What Makes People Click

By

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Contents

Chapter One

Introduction

Understanding user behaviour and click patterns is important when designing interfaces with options that users can click on. It's important to have a deep understanding of user preferences and expectations as every click matters. Users evaluate what is clickable based on their prior knowledge of the web and the world, so it's essential to make sure clickable items are easy to identify. As Jacob Nielsen puts it,

> **Life is too short to click on things you don't understand.**
> **(Experience, n.d.)**

Users rely on visual cues such as shapes, colours, and context to attribute meaning and guide their interactions. Visual cues that align with users' expectations help them identify items that can be clicked quickly. Traditionally, blue text has been used for hyperlinks, and rectangular buttons indicate clickability. These conventions have provided strong affordances for clicking in the past. However, contemporary users encounter hyperlinks and buttons with diverse appearances, which means that signifiers may evolve as users get used to new interaction cues and learn to recognize them. It's essential to understand how individuals perceive and make decisions when faced with multiple clickable options within a cohesive design component.

In this research, we aim to investigate user click events involving three types of call-to-action (CTA): text, button, and image. Each CTA will be presented in two different locations: at the top and the bottom of the interface. The study seeks to observe user preferences regarding clicking on these call-to-action elements and whether the position of the CTA has any significant effect on user clicking behaviour.

In this study, we aimed to answer two research questions:

RQ1 - Which call-to-action option is preferred by the user or receives the most clicks?

RQ2 - Does the placement of the call-to-action affect user preference?

To address these questions, we conducted a study which addressed RQ1 and RQ2 mentioned in See Chapter 3. It compares the preference for the call to action and call to action against different positions, using the position as an overall metric.

Chapter Two

Indicative Literature

2.1 Background

The placement and design of Call-to-Action (CTA) buttons on a webpage is a significant aspect of User Experience (UX) design. It helps in directing user engagement and decision-making. Several studies have proven that the positioning of CTAs can significantly affect user behaviour and their actions (Experience, n.d.).

Online platforms such as e-commerce, online advertising, and news/blog systems benefit from predicting click-through rates (CTR). This allows them to estimate how likely a user is to click on a specific item in a given context. During six months on Taobao, it has been observed that over 1000 actions were performed by 23% of the users (Qin et al., 2020). Observing user click behaviour is important in predicting click-through rates, especially when it comes to visual and position aspects of calls to action. It is important to pay attention to these factors to accurately predict user behaviour.

2.2 Factors impacting user click

When individuals are faced with multiple clickable options within a unified design component, their decision-making processes can vary based on factors such as personal preferences, cognitive load, and the overall user experience. Lu. H has pointed out that while personal preference may have some influence on click behaviour, there are several other factors that are equally important. The factors that determine click behaviour include the position of the content on the page, the level of trust that the user has in the source of the content, and the way in which the content is presented to the user (Lu, Zhang, and Ma, 2018).

Another factor that affects clicks is the user's past mental models. when people browse your website, they bring with them certain expectations and assumptions based on their prior experiences with other sites. As a result, it's crucial to use recognizable labels and layouts that align with their existing mental models of website navigation (Burnett, 2014). According to (Li, Tang, and Zhao, 2023) study, correlation analysis demonstrates a significant and positive relationship between click behaviour and the level of interest that a user has in a particular topic, situation, or individual. This suggests that users who are interested in a specific topic or situation are more likely to engage in click behaviour related to that topic or situation.

2.3 Choice of call to action type

A call to action (CTA) is a prompt that encourages visitors, leads, and customers to take action. Essentially, it is a request to engage further with a brand. A CTA usually appears as a specific area of a webpage, such as an image, a button, or a designated section of the digital content, that motivates the reader to click through. Its primary purpose is to drive viewers to take action and produce some kind of immediate, quantifiable outcome. A CTA

can also ask for more information about a product or service, and this approach identifies visitors as having an interest in or need for what the advertisers are offering. (Chen, Yeh, and Chang, 2018)

Jakob Nielsen's guideline discusses the appropriate usage of images on websites. In his article titled "Photos as Web Content," Nielsen reveals that our eye-tracking studies have shown a significant difference in how users interact with website images. Large decorative images that evoke positive emotions are often ignored, while images of real people and products (not stock photos of models) are generally considered important content and examined closely (Nielsen, 2010).

Our focus is to investigate people's preference for call-to-action buttons while browsing the web. We aim to understand if there is any particular type of call-to-action that people click more often and whether the position of the button has any influence on its clickability.

Chapter Three

Methodology

3.1 Experiment Design

Figure 3.1: Interface showing all the blog card designs with the call to action and position

3.1.1 Task

The task design involved the creation of a user interface displaying six blog cards, each featuring three different call-to-action (CTA) elements. These CTAs included text, buttons, and images, and were positioned in two different locations within each blog card top and bottom (see figure 3.1).

The participants were given instructions to interact with each blog card interface and perform the same task across all variations. Their task was to explore the different blogs presented on the interface. It is important to note that the order in which participants encountered the interfaces was randomized to minimize any potential order effects using a balanced Latin square. (See Table 3.2).

Balanced Latin Square Generator

Number of conditions / Square size: 6

	1	2	3	4	5	6
1	A	B	F	C	E	D
2	B	C	A	D	F	E
3	C	D	B	E	A	F
4	D	E	C	F	B	A
5	E	F	D	A	C	B
6	F	A	E	B	D	C

Figure 3.2: Balance Latin square used to generate order of the test to reduce order effect

3.1.2 Equipment

The interface and prototype were designed using Figma. The Figma prototype was used as the platform for conducting the tests. The testing sessions were recorded by using a snipping tool which captured the screen activity as participants engaged with the interface.

All participants maintained a consistent sitting position throughout the experiment,

as shown in the figure. We used ASUS VIVO Book Pro 15 laptops for the study, each featuring a screen resolution of 1920x1080 pixels.

3.1.3 Interface Design

To examine user click patterns, we designed an interface comprising six distinct blog cards, each featuring four UI elements: an image, a heading, a paragraph, and a button. The appearance of these elements remained consistent across all cards to ensure uniformity. However, the content of each card varied to mitigate potential biases. Upon clicking on any blog card, participants were directed to an intermediate page providing additional context about the study.

A total of 216 interfaces were designed (6 sets of unique blog pages X 6 Blog cards in each interface X 6 intermediate pages for each blog card) (see figure 3.3).

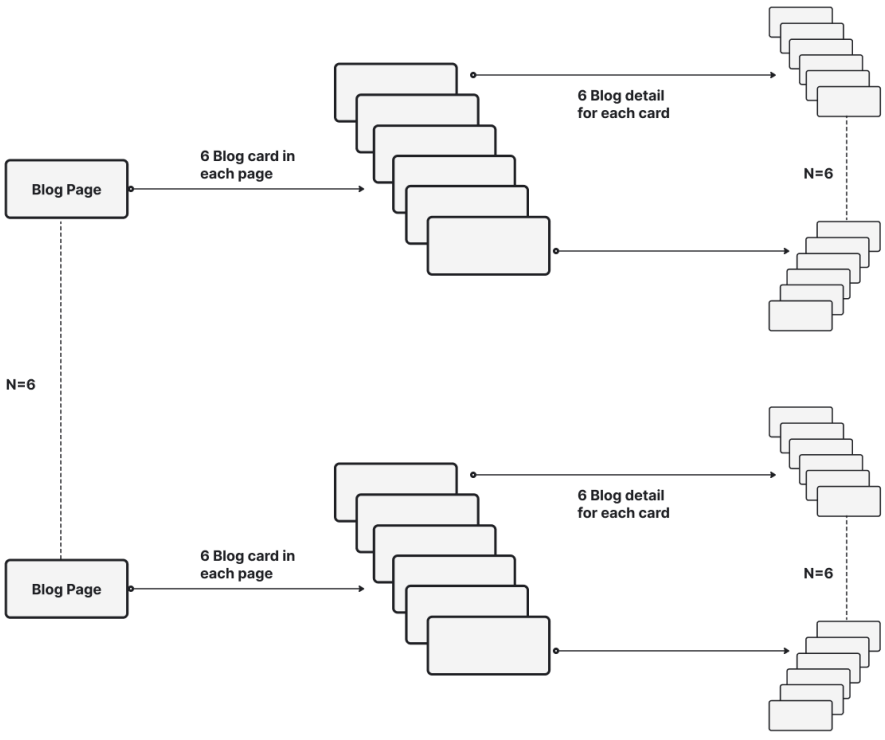

Figure 3.3: Test design: Structure of how the interface was designed for six different sets.

3.2 User Study

3.2.1 Environment

The experiment was conducted in April 2024 within a controlled environment to ensure consistent testing conditions. Despite the presence of external lighting, measures were taken to minimize its impact on the participants' screens, thus preventing any reflections or glare that could potentially affect the test results. (see figure 3.4).

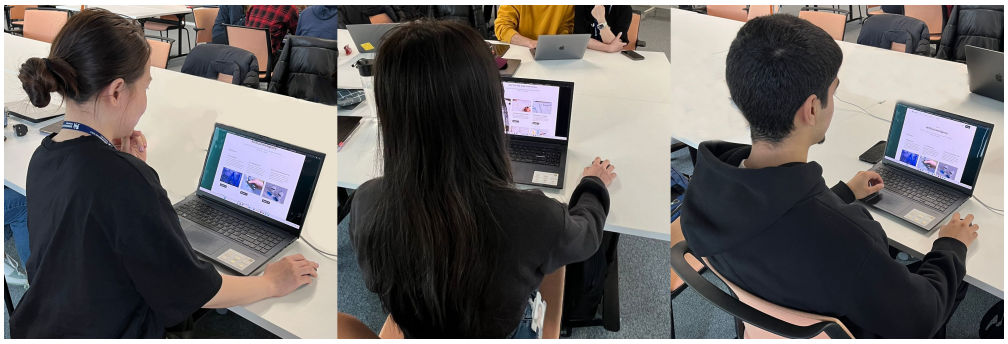

Figure 3.4: Test setup

3.2.2 Participants

A total of 12 individuals, consisting of 6 males and 6 females, participated in this study. All participants were selected from a university population aged between 20 and 40 years old (M=26.83, SD=3.82). The sample consisted of both students and staff members. Before the study, all 12 participants were asked to self-evaluate their level of experience with Figma, a design software, and they all reported being experienced with it. All 12 participants completed all 6 conditions of the experiment and signed a standard consent form before the study. To ensure that none of the participants had colour blindness, an Ishihara test was conducted, and one participant was excluded from the study after being identified as having colour blindness. Participants did not receive any compensation for their participation.

3.3 Protocol

3.3.1 Training

To ensure that participants had a good understanding of the interface, they received initial training before starting the user study. The training included both a theoretical step-by-step guide and a demonstration of the interface. This was done to familiarize them with the different elements of the interface and how to navigate it.

The training task was designed to be representative of the tasks in the user study. Participants were asked to explore different blog pages and define the purpose of the intermediate page, also known as the blog detail page. This was done to provide more context about the task and to ensure that participants understood the purpose of the different elements of the interface. This was done using the same device (ASUS VivoBook Pro 15 laptop) that was used to perform the test

3.3.2 Test

In the study, a total of 12 participants took part and underwent six different conditions. The participants were split into two groups, each containing six individuals. To prevent any potential order bias, a balanced Latin square was used to randomize the six blog pages for each condition (see figure 3.2). The starting point for both groups was standardized, and each set was repeated twice. This resulted in two people performing the same test (see figure 3.5). All participants interacted with a call-to-action (CTA) present on a blog card in each interface, at two positions once at the top of the blog card and once at the bottom. When the user clicks on the CTA, an intermediate page would appear, providing more context about the test and reducing learning biases. Each participant completed a total of 12 clicks, with 6 clicks for each position and 6 for intermediate pages.

The participants were seated in front of a table, equipped with a laptop and a mouse. The test coordinator then placed the devices in front of each participant, opened the prototype in Figma, informed them when they could start interacting with the interface and instructed them that all elements on the page were clickable so they could click anywhere and this could be done using either a mouse or track-pad.

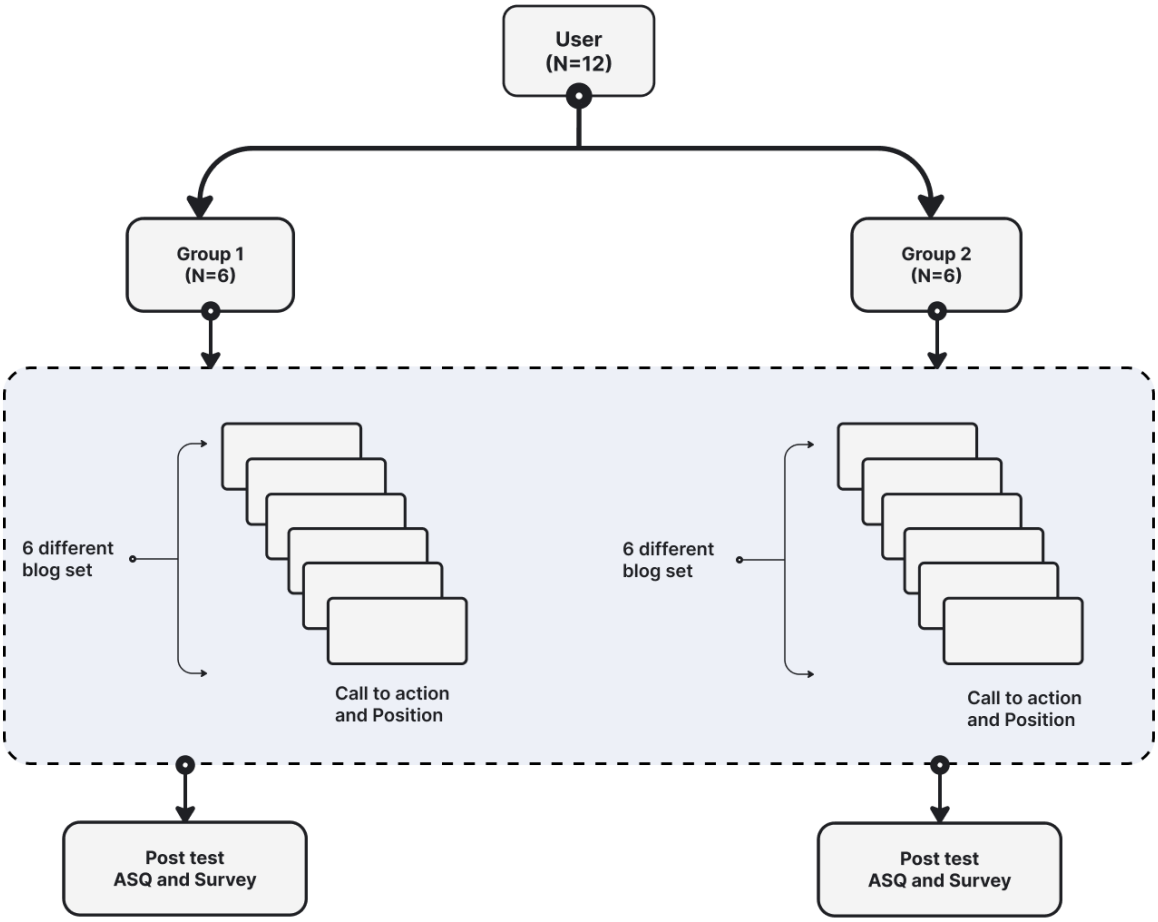

Figure 3.5: Test Design

3.4 Test Performed

During the experiment, a total of 432 clicks were recorded across all participants (12 participants x 2 conditions x 3 objects x 6 repetitions). The screen recording software, specifically the Snipping Tool, was utilized to capture user interactions with the interface. A designated facilitator was present throughout the experiment to provide assistance to users as needed.

The recorded clicks were analyzed based on two metrics: Element type and Element position. At the beginning of the experiment, participants were instructed to explore the blogs and informed that all elements on the page were clickable. An explanation of the purpose of the intermediate page was also provided. All clicks were categorized based on the element clicked and its position on the interface.

After completing the task, participants were requested to complete an After Scenario Questionnaire (ASQ) and a survey to clarify their decision-making processes when clicking on elements. This additional feedback gathering allowed for a deeper understanding of participants' motivations and behaviours during the task.

All user clicks were analyzed and labelled. The click type was categorized into two main groups: clicking the same element repeatedly and changing their click strategy as they progressed in the task. Each category was further divided based on the click position, either at the top or bottom of the card.

3.5 Hypothesis

Based on the findings outlined in the literature review provided in this paper, and considering the observed variations in clicking behaviour on call-to-action elements, we hypothesize the following:

Visual elements, particularly buttons and images, are more effective in prompting clicks as compared to text-based elements within the interface. Additionally, we propose that the position of these elements within the interface have minimal impact on the user's clicking behaviour.

H0: All elements are equally effective in prompting clicks.
H1: Visual elements, particularly buttons and images, are more effective in prompting clicks as compared to text-based elements within the interface.

H0: The position of the call to action within the interface has no impact on the user's clicking behaviour.
H1: The position of the call to action within the interface has minimal impact on the user's clicking behaviour.

Chapter Four

Result

4.1 Statistical Analysis

A statistical normality test, the Shapiro-Wilk test was conducted using the SPSS software to determine whether the data follows a normal distribution. The W statistic, which is a useful test for checking if a complete sample is normal, was used in the analysis. This test is also effective for small samples ($n < 20$) and is sensitive to a wide range of alternatives (SHAPIRO and WILK, 1965).

4.1.1 Normality test for Call-to-Action

Based on the results presented in Table 4.1, it is clear that the data is not normally distributed for buttons and images, but it is for headings. The significance for the button and image is less than 0.05, whereas it is greater than 0.05 for the heading. To test the statistical significance of the data, a non-parametric Mann-Whitney-U test was conducted at a 5% alpha level.

Call To Action			
	Normal	Accept H0	.Sig
Button	no	no	<.001
Image	no	no	.034
Heading	yes	yes	0.514

Table 4.1: Normality test for Call-to-Action using Shapiro-Wilk

4.1.2 Normality test for position against Call-to-Action

Based on the results presented in Table 4.2, it is clear that the data is not normally distributed for both positions (top and bottom). The significance for both Positions <0.05. To test the statistical significance of the data, a non-parametric Mann-Whitney-U test was conducted at a 5% alpha level.

Position against Call To Action			
	Normal	Accept H0	.Sig
Top	no	no	<.001
Bottom	no	no	<.001

Table 4.2: Normality test for Position against Call To Action using Shapiro-Wilk

4.2 Overall Findings

A total of 432 clicks were collected, labelled and analysed for this experiment. A visual example of the user interface (UI) elements is presented in (see figure 3.1).

4.2.1 Overall findings for Call-to-Action

After analyzing all call-to-action elements (buttons, images, and headings), we found no significant differences **(P>0.05)** in their effectiveness to prompt clicks (see table). Thus, we accept our null hypothesis that all elements are equally effective.

Effectiveness of Call To Action to prompt clicks		
Button X Image	U=529.5, Z Score= -0.033, p=0.974*	accept h0
Button X heading	U=87.5, Z Score= -.921, p=0.375*	accept h0
Image X Button	U=529.5, Z Score= -0.033, p=0.974*	accept h0
Image X Heading	U=62.5, Z Score= -0.989, p =0.322*	accept h0
Heading X Button	U=87.5, Z Score= -.921, p=0.375*	accept h0
Heading X Image	U=62.5, Z Score = -0.989, p =0.322*	accept h0

Table 4.3: Comparison of each element using Mann-Whitney-U test

When we compare the mean value of all three calls to action (see figure 4.1), we can see that the image (Mean = 3.571) and button (Mean = 3.553) have a slightly higher value than the heading (Mean = 2.833). This means that people tend to click on more visually prominent calls to action, such as images and buttons, over the heading.

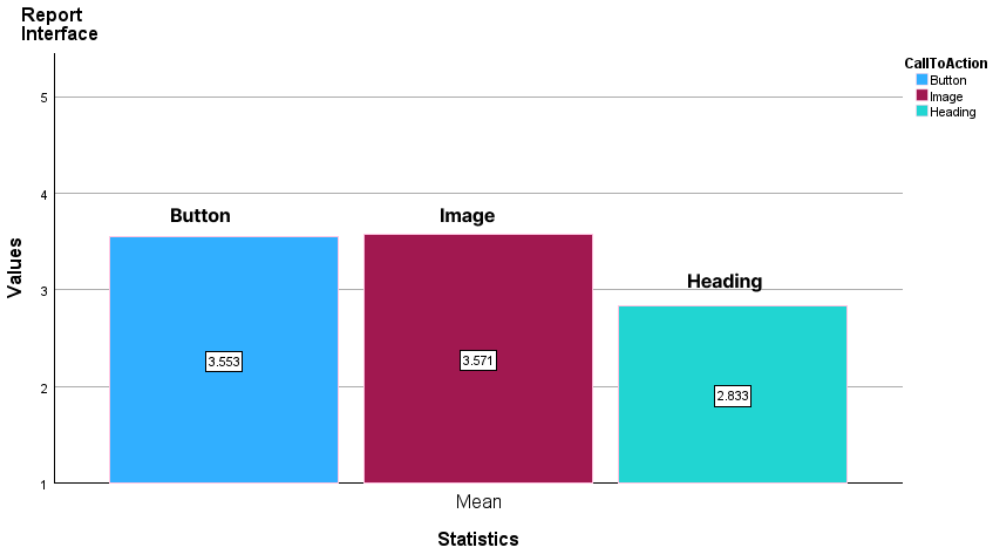

Figure 4.1: Mean Value of Call to Actions

4.2.2 Overall findings for position against the Call-to-Action

After comparing the overall positions with the call-to-action, we analyzed if the position has any impact on the user's clicking behaviour. However, we found no significant statistical differences (U=598.5, Z score = -.620, p=0.535*) in both positions. Therefore, we accept the null hypothesis, which is that the position of these elements within the interface does not affect the user's clicking behaviour.

When we compare the mean values of positions top and bottom (refer to Figure 4.2), we can see that there is no noticeable difference between the top (Mean = 1.514) and the bottom (Mean = 1.595). This indicates that the position of the call to action button does not significantly affect the probability of it being clicked.

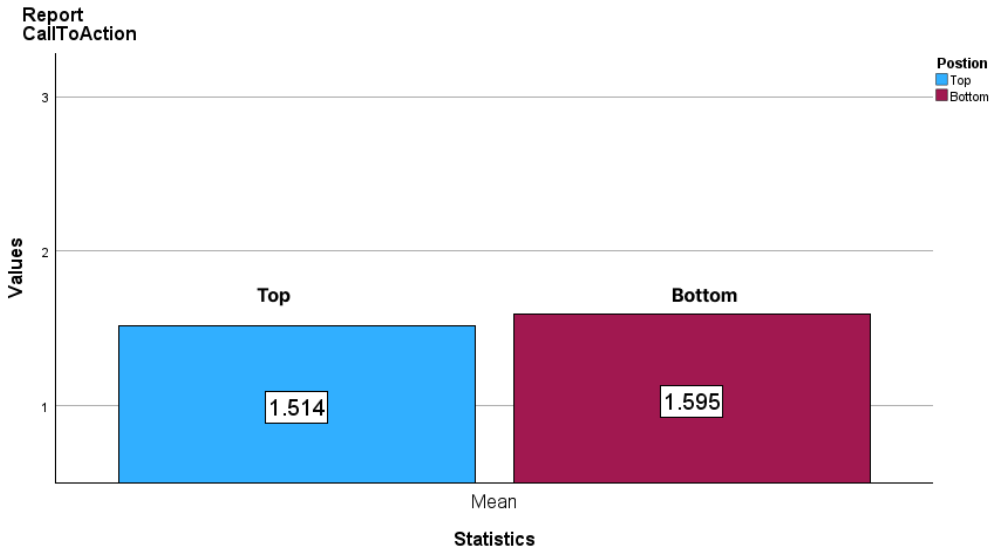

Figure 4.2: Mean Value of Positions

4.3 Individual interface element findings

To gain a deeper understanding of the impact of position on user clicking behaviour. We are examining different position types for each call to action to determine if the placement of the object, such as a button or an image, has any significant effect on the likelihood of it being clicked. Our objective is to explore the effectiveness of different position types and their influence on user behaviour.

After analyzing the data, we found that there was no statistically significant difference (P>0.05) when comparing position against button and image (Z = -.779, p=0.436*). Similarly, when comparing position against button and heading (Z = -.119, p=0.906*), no significant difference (P>0.05) was found. Additionally, when comparing the position against the image and heading (Z = -.315, p=0.753*), no statistical difference (P>0.05) was found.

Our findings suggest that the position of an object not be a significant factor in

determining user clicking behaviour.

4.4 Qualitative analysis

We conducted an after-test survey to gather feedback on user experience, preferences, and an exploratory factor. We used the ASQ, which is highly reliable and sensitive, and has concurrent validity as it correlates significantly with task measures of usability such as success rate. The average score on each question was Q1: 6.50, Q2: 6.50, and Q3: 6.50. this illustrates that the overall task usability was above average.

After completing the test, we conducted a post-test survey to gather insights from users about their experience and thought processes while taking the test. The survey consists of 12 questions that aim to delve deeper into the user's overall impression of the test. Additionally, we seek to understand the user's personal reasoning for choosing specific calls to action while performing the test and what factors influence their click decision. This helps us gain a better understanding of how users interact with different elements on a web page and what their preferences are.

On average, participants showed a preference for clicking on the button first, followed by the image, and then the heading.

user Quote ***"Used the buttons throughout. I knew I could have clicked the header or image but chose to continue to do what I learnt"***
However, some variations were observed, with a few participants indicating a different order of preference or explaining their decision-making process based on the perceived intractability of the elements. Overall, the majority of responses followed a pattern of clicking the button before the image and heading. When it comes to the visual appearance of the call to action. visual images are the most compelling factor for **66.7%** of people when it comes to calls-to-

action. In contrast, only **50%** of participants preferred clicking on a button, while **8.3%** found headings to be effective. However, **50%** of the users said that the position of the call to action did not influence their clicking behaviour.

Chapter Five

5.1 Discussion and conclusion

Based on the results of our analysis, we have concluded that there is no statistically significant difference in the effectiveness of all the elements in prompting user clicks. Additionally, we have found that the position of the call to action within the interface does not have any significant impact on the user's clicking behaviour. Therefore, we can accept the null hypothesis in both cases. We show that several factors can influence people's tendency to click on a call-to-action. One of these is their prior mental learning, which shapes their perspectives and behaviours towards clicking on an element. Based on the feedback we gathered during our user testing, it was observed that the participants tended to rely heavily on clicking the primary navigation button to navigate through the interface. Even though they were aware that they could use other elements such as images and headings to move around, their primary preference remained the navigation button. **user Quote *"Used the buttons throughout. I knew I could have clicked the header or image but chose to continue to do what I learnt"***

Additionally, people's content preferences can have a notable impact on their decision to engage with a call to action. It is worth noting that people's preferences may change over time, particularly after the initial clicks (Lu, Zhang, and Ma, 2018). Based on our data analysis, there is a smaller difference in the mean values between clicking on buttons (Mean

= 3.553)) and images (Mean = 3.571) compared to clicking on headings (Mean = 2.833) (see figure 4.1). Our research also indicates that visual cues such as images and buttons tend to have a slightly greater influence on user click choice, whereas headings have less impact. This is because images tend to be more visually prominent and require more attention, making them more likely to be clicked by users than headings. Users tend to prefer clicking on images and buttons almost equally, and if they change their preference during the test, the Image becomes their second choice after the button. Based on our qualitative data, it has been evidenced that users prefer clicking patterns to clicking on buttons first than images and headings, respectively, in that order.

According to previous research, the placement of a call-to-action button can significantly impact the behaviour and actions of users (Experience, n.d.). However, our findings contradict this notion. Our research shows that the placement of the call-to-action button does not have a significant effect on user preference. Specifically, our data indicates that both the top position (Mean = 1.514) and bottom position (Mean = 1.595) have similar mean values (as shown in the figure 4.2). We conclude that users who have already learned the location of the call-to-action button or have a pre-existing mental model of it are not affected by the placement of the button and are likely to click on it regardless of its location. In our survey conducted after task completion, half of the users reported that the position of the call to action did not impact their clicking behaviour. Additionally, upon analyzing the position of each call to action, we found no statistical difference between their effectiveness. Therefore, there seems to be no specific preference for any particular call-to-action position.

5.2 Future work

In order to gain a comprehensive understanding of the factors that influence user call-to-action preferences and behaviours, and to determine whether the position of a call-to-action

has an impact, future research should take into account the context and environment in which the call-to-action is presented. This can be achieved by testing call-to-action placements in different interface designs, which will provide valuable insights for further analysis and help identify the key factors that affect user behaviour.

Additionally, in the future it would be helpful to explore how our findings could be utilized to analyze user preferences and investigate the impact of varying positions on user decision-making when clicking.

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