# A BEHAVIOURAL INSIGHTS STUDY OF THE KINGSTON CHAMBER OF COMMERCE WEBSITE

## EXECUTIVE SUMMARY

A behavioural insights study was conducted for the Kingston Chamber of Commerce to analyse the users' behaviours and attention patterns while using the Chamber's website and identify areas for improvement. The study used eye-tracking technology to track the gaze of 20 participants as they completed specific tasks on the Chamber's website and compared their experience on the Brighton Chamber of Commerce website. The eye-gaze video was played back to each participant in retrospective think-aloud interviews to gain further insights into their experience while completing the tasks. The eye-gaze data and verbal protocols were then analysed to identify the usability strengths and weaknesses of both websites. The results showed that tasks generally took longer to complete on the current Kingston Chamber of Commerce as users experienced difficulties in navigating to the relevant information and processing the information available. The comparator website was perceived as more user-friendly, but also suffered from minor usability issues. The study also revealed that information about membership and event pricing was an important cue for decision-making. Based on these findings, we provide 11 key recommendations for increasing the usability of the redesign of the Chamber's website.

Gaëlle Vallée-Tourangeau, PhD and Fanni Szigetvari, MSc

7 February 2023

# Table of content

# A behavioural insights study of Kingston Chamber of Commerce website

## 1 Introduction

### 1.1 The brief

This exploratory research study aims to provide help to the Kingston Chamber of Commerce in evaluating its website and supporting it in developing an online service that is easier, more attractive, communal, and timely for business owners and patrons. It will seek to identify barriers to engaging with the Chamber's website using data analytics from eye-tracking and cognitive process tracing.

### 1.2 Overview of eye-tracking technology

There is increasing interest in collecting eye movement traces in usability testing so that the recordings of users' eye movements can be replayed as a method for eliciting rich, retrospective reports of usability problems (Ball & Richardson, 2022; Cho et al., 2019). A study by Eger et al. (2007) provided a key experimental validation of this approach. It included participants producing either concurrent "think-aloud" or retrospective reports during an online search task, with the latter being prompted by the playback of either the participant's own eye-movements or the "screen capture" of events. Fewer users completed the task successfully while thinking aloud, indicating this technique's capacity to disrupt task-based processing. Moreover, the eye-cued method identified more usability problems than the screen-cued or think-aloud methods. The results indicate that retrospective reports cued by participants' eye movements may be less reactive and more informative than other verbalization techniques.

### 1.3 Objectives of the study

The study had three main objectives:

1. What do current and new members experience when interacting with the Kingston Chamber's website to complete typical tasks?

2. What are the usability strengths and weaknesses of the current Kingston Chamber website compared to another Chamber website?

3. How can the user experience of the Kingston Chamber's website be improved?

# 2   Methodology

## 2.1   Participants

Our sample comprised of 20 participants (12 men and 8 women, mean age = 42) since 95% of usability issues are identified with 20 end-users (Faulkner, 2003). The sample was diverse with 55% reporting a White ethnic background, 40% reporting an Asian ethnic background (Indian, Pakistani, Chinese or any other Asian) and 5% reporting a Mixed ethnic background.

## 2.2   Equipment and tools used

Eye-tracking data were collected using Tobii Pro Nano, which has a sampling rate of 60 Hz (i.e., 60 gaze points were collected per second for each eye).

## 2.3   Task design and procedure

Participants were recruited via email. We used a stratified non-random convenience sampling technique whereby long-standing members of the Kingston Chamber of Commerce were invited to participate, and Kingston Business School student and alumni entrepreneurs recruited on campus. This allowed us to compare the experience of users familiar with the website (existing members) and potential users who are less familiar (student entrepreneurs).

Upon consenting, participants were invited to come to the Behavioural Science Lab at the Kingston Hill campus to take part in the study on a computer in the Lab's eye-tracking booth. They were told the study involved completing two tasks on the Kingston Chamber's and on one of a comparator website, after which they were asked to talk about their experience when interacting with the two websites. They were also informed that their eye-movements would be recorded and later analysed using an eye-tracker software. Participation lasted approximately 40 minutes. All participants received a £5 voucher in appreciation of their time, a debrief sheet, and were thanked for their participation.

All participants were tested individually, seated at a computer desk, in a position allowing the eye-tracker to record the eye-gaze, which means around 65 cm from the computer screen. To begin with, the eye tracker was calibrated with a nine-point system where the participant watched a circle move across the screen and paused at each of nine fixed points. If the calibration was noisy (that is, accuracy > 1°), the experimenter would repeat the procedure. Next, participants were presented with the two websites – the Kingston Chamber's website and a comparator website: the Brighton Chamber's website – and asked to complete the two tasks on each site. The order of the websites was counterbalanced for each participant to control for order effects.

One user task was the same for all participants and consisted in "finding out about an event and registering to attend". In this task, participants were asked to imagine that they would like to find a free networking event that is relevant for their business and that their task was to use the Chamber website to find out about upcoming events that would be useful to them and register to their chosen event (up to the point of submitting your application).

Kingston Chamber members were also given a user-specific task, which consisted in "finding information for their business". In this task, members were asked to imagine they were looking for expertise in HR to help them with an issue arising in their business. They were then told that their task was to use the Chamber website to find out information about other businesses that would be useful to them.

The user-specific task for student entrepreneurs was to "find information about membership". In this task, participants were asked to imagine they were interested in finding out more information about whether they would benefit from joining the Chamber and their task was to use the website to gather information to decide whether to join.

The tasks were presented in one of four orders, depending on the type of participants. The Table below summarises the timelines:

| Timeline | First website | Participant type | Task 1 | Task 2 |
|---|---|---|---|---|
| 1A | Kingston, Brighton | Member | HR support | Events |
| 1B | Brighton, Kingston | | | |
| 2A | Kingston, Brighton | Student entrepreneur | Joining CC | Events |
| 2B | Brighton, Kingston | | | |

In the final part of the study, all participants were replayed the recordings of their eye gaze while completing their tasks and asked to think aloud and talk the experimenter through what they were doing and thinking at the time. More specifically, they were given the following verbal instructions:

> *"I am now going to show you a recording of your eye movements during the tasks you completed on the first website/second website, and I would like you to talk me through what you were doing and what you were thinking at the time. The red dots represent where you were looking; the longer you were looking at something the larger the red dot becomes. I would like you to think aloud CONSTANTLY from now on until you have finished your evaluation."*

The retrospective reports were recorded and transcribed via Microsoft Teams. As a final step, participants were given printed out forms and asked to record demographic information about themselves (age, gender, and ethnicity).

# 3 Results

## 3.1 Searching for information about joining (new members)

### 3.1.1 Attention and eye-gaze metrics

Student entrepreneurs spent slightly longer examining the Kingston Chamber home page when starting this task compared to the Brighton home page. They also spent more time in processing information (whole fixations) than in saccades. This suggests that the path to access the relevant information to decide whether to join was not as accessible on the Kingston Chamber website.
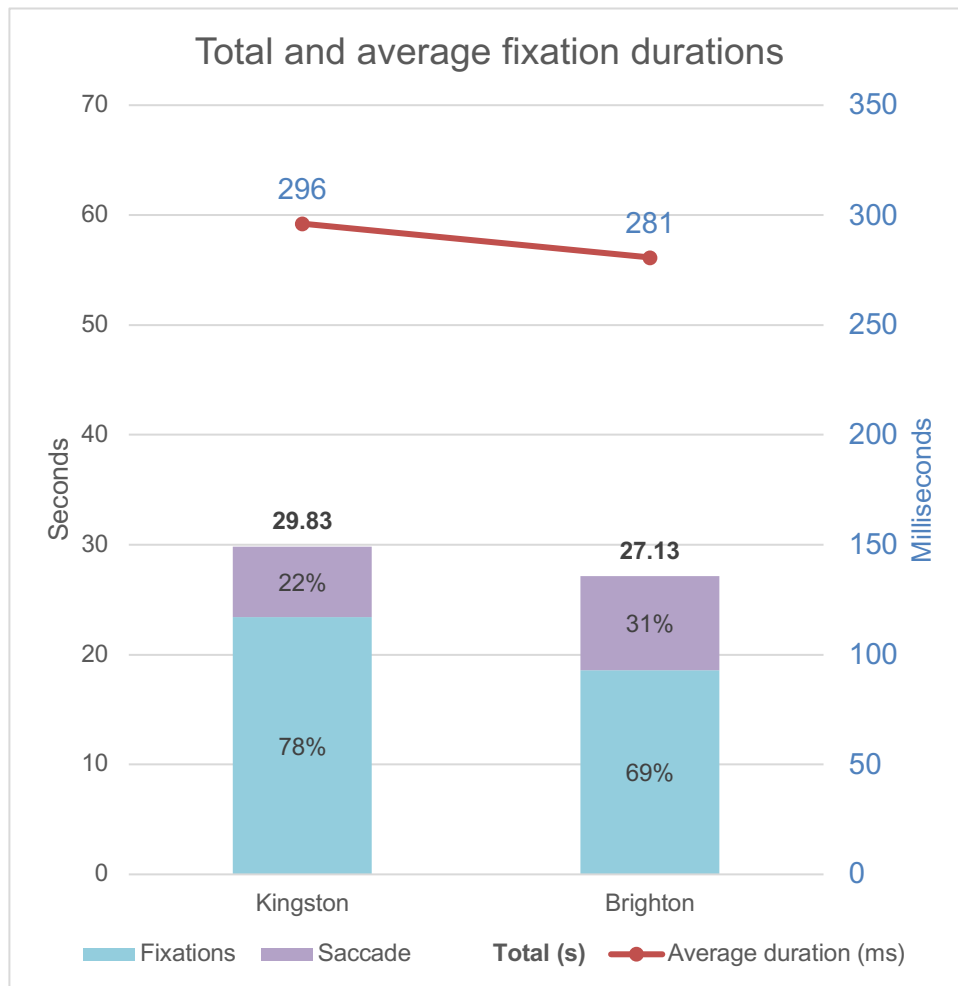


This insight is also supported by the fact that the number of fixations and saccades was higher on the Kingston Chamber website, as was the total amplitude of the saccades, suggesting that users had to search more intensively before getting to the relevant information.
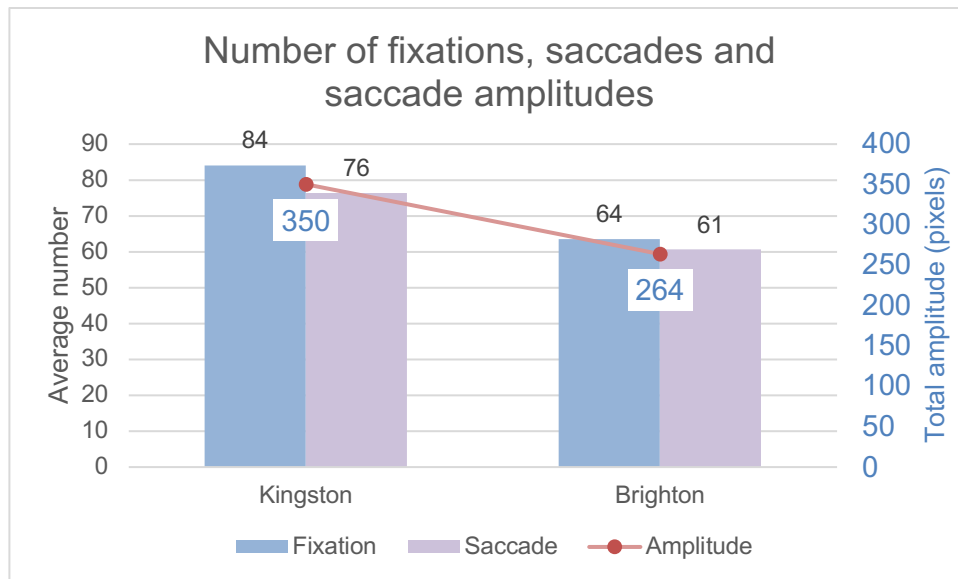
Figure: Number of fixations, saccades and saccade amplitudes

*Table 1. Most common pages visited from the homepage in the "join up" task (new members).*

| Website | Count |
|---|---|
| **Brighton** | **49** |
| Join Brighton Chamber | Business Networking | 12 |
| Events Directory - Brighton Chamber | 10 |
| Members Directory - Brighton Chamber | 9 |
| Activity Hub - Brighton Chamber | 6 |
| About Brighton Chamber | Brighton & Hove Chamber of Commerce | 5 |
| Sign Up - Brighton Chamber | 4 |
| **Kingston** | **58** |
| Membership | Kingston Chamber of Commerce | 17 |
| Membership Fees | Kingston Chamber of Commerce | 7 |
| Members Area | Kingston Chamber of Commerce | 4 |
| Join Online Today | Kingston Chamber of Commerce | 4 |
| About Us | Kingston Chamber of Commerce | 4 |
| Chamber Networking | Event Categories | Kingston Chamber of Commerce | 3 |
| Patrons | Kingston Chamber of Commerce | 3 |
| Chessington EXPO 2022 | Kingston Chamber of Commerce | 3 |

Table 1 lists the most common pages visited by student entrepreneurs when completing the join up tasks. The most popular page was the Membership page on the Kingston Chamber, followed by the membership fee page, and the members area page. This suggests that the navigation path to join is not clear, and users are "getting lost".

The joining information was available on the first page from the Brighton Chamber website and this page was the most popular, followed closely by the Events directory page, suggesting that price and events offering are two key elements which inform the decision to join (see Table 2).

*Table 2. Screenshots of the most popular choices from the home page for the "join up" task.*

| Kingston Chamber | Brighton Chamber |
| --- | --- |
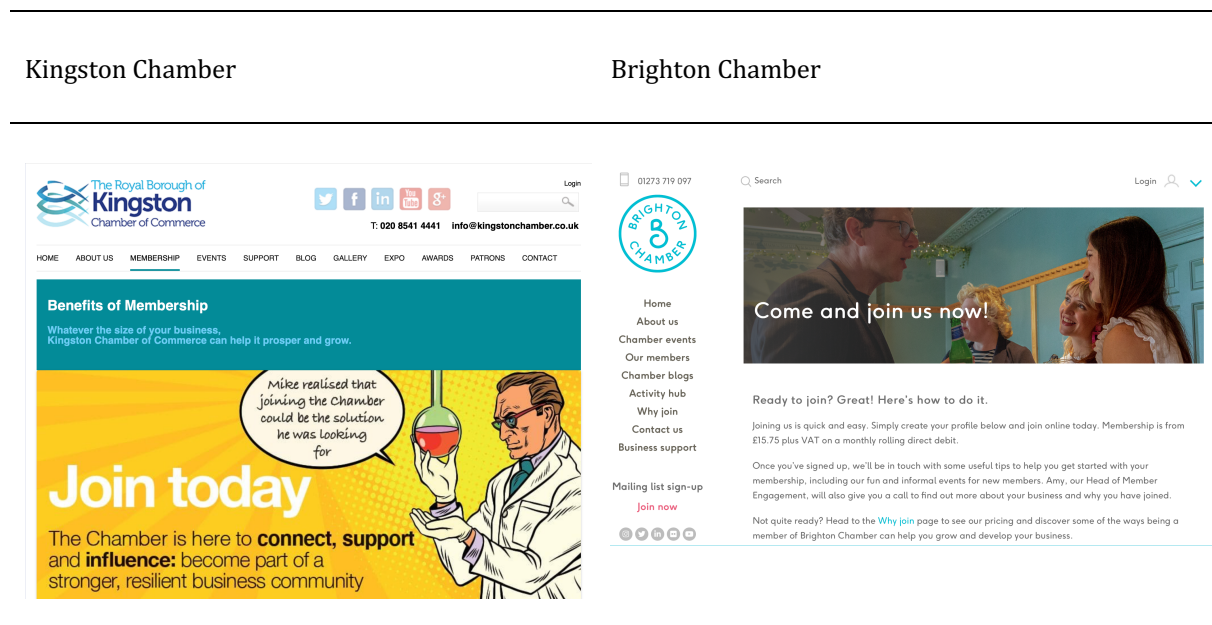


## 3.1.2  Think-aloud interviews

### 3.1.2.1  Kingston Chamber

When looking for information on the membership and on the benefits of joining the Chamber, a usability issue related to the layout came up where some participants commented on feeling that the **information regarding the membership was not easily available as it was not clustered in one page** (Insight 1, part. 12; 18 see screenshot 1):

*"The first website of the Kingston Chamber of Commerce was also good, but the information was not easily available. I had to search through different menus to, you know, just to find out and have an insight into what exactly it is, you know, and how it would benefit me if I spent some money on becoming a member. So, probably if it was all put together in one part rather than split up it would be more easily accessible."*

However, another **user noted that compared to the Brighton Chamber's website** where the information on membership (i.e., benefits of joining, membership fees etc.) was clustered under the 'Why join?' tab, **they found it easier to find information on the membership fees on the Kingston Chamber's website where information on fees was shared on a separate page** categorised under the Membership tab (Insight 2, part. 9):

*On the Kingston one I think they clearly have (…) what's the fee. So, I think they've cleanly categorised this under the membership tab. (…) I would be interested in knowing the fee right, so, that is good. They've put it right on top as a category as a subcategory. (…) In the Brighton they've not done it. So, like you really have to scroll down the whole page (…) I came down to see where the fee is. So, it's now it's down there. So, I would suggest maybe it should be a different, a separate category itself which talks about fees, right."*
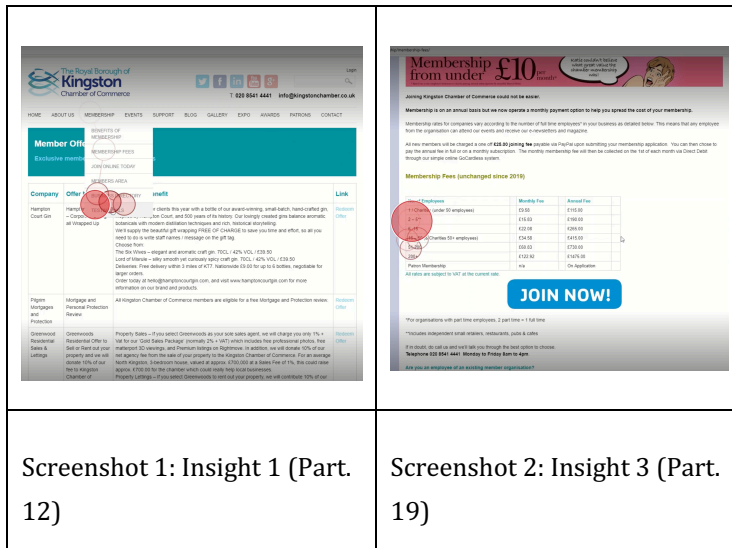
|  |  |
|---|---|
| Screenshot 1: Insight 1 (Part. 12) | Screenshot 2: Insight 3 (Part. 19) |

Another **usability issue was noted when a participant was temporarily confused by the table used to showcase information on membership fees** and by the image (where it is written 'Membership from under £10 per month') used on the webpage (Insight 3, part. 19 see screenshot 2):

"*And then I was just reading about the membership. How much does it cost? And then I was just trying to understand what's happening here because there is a table, but it's not extremely clear. I mean, if you read the table, it is clear eventually, but it's not immediately clear. They have the brackets; I would really have to realise that the bracket is for the charities. And I was wondering why do they have this? The £10 membership thing?*"

Some **participants commented on thinking that the Kingston Chamber's website was old-fashioned with lots of text,** and it reminded them of an e-newspaper (Insight 4, part. 6; 19):

"*I like websites with less unnecessary text. The Kingston Chamber of Commerce have lots of text, right. Looks like a magazine. And it's not a magazine supposed to be a website (…) Just keep it simple and then maybe they can have a resource base where they can decide whatever extra (content) they want (to share).*"

### 3.1.2.2    Brighton Chamber

When looking for information on the membership on the Brighton Chamber's website, participants commented on **thinking that the website was more user-friendly and lighter compared to the Kingston Chamber's website** (Insight 5, Part. 6; 12; 18; 19):

"*Yeah, actually, I felt that the website was quite easy-going, and it was easy to operate the website. (…) this website particularly had a like easy-going vibe.*"

"*The Brighton Chamber. Yeah, so that one I liked more the look and feel of the website.*"

"*I think the Brighton website was more user-friendly. I guess like their design was better.*"

"*Yeah, the Brighton website was lighter.*"

However, some users commented on **finding it unusual that the menu bar and the 'Join now' tab were located on the left side of the screen** (Insight 6, Part. 15; 19 see screenshot 3):

"*You quickly realise that all the actions are on the left. Again, I think you either have to put it at the top, like the Kingston one or somewhere top right. It's more common. (…) the "Join Now', it needs to be somewhere obvious, like not one little button which is at the bottom at the page, at the bottom left. It's very uncommon actually.*"



Screenshot 3: Insight 6 (Part. 19)

Another usability issue related to both the layout and navigating the website was noted when a participant commented on finding it difficult to find information on the membership fees (Insight 7, Part. 9):

"*In the Brighton (…) you really have to scroll down the whole page (…) I came down to see where the fee is. So, it's down there. So, I would suggest maybe it should be a different, a separate category itself which talks about fees, right.*"

## 3.2 Searching for other businesses (existing members)

### 3.2.1 Attention and eye-gaze metrics

The time spent on the home page was longer on the Kingston Chamber's website with lower average fixation durations suggesting users were having difficulties in identifying and deciding where to navigate next compared to the Brighton website.

**Total and average fixation durations**
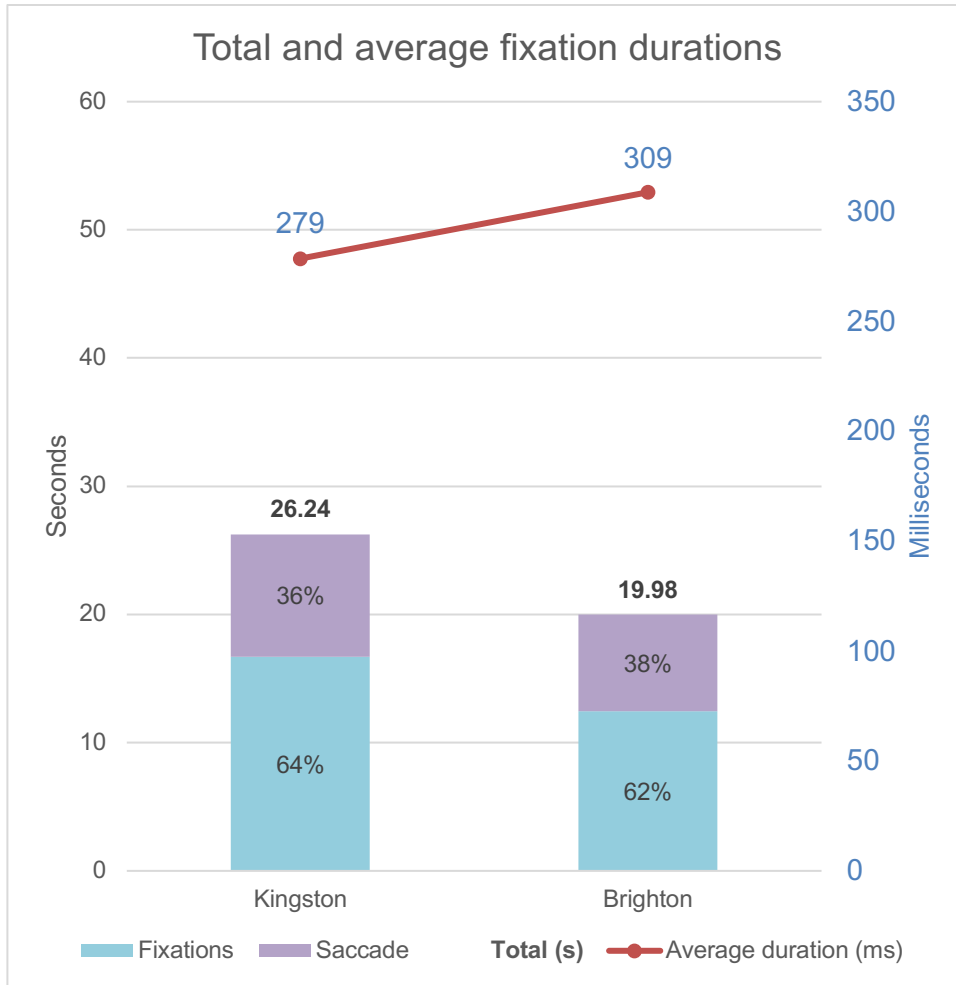


By contrast, the time spent on the home page was shorter on the Brighton website, and featured much smaller total amplitudes, suggesting that users were not scanning the page as much and were quick to identify where to go next to initiate the task.
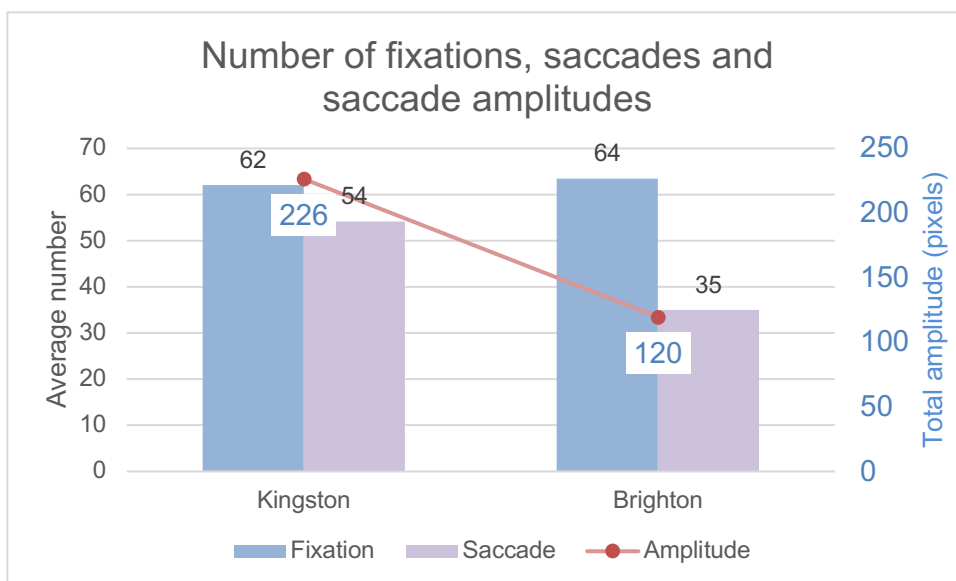
**Number of fixations, saccades and saccade amplitudes**

*Table 3. Most frequent pages visited from the home page in the "HR Support" task.*

| Website | Count |
|---|---|
| **Brighton** | **92** |
| Members Directory - Brighton Chamber | 50 |
| The Blog - Brighton Chamber | 10 |
| Support for businesses in Brighton & Hove \| Brighton Chamber | 7 |
| Quick HR - Brighton Chamber | 4 |
| Events Directory - Brighton Chamber | 4 |
| Sourcing talent | 3 |
| HR Dept Sussex-by-the-Sea - Brighton Chamber | 3 |
| **Kingston** | **67** |
| HR \| Search Results \| Kingston Chamber of Commerce | 10 |
| Marechal HR Consulting \| Kingston Chamber of Commerce | 7 |
| Sandra Porter HR Services Ltd \| Kingston Chamber of Commerce | 7 |
| Directory \| Kingston Chamber of Commerce | 6 |
| Employment law \| Business Law Donut | 6 |
| HR Support \| Search Results \| Kingston Chamber of Commerce | 5 |
| Employment policies overview \| Business Law Donut | 3 |
| How we can help / What we offer \| Kingston Chamber of Commerce | 3 |

The search was more exhaustive on the Brighton Chamber website, with most hits ($n$ = 50) observed on the Members Directory page. By comparison, the Directory only received 6 hits on the Kingston Chamber. This suggests a clear usability difference whereby the Brighton chamber website was a more user-friendly site to use and navigate to complete this task while many users failed to reach or use the members directory on the Kingston Chamber website (see Table 3).

### 3.2.2  Think-aloud interviews

#### 3.2.2.1  Kingston Chamber

One usability issue that arose from the interviews was a **lack of clear navigation** to get to the member directory. One user began by looking for Chamber Supporters they knew worked in HR and clicking on their logo, which took them outside the CoC's website (Insight 8, Part. 1, see Screenshot 4). Next, they clicked on the Members login page from the visual menu area and searched through the navigation menu. It took them 3.5 minutes to find the member's directory because it was not where they expected to find it (Insight 9, Part. 1, see Screenshot 5).

|  |  |  |
|---|---|---|
| Screenshot 4: Insight 8 (Part. 1) | Screenshot 5: Insight 9 (Part. 1) | Screenshot 6: Insight 10 (Part. 1) |
|  |  | |
| Screenshot 7: Insight 11 (Part. 5) | Screenshot 8: Insight 12 (Part. 7) | |

While reviewing their eye gazes, Participant 1 commented on feeling disoriented while trying to find their way back to the member's directory:

> *"I [...] went on in search of other consultants, but I was temporarily confused because I ended up on the member login page. Thinking that I was going to get a members' directory there, but unfortunately that was a member login page, and this is where I was confused, so I thought I needed to... You know the website is quite confusing and [I thought I] needed to log in in order to see members listed on their page. But instead, what's happened is when I logged in using my password, it then took me to my own page, which is completely not what I expected."*.

**Another usability issue related to the layout** was noted where a participant got a pop-up, they believed was irrelevant for their purpose while clicking on the business name, when they presumably expected the name to link to the business's website (Insight 10, Part. 1, see Screenshot 6):

> *"I think the pop up at this stage was a bit annoying. I wish it wasn't there. I think it doesn't really serve much of a purpose at a point in time when I was trying to get to finding a solution to my problem, so I think a pop-up was annoying. At that stage it didn't really serve a purpose and I think what I wanted to do was to go on to find other HR consultants that might perhaps be able to help me."*

**Usability issues arose with the search function of the website**. When searching for HR companies on the website a usability issue related to navigating the website was noted where a participant keyed in 'HR' in the search box located in the top right corner of the Homepage (Insight 11, Part. 5 see Screenshot 7):

*"So, I was looking for HR company. […] I thought I'll do a search HR. And it came all the list, but the list wasn't all HR, it was a mixture. But it did have HR in it. So, I saw the Marechal HR and a sort of other one further down on the right, Sarah Porter. So, I thought, OK, there didn't look to be any other HR. […] So, I again, I sort of having to scan through lots of different businesses that didn't seem to be a HR or anything to do with HR. But there were a couple."*

The same usability issue arose when a user searched for 'HR Support' in the search box located at the top of the Members Directory page (Insight 12, Part. 7 see screenshot 8):

*"I found the search results page difficult to read. Very difficult. It didn't highlight what I was searching for. It just seemed to include a lot of things that were irrelevant."*
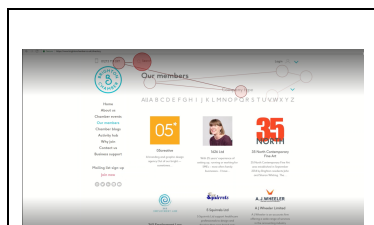
### 3.2.2.2    Brighton Chamber

A usability issue was noted when participants were searching for HR companies that could help with their businesses on the Brighton Chamber's website and **the drop-down menu** where they could choose the company type, they are searching for **kept flicking away** (Insight 13, Part. 3; 4; 8):

*So, this really frustrated me that when you click on that and then try and scroll down it doesn't work. It just keeps flicking away. And as you can see (…) it keeps flicking away, which was really frustrating (…) it's a fault on the website."*

Another usability issue that arose from the interviews was **not having enough contrast between the text and the background** on the website. Some users commented on finding it difficult to see the grey text against the white background and therefore, it took them longer to find the search box or the Index at the top of the Members page (Insight 14, Part. 1; 8 see screenshot 9):

*"I found that the search box is not very prominently displayed so it took me I think a second or two to find the search box."*

*"The Brighton one had the grey index at the top which I should have seen."*



Screenshot 9: Insight 14
(Part. 1)

Some **users commented on preferring the Brighton Chamber's way of representing businesses on their members' page** to the Kingston's one. More specifically, participants reported that **they favoured the visual elements on the webpage** (i.e., colourful logos) to the plain text on the Kingston Chamber's members' page (Insight 15, Part. 1; 4; 7):

*"As I said, the layout here is pretty easy on the eye, so it's quite easy to find members. I think this site is definitely my preferred site for finding members in finding out more about what they do and their services."*

*"I just think this has got a lot more styling to it than just the plain text on the Kingston one. I thought that (…) it gives an opportunity for, umm, the person to have a little bit more flavour to what their business is with regards to, I think imagery and that sort of thing as opposed to just plain words on paper."*

## 3.3  Searching and registering for an event (all members)

### 3.3.1  Attention and eye-gaze metrics

In the last task, users were asked to search for an event. This time, the task was easier to initiate on the Kingston Chamber's website with both existing members and students spending shorter times on the Kingston home page compared to the Brighton home page. Existing members were faster overall, suggesting they were also more familiar with this task.
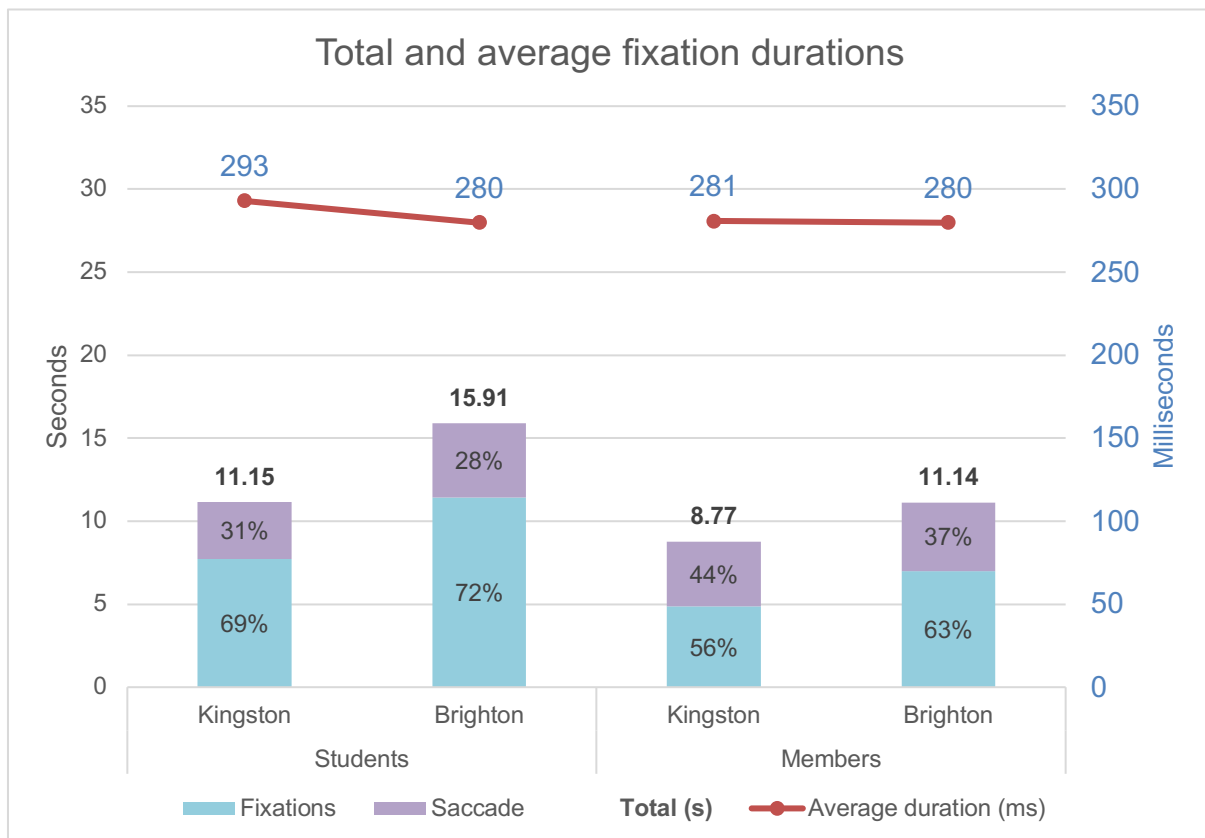
Consistent with these initial observations, the average number of fixations and saccades was lower for the Kingston Chamber website, with shorter amplitudes compared to the Brighton website. These trends were also more pronounced for members, suggesting that expertise may interact with the website usability.
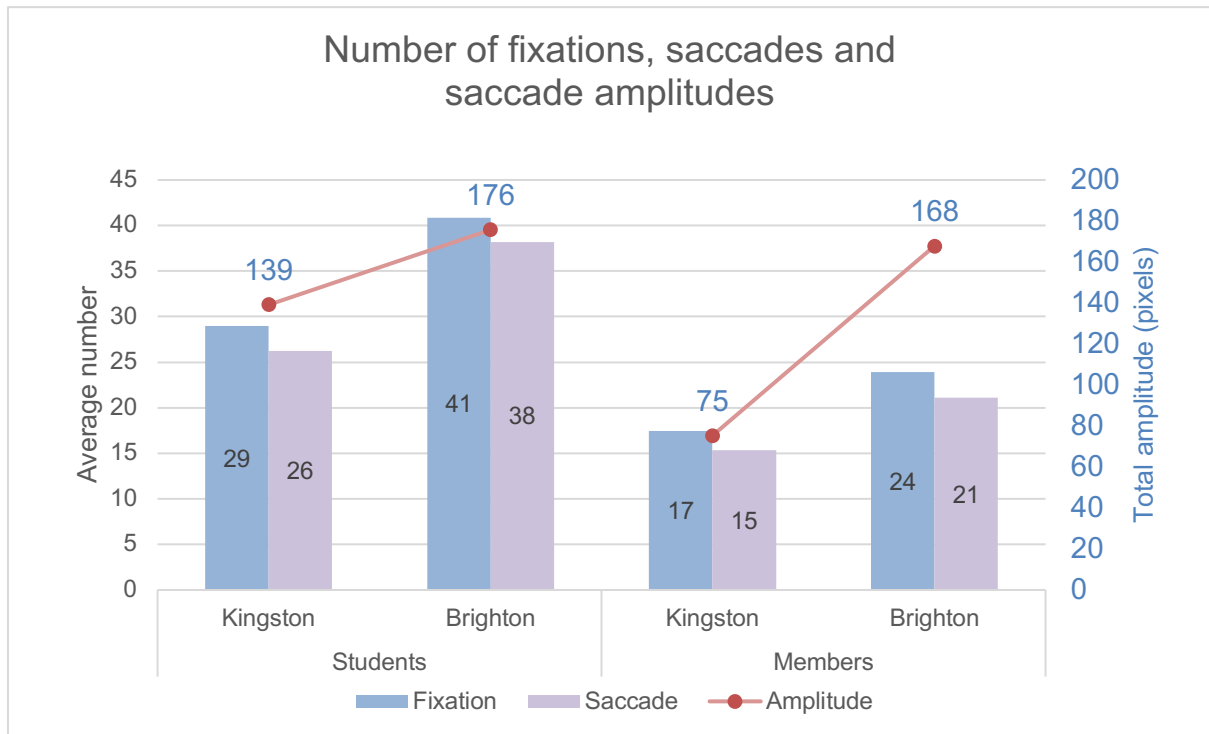


Number of fixations, saccades and saccade amplitudes

*Table 4. Most frequent pages visited from the home page in the "Pick an event" task.*

| Website | Count |
|---|---|
| **Brighton** | **263** |
| Events Directory - Brighton Chamber | 134 |
| Slo-mo Networking: January - Brighton Chamber | 16 |
| Chamber Breakfast January - Brighton Chamber | 13 |
| Activity Hub - Brighton Chamber | 12 |
| Bite-sized Learning: Build social media strategies to cut through the noise | 6 |
| Eventbrite \| Chamber Breakfast January | 6 |
| Eventbrite \| Slo-mo Networking: January | 5 |
| Q&A: How to make neurodivergence work with work - Brighton Chamber | 5 |
| Members Directory - Brighton Chamber | 4 |
| Eventbrite \| Q&A: How to make neurodivergence work with work | 4 |
| The Blog - Brighton Chamber | 4 |
| Eventbrite \| Bite-sized Learning: Build social media strategies to cut through the noise | 3 |
| New Member Welcome - Brighton Chamber | 3 |
| Chamber coworking day: Eagle Labs - Brighton Chamber | 3 |
| 'Lost in the Lanes' Pop-up Breakfast - Brighton Chamber | 3 |
| Brighton and Hove Chamber of Commerce \| Business Networking | |
| **Kingston** | **147** |
| Chamber Networking \| Event Categories \| Kingston Chamber of Commerce | 59 |
| Think Green! \| Kingston Chamber of Commerce | 9 |
| NetWalking \| Kingston Chamber of Commerce | 9 |
| Think Green! Communicating your environmental achievements effectively | 9 |
| NetWalking Tickets, Fri 3 Feb 2023 at 09:00 \| Eventbrite | 6 |
| Kingston Green Business Community \| Kingston Chamber of Commerce | 6 |
| Coffee & Connect, the Wych Elm Kingston Tickets | 6 |
| Coffee & Connect, the Wych Elm Kingston \| Kingston Chamber of Commerce | 5 |
| Chamber Socials \| Kingston Chamber of Commerce | 3 |
| Non-Chamber Events \| Event Categories \| Kingston Chamber of Commerce | 3 |
| Connected Kingston | 3 |

Table 4 shows the most popular event pages visited. In both cases, the event directory was the most frequently visited.

## 3.3.2  Think-aloud interviews

### 3.3.2.1  Kingston Chamber

For existing members, the task of finding an event was easier, and the categorization in event types was **a positive feature of the layout** that facilitated the absorption of information (Insight 16, Part. 1 see screenshot 10):

> *"I think this is a slightly easier task finding events because Chamber does display the events in a pretty user-friendly fashion (…) events are easy to find at this stage and I like the fact that all the events are clustered in the same section, so that's*

*really useful. So, there's chamber events, there's nonmember events, and then there's all events. So, I think that's a very useful way of categorizing."*

However, when it came to registering, the fact that past events were not clearly identifiable as such led to an error loop, signaling **a further layout usability issue** resulting in a failure to absorb this important information (Insight 17, Part. 1; 2 see screenshot 11:

*"…mainly trying to find a form so I can register my interest to attend. I couldn't. I didn't really find it easily except the website, so it's taken to website, but then I was taken back to Kingston Chamber again, very confusing. This is where I started and perhaps, I may have clicked on the wrong form then I realize perhaps that's the former should be filling in, but again going back to the same old page. Don't know where the form is."*

| | | |
|---|---|---|
|  |  |  |
| Screenshot 10: Insight 16(Part. 1) | Screenshot 11: Insight 17 (Part. 1) | Screenshot 12: Insight 18 (Part. 5) |
|  | | |
| Screenshot 13: Insight 21 (Part. 5) | | |

Another usability issue that seemed to come up during the interviews was **having difficulty finding a free event**. This usability issue was related to both navigating the website: not having a filter to search for free events, and the layout of the website: no information on pricing in the event description (Insight 18, Part. 1; 3; 5; 16; 20 see screenshot 12):

*"It wasn't clear what was free and what wasn't. So, I thought, oh, well, I'll go for coffee. Surely, it's not expensive, not gonna be charged for. But then I noticed it was charged for. So, I went back. So again, it was difficult really, it was a bit of trial and error to find out what was free and what wasn't. (…) I knew a little bit about the new modern forum. I knew that it was free actually, but again, if I didn't, I would have checked on it and see and then I would have found out that it was free. But you know, but it wasn't obvious that it was a free event, it comes up with free on the event, but only at booking stage. And there's no way of filtering events to free events or charged for events."*

When looking for a free networking event to book, **usability issues arose regarding the use of an external booking website** (Eventbrite). One user argued that the Chamber should have its own booking system (Insight 19, Part. 4):

*"To be honest, I don't know why they use Eventbrite they should have their own booking system. Eventbrite is slow, clunky and it charges you money. The Chamber should cover that themselves and have a better event booking system than Eventbrite in my view."*

Whereas another participant suggested that users should be notified before being redirected to an external website (Insight 20, Part. 3):

*"Going to an external website is fine. I'm used to it, obviously, I think in general terms you probably should tell people that's what's gonna happen."*

Another usability issue related to the layout was noted when a participant was ready to book an event, however, saw that **the booking information was missing** (Insight 21, Part. 5 see screenshot 13):

*"Chamber Socials (…) maybe that's free. So, I clicked on that and then there was no, no booking information. So, I thought well. What's the point of putting that there? So, you know, if you were looking, you'd be frustrated I think if you clicked on that."*

### 3.3.2.2    Brighton Chamber

Participants commented on liking the feature of **being able to use filters when searching for an event** on the Brighton Chamber's website (Insight 22, Part. 1; 5; 7; 9; 11; 19):

*"Big display of all the events and filters to be able to look at different things."*

*"I like the search at the top where you can search for months, you can search for a year, you can search for locations, whether it's virtual or in-person. You could also search for categories, so that's really useful search."*

Furthermore, another positive feature of the layout was noted when a user commented on finding it useful to see little **icons signaling whether an event is an in-person or virtual event** (Insight 23, Part. 5):

*"I quite liked the way that the Brighton Chamber had a little key where it said in-person or online on screen, that little logo, (they) did have the little boxes. I like that. I thought that was quite good because you know where you are…Perhaps that could be used to donate if it's free or not."*

However, the usability issue of **having difficulty finding a free event** also came up on the Brighton Chamber's website as users were not able to filter for free events or see in the event description whether an event was free or not (Insight 23, Part. 1; 3; 5; 9; 15; 16; 17; 20):

*"I was looking for a drop-down category to see if there was anything there that was free."*

*"Again, trying to find a free event, scanning through the page but don't really see the word free, so I think eventually I had to click on the 'Book now' button. I thought it's a virtual event, so it might be free but again, ended up on the Eventbrite page first, so I think (…) the information should have been displayed on the first page of that event. Tell people how much it is. Rather than have us, you know, click on a third-party site, Eventbrite, to find out if it was free or not."*

# 4   Conclusions and recommendations

## 4.1  Key findings

Tasks generally took longer to complete on the Kingston Chamber of Commerce with users experiencing difficulties in navigating to the relevant information and processing the information available. The users also identified layout issues with distracting pop-ups and irrelevant search results. One notable exception was the navigation to the selection of events, which was a strong feature of the Kingston Chamber's website. Areas for improvement were nevertheless identified for this task as well as users found that some key information was difficult to locate (e.g., whether the event was in the past or the future, or how to book for an event).

The comparator website was perceived as more user-friendly, less text-heavy, more visually pleasing, and easier to navigate although it also suffered from layout (e.g., poor contrast, cumbersome dropdown menu) issues which hindered user interactions. The event portal had strong usability features such as icons to signal whether an event was in-person.

A key aspect discussed both by user groups in relation to both websites tested concerned the need to clearly display membership prices and distinguish fee-paying events from free events.

## 4.2 Potential limitations and recommendations for future development

This study was carried out on a limited sample of users and thus the findings reported may not be representative of all users of the Chamber's website. Moreover, the sample size only allowed a descriptive account of the differences observed and did not provide enough statistical power to allow us to test whether the trends observed were statistically reliable.

Despite these potential limitations, however, we are confident that the convergence of the mixed data analytics used (i.e., eye-tracking metrics as well as retrospective think-aloud protocols) provided a solid ground to inform the future redesign of the Chamber's website.

Key recommendations include:

1. Limit the amount of text displayed on the website. Consider using hyperlinks over words that refer to key themes or topics and make it possible for users to click if they want, they can access more information on those topics.
2. Ensure a horizontal menu bar is visible at the top of the screen.
3. Ensure there is sufficient contrast between the background and text for readability.
4. Include a separate page with information on membership fees and clarify what fee is payable as a function of business category (charity or business).
5. Ensure important access points are easy to find from the menu and include a 'Join now' tab, a member directory and the membership fees page.
6. Ensure the events page clearly distinguishes between past and future events.
7. Use icons to signal whether an event is in-person or online, free, or not.
8. Ensure information about the events' price and booking link are clearly displayed and accessible in the event description.
9. Limit the use of the pop-up(s) and if any, ensure that they only appear when relevant (e.g., to notify users that they are being redirected to an external website).
10. Use an index or filter function to allow users to search member companies based on different criteria on the member directory page.
11. Use filters on the events' page to allow users to easily identify specific or free events.
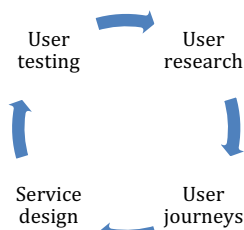


To build upon those initial behavioural insights, additional recommendations include:

- **Conducting user research**: Using secondary data, one could seek to develop a deeper understanding of who the users of the Chamber's website are and what their current stories are (what are they currently doing? Where are they conducting their activities and why?)

- **Mapping user journeys**: Informed by the user research insight, how can the Chamber's website best support its users? What does the Chamber seek to achieve through its website? Register? Join an Event? Make connections? Find information?
- **Conducting user testing**: Based on the intended objectives of the new website, further primary data could be collected using survey questionnaires, eye-tracking and other behavioural analytics to test whether the system functions as planned.

As users and their needs may change and evolves, it may be useful to conceive the website as a tool which can evolve through use, and iterations of the designs informed by user feedback until the system is optimized.

# 5 References

Ball, L. J., & Richardson, B. H. (2022). Eye Movement in User Experience and Human–Computer Interaction Research. In S. Stuart (Ed.), Eye Tracking (pp. 165–183). Springer US. https://doi.org/10.1007/978-1-0716-2391-6_10

Cho, H., Powell, D., Pichon, A., Kuhns, L. M., Garofalo, R., & Schnall, R. (2019). Eye-tracking retrospective think-aloud as a novel approach for a usability evaluation. International Journal of Medical Informatics, 129, 366–373. https://doi.org/10.1016/j.ijmedinf.2019.07.010

 Eger, N., Ball, L., Stevens, R., & Dodd, J. (2007, September 1). Cueing Retrospective Verbal Reports in Usability Testing Through Eye-Movement Replay. Proceedings of HCI 2007 The 21st British HCI Group Annual Conference University of Lancaster, UK. https://doi.org/10.14236/ewic/HCI2007.13

# 6 Appendices

## 6.1 Eye-tracking data

The Metric dataset is available upon request from the authors.

## 6.2 Task instructions

Task 1 (New members): **Finding information about the membership**

Imagine you are interested in finding out more information about whether you would benefit from joining the Chamber. ***Your task is to use the website to gather information to decide whether or not to join the Chamber.***

Task 1 (Existing members): **Finding information for your business**

Imagine you are looking for expertise in HR to help you with an issue arising in your own business. *Your task is to use the Chamber website to find out information about other businesses that would be useful to you.*

Task 2: **Finding out about an event and registering to attend**

Imagine that you would like to find a free networking event that is relevant for your business. *Your task is to use the Chamber website to find out about upcoming events that would be useful to you and register to your chosen event (up to the point of submitting your application).*

# 7 Glossary

| Concept | Definition |
|---|---|
| *Fixation* | Time during which the eyes stop scanning and hold our field vision in one place allowing the acquisition of visual information. |
| *Saccades* | Saccades are the type of eye movement used to move the fovea rapidly from one point to another. |
| *Fixation duration* | Fixation durations can be defined as the periods of time where the eyes are relatively still, holding the central foveal vision in place so that the visual system can take in detailed information about what is being looked at. Longer durations may be interpreted as deeper or more effortful (less superficial, less easy) information acquisition. Fixations typically last between 50 and 600 ms. |
| *Fixation count* | Number of times the eyes spent focusing on one given place of the field of vision. Higher numbers of fixations may be interpreted as higher level of interest or engagement if they are associated with longer fixation durations. Conversely, higher numbers of fixations associated with shorter fixation durations may indicate higher degrees of superficial exploration. |
| *Number of saccades* | Number of times the eyes moved the fovea from one point to another. |
| *Total saccade amplitude* | Total distance in pixels between the centroid of the fixation that precedes the saccade to the centroid of the fixation that follows the saccade. |

# 8  Acknowledgments