

Organisations Involved: GILO Technologies

Name of Principal Investigator: Elliot Noyes

Name of Interviewer: Elliot Noyes

Name of Questionnaire Handler: Elliot Noyes

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I understand that I have the right to not take part in this study at all if I choose.	PYT
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I confirm that I am happy with my data being collected and utilised as described.	PYT
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I understand that this study includes a minimal risk of discomfort.	PYT
I agree to take part in this research project.	PYT

Po Yan Tang	22/4/2023	
Name of participant (print)	Date	Signature
Elliot Noyes	29/04/2023	
Name of person taking consent (print)	Date	Signature

Principal Investigator

Role of person taking consent

(print)

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Aiswarik Sonowal – Consent Form

CONSENT FORM

Title of Research Project: Requirements, prototyping and evaluation – GILO Application

Organisations Involved: GILO Technologies

Name of Principal Investigator: Elliot Noyes

Name of Interviewer: Elliot Noyes

Name of Questionnaire Handler: Elliot Noyes

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I understand that I have the right to leave the study at any time that I choose.	AS
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I understand that this study includes a minimal risk of discomfort.	AS
I agree to take part in this research project.	AS

Aiswarik Sonowal	27/04/2023	Aiswarik Sonowal
Name of participant (print)	Date	Signature

Elliot Noyes	29/04/2023	
Name of person taking consent (print)	Date	Signature

Principal Investigator

Role of person taking consent

(print)

THANK YOU FOR PARTICIPATING IN OUR RESEARCH

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Zakir Chaudry – Consent Form

CONSENT FORM

Title of Research Project: Requirements, prototyping and evaluation – GILO Application

Organisations Involved: GILO Technologies

Name of Principal Investigator: Elliot Noyes

Name of Interviewer: Elliot Noyes

Name of Questionnaire Handler: Elliot Noyes

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I confirm that I understand the procedure for this study and that I conform with the qualification requirements.	**ZC**
I understand that I have the right to not take part in this study at all if I choose.	**ZC**
I understand that I have the right to leave the study at any time that I choose.	**ZC**
I confirm that I am happy with my data being collected and utilised as described.	**ZC**
I understand that the personal data collected will be held and used for the duration of the study but will be deleted upon the end of the study.	**ZC**
I understand that non-personal data may be used outside of this study and that none of this data is identifiable to me.	**ZC**
I consent to an audio recording of the interview in this study that I will participate in being taken (If you do not consent this does NOT remove you from the study).	**ZC**
I understand that I have the right to ask for proof of ethical approval clearance or any information to confirm the details given on this consent form.	**ZC**

I understand that this study includes a minimal risk of discomfort.	**ZC**
I agree to take part in this research project.	**ZC**

ZAKIR CHAUDRY 26/04/23 

Name of participant (print) Date Signature

Elliot Noyes 29/04/2023 

Name of person taking consent (print) Date Signature

Principal Investigator

Role of person taking consent

(print)

THANK YOU FOR PARTICIPATING IN OUR RESEARCH

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